

A Submission to the House of Representatives Standing Committee on the Education of Boys.

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Abstract

The submission discusses two matters in the relation to the education of boys. Firstly, the effect of changes to the traditional role of males in modern society and the effect of this change on the self-image of boys. Secondly, the submission argues that intellectual skill development is not addressed directly and that this strategy fails many students. Minor changes to the emphasis of current curricula and support for individual students when needed will lead to a more rewarding learning experience for the students and an improved retention rate, particularly for boys.

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I am a retired tertiary chemistry lecturer with over thirty years experience in teaching at RMIT University. In each of those years I have taught first year tertiary students. I have very limited experience at the upper primary level teaching basic science and I have the experience of participating in the education of my two children, a son and daughter, who have both completed tertiary education in the minimum time. My formal qualifications are PhD, Graduate Diploma in Education, Graduate Diploma in Applied Statistics and Bachelor of Commerce. I was an active participant with the Education Unit of the university and my comments are based on years of interest in improving the learning of the less successful students.

Early in my teaching career I adopted the view that environment, and not genetics is the most important factor in developing a student's capabilities. This view probably has stronger support currently than in the past. It is also important as it moves the responsibility for a student's success to the teacher rather than his parentage. Educators have considerable influence over the learning environment but cannot be held responsible for the genetics. Obviously I don't have experience with the students of most concern to the inquiry but the students I have taught range from the most successful to those who had just qualified for tertiary education. I am confident many of the problems I observed are common, my students were just better able to cope.

There are two areas of learning I wish to address. The first involves educational psychology. I believe that the change currently underway in the gender roles in Australian society and the changes in the workplace in relation to technological advances are having an adverse impact on young adult males in particular. We have seen how the encouragement of female students to further their education has improved their educational performance. I believe a complementary campaign will improve the performance of male students. The second area is a reconsideration of the aims of education.

I consider that the adoption of a model is important in any intellectual activity. In teaching, a psychological model provides an underpinning for the teaching/learning process. There are, of course, a number of accepted educational psychology models each with their advocates and areas of application. Different models could be applied to different areas of learning but it is important to have a plan for the learning process. The model I considered most consistent with my teaching experience was Gestalt

psychology. A very simplified statement of the theory involves the importance of the learner's self-image to the success of their learning. A person's self-image will be strongly influenced by the society in which they live and in particular the sub-group of the society in which they develop. An individual is seen as protective of her/his self-image and reluctant to undertake an activity that puts her/his self-image at risk. The difficulty that people have with change, the reluctance to retrain or continue their formal education as adults, can be interpreted as a reluctance to risk their self-image.

I believe children start school with a strong desire to learn but at an early stage perceive the psychological risk associated with learning. It is the effect of failure on their self-image, the fear of failure, which motivates the successful students to do well and causes the unsuccessful students to leave education. This fear is not usually isolated to learning but applies to a summation of all the pressures associated with growing up. In the extreme it leads to 'dropping-out' from society norms.

Obviously these pressures have existed for all children since the beginning of Australian society so what has increased the problem for boys in particular in recent years? I think there are two major changes in Australian society that have led to an increase in the number of students failing to meet their academic potential. One is the change in the nature of the labour demand. There is a decrease in the available employment for low skilled workers and with the entry of women to the workforce, greater competition for the jobs available. Even at the skilled trade level there are reduced apprenticeship opportunities. Thirty years ago boys could leave school at the minimum age with the expectation of obtaining an unskilled manual job dependent on their perceived greater physical potential or a position as an apprentice. With time there has been a reduction in the opportunities for manual labourers and entry to apprenