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CONFLICTS BETWEEN HIGH LEVEL ACADEMIC SUCCESS AND CREATIVITY

Prof. Joan Freeman

Abstract

Conflicts between the focussed discipline essential for academic excellence and the flexible approach essential for high level creativity are most likely to affect the gifted and talented. Each of those psychological styles is influenced by personality traits such as courage to strike out creatively, while conformity offers a retreat into the comfort of social approval. Freeman's in-depth 35-year study has shown how extremely successful school achievers can become inhibited in creative thought because of pressure to conform. The dilemma for teachers is how to enable their intellectually gifted pupils to achieve top grades, notably in examinations, while at the same time encouraging them to take an open creative approach to their learning. An environment in which the gifted and talented individual can prosper must be developmentally balanced in both knowledge and emotion to experiment and make mistakes, and leisure time to develop good social relationships and interests outside study areas.

Joan Freeman, PhD, is a Chartered Psychologist and Professor at Middlesex University, London, UK. She is Founding President of the European Council for High Ability (ECHA), and was Editor-in-Chief of *High Ability Studies*. Her hundreds of publications on the development of gifts and talents are based on her research and work with children, for which the British Psychological Society has honoured her with a Fellowship and a Lifetime Achievement Award, as well as a Lifetime Achievement Award from International Mensa. See www.joanfreeman.com The Freeman Follow-up Study has been generously supported by the Calouste Gulbenkian Foundation, UK, and the Esmée Fairbairn Foundation, UK.

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GIFTS AND TALENTS

I can do no better than quote the elegant description by Subotnik, Olszewski-Kubilius & Worrell, (2011): "Giftedness is the manifestation of performance that is clearly at the upper end of the distribution in a talent domain even relative to other high-functioning individuals in that domain. Further, giftedness can be viewed as developmental in that in the beginning stages, potential is the key variable; in later stages, achievement is the measure of giftedness; and in fully developed talents, eminence is the basis on which this label is granted."

The gifted and talented are most affected by the widespread conflict between creativity and conformity because they are able to work at extraordinarily high levels. The different though overlapping approaches of creativity and conformity not only involve intellectual potential but also personality, emotion and the social environment.

The term gifted is always a social construct as well as a comparison. Almost all follow-up studies of gifted children have been carried out on those selected by extremely high scores on IQ or other attainment tests; they

demonstrate recognisable giftedness acceptable within a (usually western) society at that time (Freeman, 2005). Subotnik, Kassan, Summers & Wasser (1993) showed that giftedness may take many different forms, appear in quite unexpected situations and at different points during a lifetime. Those authors and I are in accord that it is not always possible to identify future gifts, which means that theories and educational programmes designed for children who are precocious in conventional school subjects may miss those whose gifts do not fit and so disappoint their teachers and parents with their school performances. Entrepreneurs are particularly notable for dropping out of formal education, such as Richard Branson who left school at 15 and founded the airline, Virgin, and Bill Gates, the founder of Microsoft, who quit university mid course.

Although every study of the gifted and talented produces interesting outcomes, the bases of scientific research are too frequently missing which inhibits generalisation from the data (Freeman, 1998). To know who the gifted are and how they develop and function in society, it is necessary for research on their development to be as scientific as in any other discipline. Yet investigating giftedness presents two particular problems - the selection of subjects and the lack of matched comparisons, for without careful comparison they are not representative of anyone other than themselves. The most difficult measurement of all is that of the quality of giftedness which many have seen without attempting to put it into numbers (Freeman, 2012).

Samples are usually very small, such as the unscientific sample of 9 students aged 17-23 collected by "internet searches and word of mouth" (Mudrak & Zabrodska, 2015). Each was interviewed in an office with minimal reference to environmental influences. Online samples can be very much bigger, such as the 1,500 academically successful students who said that family support was important to them, (Olszewski-Kubilius, Lee & Thomson, 2014).

The general population does not provide a satisfactory comparison because it is not focussed on the area of investigation. Yet it is commonly used. For example, after a gap of about four decades remembered information was collected on the lives of 1,037 males and 613 females identified at 13 as in the top 1% of mathematical reasoning (Lubinski, Benbow & Kell, 2014). Unsurprisingly, they had achieved far more highly than the general population, notably the men. How might those youngsters have compared with *equally able children* who had not had that boost of identification and special educational attention?

This was also true in the famous Terman studies in California, which in 1925 selected 856 boy and 672 girl "geniuses" of IQ 130+, eventually producing more than 4000 variables (Holahan & Sears, 1995). Even for those days, there were considerable flaws in the sampling, notably "no private, parochial (religious) or Chinese schools" (P.11) were included. The subjects, aged between 2 and 22, were almost entirely the progeny of white university staff along with "occasional recruiting from his colleague's families" (p. 13), collected over a period of 7 years. As early as 1928, a quarter of the original sample had simply been replaced. Further replacement continued for most of the years of research, so that in fact the sample was neither longitudinal nor valid. But it was, of course, interesting and seminal.

Here, I am presenting concerns and evidence affecting the gifted with regard to creative endeavour, showing how too often it is squeezed out of the children's development in the name of education to be replaced by the dull conformity of memorising. Creativity has been very much more examined and written about in academic research and literature than conformity. But then, creativity is inherently more interesting.

CREATIVITY

Most psychologists agree that creative work is neither a 'miraculous' gift of the gods, nor the result of exceptional mental processes. Instead, it is seen as novel outcome of very high level knowledge and intellectual skills usually inspired by curiosity. As Einstein famously said, "Creativity is intelligence having fun." If it could be bottled, we would have done it long ago.

The ability, initiative and courage needed to recognise and take up fleeting opportunity is extremely influential in creativity - as true for scientific discovery as producing art. Yet it is more than difficult to predict and take account of chance in daily life. Marie Curie, for example, had the chance to discover radium,

and Chain and Flory discovered the healing properties of penicillin when they came across and reworked a forgotten paper by Alexander Fleming. Such creative scientists, were not only well primed with hard specialist knowledge, but whether alone or with colleagues they worked in fertile conditions.

Some have called creativity a 'style' of thinking, a personal way of using intelligence (Pashler, McDaniel, Rohrer & Bjork, 2008). It seems to demand a feeling of discontent with the way things are – the grain of sand under the oyster's shell that forms the pearl. Autobiographies of highly creative people show that even from infancy, dissatisfaction is usually at the root of their ideas (Meyers, 2005). It has been called the Janus state after the Greek god who at the same moment could see the future and the past, which also implies some duplicity.

Aesthetic ability is probably universal in normal children from birth. It begins with pattern recognition - the extraction of figure from ground - such as the theme in music (N. Freeman, 1995). But young children have frustrating 'production problems' and may give up. It is not only in the development of perceptual skills, but in physical size such as having hands too small to span an octave so they can hear that the sound is not quite right. A child may know what they want to produce, but have not yet learned the advanced skills and expertise needed to produce it. It can be distressing for the highly talented, who need extra emotional support while they are struggling.

Zoltán Kodály, the Hungarian composer, believed that everyone is born with musical ability, and, using his techniques based on folk songs, all Hungarian children are taught to sing to a high level. It will be interesting to see the results of the 2014 Hungarian government's decision to add chess to every primary school's curriculum (Polgar, 2014). Playing the violin with Suzuki's method has now spread around the world, and yet it was not thought possible to teach young children to play such a 'difficult' instrument before then. When inspired, creative people like Suzuki truly believe that it is possible to be creative, whether for themselves or for children, it goes a long way to making that belief come true.

Feelings are crucial in creative work. They are part of *selecting* knowledge as well as being a form of knowledge. Feelings are a way of knowing - what a person feels to be right for the task. Experts rely on feelings to guide them rather than working out procedures from basics every time. Feelings change during production. For example, feelings which lead, such as curiosity, will diminish as work progresses, to be replaced by others, such as a feeling for display or selling the created product. But feelings can also mislead - so that what seems right may not be so. Mistakes must be permitted, and at best seen as learning events which demand strong determination to keep trying, along with knowledge and reason to eventually produce an outcome.

Indeed, discipline is an important part of creative work, for without it there is chaos. The key state for creativity seems to be controlled flexibility - a temporary relaxation of intellectual structure which accepts emotions, impulses and irrational ideas which Sigmund Freud described as primitive, immature thinking (Freud, 1958). Basically, the creative act has to express rather than repress impulses, so that individuals must be able to tap into inner experiences and less coerced by social disapproval. It calls for a greater tolerance and stronger sense of self as well as courage and support to cope with sometimes intense anxiety of uncertainty.

Creative production is also affected by the spirit of the times, the *Zeitgeist*. For example, a Soviet Socialist Realist painting of the 1920s demonstrates the fashionable style as well as the hopes and dreams of that era. Across history, underlying objections have so often been seen as a threat to morality (Freeman, 2014). When pressure to conform is strong and hard to resist, as in autocratic societies, creative endeavour can demand even more courage to counter official criticism and punishment. But, as Eysenck (1995) pointed out, the environment must provide the means for development and recognition, since "an unrecognised genius is meaningless" - at least at that time.

Shifting the idea of creativity from personal to wider influences, societies themselves present two simultaneously conflicting forces — conserving and renewing. In fact, Csikszentmihalyi (1999) described the community rather than the individual as the major player in fostering creativity. He wrote that "sociocultural validation", social recognition or acclaim, defines creativity as a novelty that meets with social approval. Wertch, (1998) described the human mind as operating with socio-cultural tools. These may be physical like computers and bicycles, as well as symbol systems, such as language and numbers. The cultural tools are memes – inherited cultural assumptions and ideas - which mediate decisions and actions.

Indeed, nothing in life is heard or seen in isolation, so that the context in which children have their experiences has subtle and important effects on the perception of even the simplest line drawings or sounds. Formal education is not, of course, the only way to develop creative talent. One has only to look at art in unschooled societies to see this. What's more, people who think visually can encounter particular problems in the normal classroom because their learning style is not compatible with that of the linear instruction (West, 1991). That is probably why visual thinkers, such as Edison and Churchill, who were probably virtual thinkers, did badly at school. Picasso hated school for the few years he was there, even claiming he had never learned to read and write properly (Richardson, 1991).

All long-term studies of talent development have shown the strong effects of family attitudes, as indeed have historical case-studies (Freeman, 2000a; 2000b). Most importantly, they affect the children's sense of self-worth and consequently their aims in life. Although some creativity is indeed part of everyone's every-day problem solving, it cannot reach a level of exceptionality without help, whatever the individual potential. One needs the basic materials: there is no fine violinist without the instrument, tuition and emotional support. In spite of most of that coming from the home, so much educational research concerned with the development of creative talent is limited to school experience.

The Threshold Theory suggests a cut-off of about 120 IQ as the minimum needed to support high level creativity, whether alone or with others (Kim, 2005, Preckel, Holling & Wiese, 2006). It seems reasonable to expect this level of intelligence to be essential in the production of great works, whether symphonies or scientific advances, though it is possible for everyone to be creative at a more modest level in some way. There is evidence that the IQs of children with access to information technology are going up sharply, called the Flynn Effect (Flynn, 2012). But does this mean that their creativity is also going up?

Sternberg & Lubart (1991**)** describe creative people in terms of investment – they are able to "buy low and sell high". That is, they can see potential in ideas which are new or unfashionable and cope with others' resistance. They can persevere in developing low latent value and (if the zeitgeist is in their favour) sell high before moving on.

CONFORMITY

Everyone is under some obligation to conform to what is expected of them within their society. Most do it because they want to fit in and be accepted. Some, though, truly comply while others only appear to do so while keeping their ideas to themselves. Conformity can present a particular problem for the gifted because they are exceptional in their potential. They may, for example, be under pressure to perform at a constantly high level, especially if they receive special education. It is possible that other children are more free to follow their own interests outside a life of scholarship.

Being labelled as gifted changes a youngster's self-concept, though not always for the better. However, as Bloom (1985) discovered, without some pressure, especially by parents, children of high potential may not put in the many hours of work needed to develop their talent to a level of recognisably gifted achievement. The variation in children's reactions to such pressure could be related to differences in their experiences and personalities. Pressure can, for example, encourage perfectionism which is sometimes already present in the

gifted student's personality and which can be a barrier to creativity (Sternberg & Lubart, 1991). Although perfectionism is usually considered to be one-dimensional and incapacitating, it can also be positive, like working on a creative project until is perfect enough to be seen. Piet Mondrian, the Dutch painter of rectangular shapes in primary colours, was a perfectionist reworking his work many times until he felt that it was acceptable.

Conforming to what is expected in thinking, learning and social behaviour appears to suit a more rigid kind of personality and cultural environment. It is also influenced by the extent to which people feel they can exert control over their lives. Julian Rotter presented the influential idea that those who feel themselves in control - internal locus of control - are better placed to succeed than those who depend on others for direction - external locus of control (Battle & Rotter 1963). Attention, he said, is always selective, influenced by experiences and feelings of control.

Overall, internal controllers are more likely to seek information by asking questions of others. They process information more efficiently, spend more time making decisions and have better memories for what they have learned. They also have more task-related thoughts and are better at concentrating. Rotter pointed out that when children see their efforts having little effect, they may simply give up - learned helplessness – which brings low self-esteem because the children blame themselves and lose interest. Females, he found, were much more likely to have external locus of control and accept direction more easily than males. Where teaching is by rote learning, questioning of teachers is forbidden and creativity is frowned on millions around the world believe that fate (or a god) takes the decisions and is not to be argued with. Children are thereby forced into an external locus of control to do as they are told.

Teaching in high pressure schools dedicated to getting bright pupils to top grades tends to be highly directed and youngsters may not always have sufficient opportunities or incentive to think for themselves. In fact, recent research in Holland has found that in grades one to three, children in special gifted classes scored more highly on empathy (Theory of Mind) tests than less able children (Boor-Klip, Cillessen & van Hell, 2014). But by grades four to six the group differences had vanished. It could be that the non-gifted children had caught up with the gifted ones, or that their gifted classes actually limited their empathy. But pressure continues because it makes children higher achievers. So often, it is parents who are pushing the teachers who in turn push the children.

However, the economic political and social world for which gifted and talented pupils are being prepared is not characterised by predictability but by its opposite, unpredictability. The need to make rational decisions is not only driven by personality within a social context, but usually based on incomplete information in the face of conflicting attitudes and opinions. Slavish conformity to the current mores of society is not a good preparation for the future.

EVIDENCE OF THE CONFLICT BETWEEN HIGH ACADEMIC ACHIEVEMENT AND CREATIVITY

The conflict between high academic achievement and creativity could clearly be seen in my in-depth 35-year comparison study of otherwise matched gifted and non-gifted children in Britain (Freeman, 2010, 2013). My initial concern had been to find out why some children are identified as gifted while others of the same potential are not, and what the consequences might be.

In 1974, I began with 70 children identified as gifted. Each one was finely matched for age, sex and socio-economic level with two comparison children in the same school class (n=210). The first comparison child had an identical intelligence or talent, while the second was chosen at random. 63 schools, their class teachers and head teachers were involved. Investigation was by a battery of tests and deep counselling-style questioning of pupils, teachers and parents in their schools and homes.

The major benefit of all longitudinal studies, including those of gifted and talented children, is tracking behaviour as it develops so that early indicators can be recognised and successful developmental procedures promoted for everyone. The major debit of such extended studies is that inevitably they started a long time ago when things were different – the subjects, the methodology, the environment and the researchers- bringing into question the relevance of findings to current circumstances. But there is no other way to understand the origins of events than by recording the live experiences where nobody knows what is to come. Looking back is quite different and memory is notoriously distorting.

For all the sample gifted, whether or not they had been recognised as such, by their mid-40s their high scholastic achievements had not reliably delivered outstanding life success. Yet overall, the higher their measured intelligence the more successful an individual was likely to be in many fields. Although each person had a unique (sometimes dramatic) life-path, the vital aspects of recognisable success for the entire sample were hard work, emotional support and a positive personal outlook. Fate too played its part.

I interviewed every individual, from the tip of Cornwall in the south to the far north of Scotland, so there was no possibility of collusion between them. I audio recorded everything we said which was keyed on to my hard disk. The print out was further scrutinised by a small team to see what had turned up in the conversations. The following information was a complete surprise.

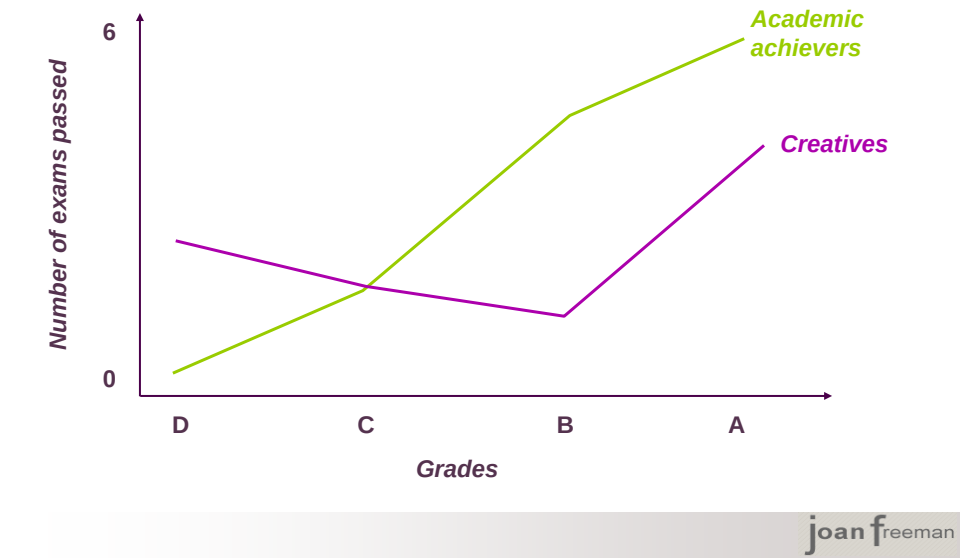
After hours of deep and occasionally emotional interviewing my final question had been - "What gives you your greatest pleasure?" It had been designed to round off the seriousness of our interaction to leave the individual with pleasant thoughts. But in fact, it proved to be a highly discriminating variable.

This question provided such specific responses that it was possible to statistically compare two sub-groups - the 23% who chose academic achievement as their greatest pleasure - the Academic Achievers - and the 7% who found their greatest pleasure in creative activities - the Creatives. Whether pleasure came from academic achievement or creativity, it was not just in the heart, it showed in action.

The sad overall finding was that although almost all the sample had enjoyed satisfaction in creative activity when they were young, the Academic Achievers had changed - and radically. The creativity they had experienced and enjoyed as children had begun to diminish in their early teens, hitting a very low level between the heavy examination time between the ages of 18 to 20, during which only a few of the high Academic Achievers claimed any creative leisure activity at all.

Analysis of the whole data set of hundreds of variables in terms of responses to this question, found the two groups to have highly significant statistical characteristics. Gender was the prime divide. Most of those who took their satisfaction in academic achievement were boys and most of those who found satisfaction in creative activity were girls. Their respective outlooks also appeared to have made a difference to their school-leaving examination results. The Creatives had lower grade-average in their school leaving examinations - the Academic Achievers obtained twice as many top grades.

Figure 1

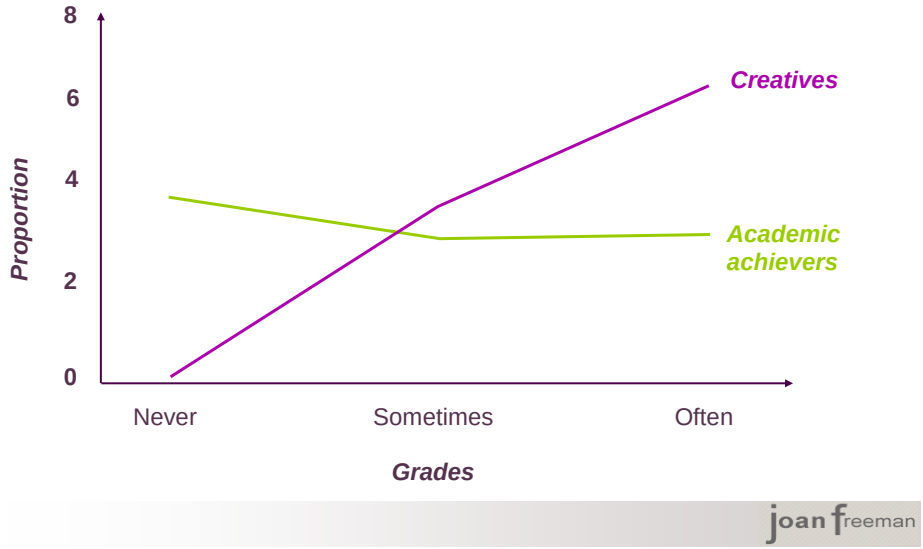


Emotionally, there was also a big difference between the two groups. On a test of emotional adjustment when they were children, the Academic Achievers had had far higher hostility scores than any others in the whole sample - while the Creatives had almost no hostility. The Academic Achievers also had by far the highest peer-maladaptiveness scores, i.e. they had difficulties in making friends. The Creatives, though, had no problems with friendships and seemed to be popular.

From the test results and the interviews the Academic Achievers appeared to have real difficulty in coping with emotions and relationships. The question, Can you empathise?, (Figure 2) encapsulated this split being almost an opposite of the achievement graph (Figure 1).

Figure2

Can you empathise?



The Academic Achievers told me more frequently that they suffered from depression which emerged later in life. In their youth, their academic successes often supported their self concepts in the sense of – "If I cannot demonstrate my cleverness, then who am I?" Kaufman & Mathews (2012) also found this when they followed-up 145 people in their 60s who had been 1964-1968 American Presidential Scholars. On the whole they felt satisfaction with their lives, having started with highly educated parents, attended the best colleges and universities, being young in the 1960s and having their cleverness confirmed by the award. Although my sample was far more varied from poor to rich and educationally far less privileged, they too had experienced early pride in their identification as clever, but in their late maturity had mellowed often by the mundanities of everyday life, bringing up a family, going to work and paying the mortgage.

Both the Academic Achievers and the Creatives had absolutely identical gifted level IQ scores, but each group regarded this exceptionality quite differently. As children, the Academic Achievers more frequently described their exceptional intellects as an aspect of themselves which was unattractive to others. The Creatives, though, either disregarded it or took pride in it, saying that it made no difference to their friendships. Thus, it was not the high IQ itself which affected the young people's relationships, but their feelings about it and themselves.

However, life was not entirely smooth for the Creatives because they had significantly more problems with their teachers. They seemed to have more difficulty in fitting in with the system - or the system was not flexible enough to accommodate them. Unfortunately, as the decades went by, it seemed to me that many of them changed from being open-minded, eager and curious young children to adults with dull eyes.

The Academic Achievers were often under considerable pressure, many being at high-powered schools where the arts subjects were given low status, and their attempts at creativity had sometimes purposefully been blunted. There were also significant differences in their home-backgrounds. In the Academic Achievers' homes, parental admiration of school achievement, especially in science, often took precedence over artistic appreciation and practice. I had rated their home decor too – somewhat subjectively. Physically, the homes of the Creatives were generally more artistic; I had counted more pictures on the walls, and a wider range of books. Their parents were also more serious in their attitudes to music. The families often listened together, rarely used music as background, and more frequently played instruments themselves.

Each group had a characteristic profile. The Academic Achiever accepted and conformed to the goals and authority of the educational institution, reinforced by higher esteem from teachers and support for high-level achievement. This acceptance of authority was carried into non-school systems in leisure activities. When they reached university, the Academic Achievers often saw it as a rather nicer form of school, where they worked very hard, were occasionally inspired by the teaching, but were often unaffected by the wider opportunities there.

Most of the Academic Achievers were male and had chosen to study science. Some had very few friends and a few had none at all. They were decidedly short of imagination too, which made their conversation rather dull. It seemed that because the youngsters had the ability to pass examinations well, their development of a playful, creative approach to learning was discouraged. They had often been pushed into the competitive race for advancement - a race in which their other abilities, which rounded out their IQs, could wither. This group had already been seen to have a higher level of hostility as children which was enhanced by this competitive striving.

The unfortunate effects of academic pressure on creativity were quite clear. The pressure for scholastic excellence on some of these intellectually gifted youngsters appeared to have inhibited their creative urges. This pressure came from both home and school, its effect was more powerful in boys than girls, and for scientists most of all – as though they did not need it. The considerable study time required winning scholarships and prestige took a heavy toll in the Achievers' creative endeavours, and in some cases appeared to have given these brilliant youths a life-long social handicap and unhappiness. Too often there was a creative cost to the distinguished scholarship.

TWO LIFE PATHS

The summarised life histories presented here are of two highly gifted and talented men in my sample. They demonstrate how a snapshot research view taken at any stage of a life, even covering a few years, can never present as true a picture as the developing view over decades. Most pertinently, as for many in this study, Jeremy and David's lives illustrate the academic achievement-creativity conflicts within their family and school contexts. Because of the deep counselling-style interviewing over very many hours, it was possible to see how each one dealt with the conflicts in terms of their abilities and personalities. Their different approaches could be seen to affect their lives from childhood to middle-age.

Jeremy the psychiatrist

For the gifted and talented there can be too many life choices. Several from this sample started specialising in one subject area at school and sometimes carried what proved to be mistaken choice through to university. This could mean a late change and thereby lost years in their final field. Jeremy, even at nursery school, was always outstandingly top of his class,. In his early teens, he was not only seriously gifted in science, but was also outstandingly talented in music.

He had won a scholarship to a highly academic school. While still there, as a teenager, he also took lessons at the post-school College of Music in his city and succeeded brilliantly at every violin examination they could offer him. His dilemma grew and became terrible. Both places wanted him. His school pressed him to study science and the College of Music pleaded with him to aim for the concert platform. What was he to do with his life? His discussions with parents and teachers (and me) seemed endless. But time passed and a decision had to be made.

The final judgement was taken with regard to his future economic security. It seemed more sensible for him to choose science, rather than a riskier career as a violinist. The school could not offer specialised counselling or vocational guidance to such a multiply gifted and talented pupil. Medicine seemed a sensible compromise. He would be able to play music as a gifted amateur.

Of course, Jeremy had no problem in graduating in medicine as top of his class every year. He had the gifted student's capacity to organise his learning. He told me he would go for the principles first and then fill in the

details, just before his exams. This applied to anatomy and physiology as well as the higher reaches of medical treatment. As a medical student, he did not live the life of his fellow students. He studied hard and did not go to many parties or spend his evenings drinking beer and chasing girls. In fact, he told me he was saving himself for his studies and would be ready for girls when he was qualified. He had discipline too.

With brilliant university results, he was immediately accepted for a further four years training to qualify as a specialist in psychiatry. In his hospital work, he was highly praised by his seniors as destined for a high position. But then things began to crumble. Slowly it came through to him that he had made a terrible mistake in choosing medicine over music. This insight came to him with some horror and afflicted his spirit. He became depressed, to the extent that it began to interfere with his work. Yet again, he was thrown into that all too familiar state of not knowing what to do. He left medicine for good at the age of 35 and no longer heals the sick. But all those years in which he could have been practicing his violin had gone. He could not retrieve them.

Jeremy now has quite a successful career playing and singing in a jazz band. Poignantly, he also makes a modest living as a music agent for others who play professionally. He told me that every one of them reminds him of what might have been.

If one were to take a picture of Jeremy at different points in his life, each view would be very different in terms of his gifted achievements. As a child, he was extraordinarily successful. But even in his early teens he was somewhat disparaging of his success, referring to himself as a "performing penguin"! His academic success was superb throughout school, such that his exceptional schoolwork and music would have gained him admittance to any specialist education anywhere in the world. Emotionally, though, he was in a state of constant bewilderment about how best to use his gifts and talents.

As a university student and well into his doctoring career, a researcher would easily have identified him as an academically gifted adult. But by his mid-forties, the picture has reversed. Little of his early potential has been realised. Sometimes he has girlfriends, sometimes not. He is very friendly, smokes a lot, talks a lot and lives on a low income.

One can only speculate that if he had chosen music rather than medicine, he would have been happier. I believe that to be true, but there is no way of knowing. What he needed at school was specialist professional guidance, but what he received were opinions. I see him as a victim of that pull between the academic and the creative life.

David the architect

Whenever they felt like it, David and his friends took time off from his excellent comprehensive school. This was not to waste their stolen hours or do anything anti-social. Instead, they often went to the local park to read poetry aloud to each other and discuss life. As a teenager, David behaved more like a mature university student than a school pupil. His opinions on everything were well thought through and his feeling of competence was solid. He had a strong sense of who he was, and unlike Jeremy he knew what he wanted. It was also true that his school achievements suffered greatly from his somewhat arrogant lack of attention.

David's architect father had shared with his son something of his own love of nineteenth-century art and architecture, to which David had directed his exceptionally keen and creative self. They lived in Manchester, a big industrial city in England, and he took full advantage of it. He told me at 17 - "I like Manchester a lot, going sketching and looking at it. Sometimes I go into the City Art Gallery and look round for inspiration. I really get a kick out of looking at things … they really move me. My painting does a lot for me. Compared with my peers, it's the best - that's what the teacher said. My art work is original; I'm well into Fauvism; I like colour and I know I have got ability. I do get a big kick at having spent my time creatively and have developed my skills. I'm aware of beauty all the time. Just walking down the road sometimes, looking out of my window, and there's so much here at home - you don't really have to look very far to be moved artistically in here. Just look at the flowers, or the graphics on the record player, not that they're very good, but look at that carving. I'm not wild about the television - I think I'd take that away."

It was a frustrating struggle for David's teachers. I had measured his intelligence as being in the top one percent of the population and they knew he had enormous intellectual and artistic potential which they were failing to bring to the surface. Sometimes he would have a flash of insight without describing the reasoning behind it, leaving his listener wondering how he had reached that point and what it was all about. His art teacher was very kind and let him stay after school to work on his own which David treasured and used well. No tutor on any course for the gifted and talented would have taken David into such special education while he was at school, even if his teachers had taken a big chance and put him forward for selection. His measureable achievements in the classroom were modest. He felt that he had lots of more interesting things to do, far more important than learning what teachers could give him.

Fortunately, he did well enough to get into university to study architecture where he continued his studies in the same rather casual manner. He did not shine in his examinations, but managed to get his degree. Serious study was not for him. In fact, earlier he had been at a private high level academic school wisely his parents had taken him out and sent him to the local all-comers school where he was much happier.

Wonderfully, by his mid-forties, David had become a highly successful high-earning international architect who designs and lives in London. He learned his trade working with several big names, helped design a Manhattan hotel, several restaurants and is currently working on restoration of a 300 year-old building. He has his own architecture firm with more demands for work than he can accept. He has a family, plenty of money, and a career that he adores. The difference between David as an indifferent schoolboy and David the professional artistic success was great.

Currently successful in every way, David's adult success was not predicted by anyone (including me), even though the seeds of his future were all present and exercised. He grew up as a typically creative youngster, not a nose-down dedicated scholar. He was considered eccentric at school in his choice of clothing and independent thinking. Some teachers loved him for it, others found him irritating. He could easily have been ripe for bullying but that never happened. He was such a friendly and happy boy. He rejected the straight and narrow route of being directed by any authority 'for his own good', and made his own experiments with ideas and art. Without his confidence in making his own decisions and without the opportunities he enjoyed to taste different artistic aspects of his future world, this highly creative boy could easily have been shunted into dreary and frustrating work.

EDUCATION FOR CREATIVITY

As a way of developing the highest levels of creative talent, formal schooling for gifted and talented children to reach their highest level of academic achievement often seems to be restricting other aspects of their lives. This is the case for Britain, and I am sure for many other countries too. Teachers, do not always recognise and encourage the creativity in their gifted pupils.

In spite of great efforts by many conscientious people, the long-term benefits of current special provision for the gifted are not reliably measureable as beneficial. The initial surge of higher achievement and personal feelings of satisfaction and enjoyment during the courses tend to disappear over a few years (White, 1992, Freeman, 1998). Without a long-term perspective, it may not be possible to justify programmes for the gifted. For example, a UK review of international research on Accelerated Learning found evidence of its effectiveness to be scientifically poor (Comford-Boyes, Reid, Brain & Wilson, 2004). Additionally, it is the programme of choice for the gifted and talented in many parts of the world. The question to be asked of all such programmes is how much of the initial boost to achievement is due to the Hawthorne effect, i.e. to attention and change, and whether the benefits will last over years.

Creative problem-solving calls for sufficient awareness and flexibility for new problems to be re-seen in terms of what has already been experienced. But even at the highest levels of intelligence, this procedure can be

severely restricted, especially in its creative aspects, by the acceptance of 'pre-digested' categories, such as those given by parents and teachers - i.e. maths is what you learn in maths lessons and art is what you learn in art lessons, and there is no relationship between them. We human beings often find it easier to be sheep following the flock, as so much psychological research has shown. As a result, members of the same culture or school show a tendency to find and solve problems and 'code' their perceptions in a similar way.

In all educational processes, there is some conflict between the two natural yet opposing tendencies - either to strike out with courage and open up one's own world, or to seek the security of a closed familiar world of acceptable knowledge and ways of thinking. In attempting to enhance creativity, teachers and parents are not only dealing with children's skills and production, but with developing consciousness, imagination and feelings about the self. The less confident convergent child is most likely to adapt to a socially acceptable and safer way of thinking and will question relatively little. If the social pressure to conform is strong, even a naturally creative pupil will have to accept it (at least on the surface) and is more likely to suppress his or her creative talent in order to be accepted within that society.

The atmosphere which best facilitates creative thinking is one of security and 'psychological permission' implying the freedom to be oneself, to experiment and sufficient self-confidence to take risks. Jung (1964) described how people often erect psychological barriers to protect themselves from "the shock of facing something new" because of a "deep and suspicious fear of novelty" which he called "misoneism". However, with emotional support and guidance, all children are better able to develop their creative thinking to cope with and generate their own ideas and sense of self. Children who are allowed free play do it all the time, and creative adults do too. Individuals of any age can diminish the anxiety of new learning by using strategies of analogy - making the unfamiliar familiar - and by playing with ideas.

It is a sad truth that parents and teachers who are ambitious for an intellectually gifted child can place too much emphasis on measurable achievement, and may regard play as a 'waste of time', an 'indulgence', and sometimes prohibiting it entirely. For the intellectually gifted child, even when they are small, they are often unconsciously seen and treated as quasi-adults, 'little professors', with little need for play. For them, their only approved learning experiences are relatively sophisticated and often 'bookish'. Yet play is an essential early basis for all kinds of future outstanding performances.

Playfulness is vital in questioning and searching for ideas, enjoying their contradictions and rearranging them into experimental combinations. Einstein described his playful attitude to research, once writing that if he had regarded it as work, he would never have succeeded (Einstein & Infeld, 1938). The spirit of playful enquiry helps gifted people to avoid taking themselves too seriously, providing a vital flexibility to look at things from many angles. The conditions for good play are the same as those for good learning - security and psychological permission to experiment – to be able to accept mistakes as part of the learning process. Critical reading, speaking and thinking skills, for example, bring creativity into all subject area, as does the analysis of paintings, plays, poems, dances, operas etc.

Potential creative talent needs such opportunities to flourish, which include materials to learn with, as well as teaching, encouragement to practice and understanding that things may not turn out as expected. As Limont wrote, "Education of gifted students is connected with adequate educational syllabi and strategies , but foremost, with the teachers of gifted students: teachers who can identify and develop the talents of their students" (p. 33, 2008).

Rather than continuing to search for the holy grail of definition and identification of the creatively talented I suggest that it would be much more productive to look at the interaction between children and their provision for learning, that is to take an interactive developmental approach. The principal goal of formal education should be to enable people to continue learning and thinking creatively when they are outside its direct influence, hopefully for all their lives. This approach offers, "personal satisfaction and self-actualization as well

as produce yet unimaginable scientific, aesthetic, and practical benefits to society" (Subotnik, Olszewski-Kubilius & Worrell, 2011).

Developing a creative approach in children demands empathy and sensitivity in adults. It is too easy to diminish a creative child's contribution with even slight sarcasm. What is more, youngsters who feel obliged to subdue their personalities run the risk of lowering their self-concepts. It is the very essence of pupils' creative endeavours which is put at risk through conformity to the goals of social desirability. The world needs the creative thoughts and productions of talented people. Let us help them fulfil their dreams.

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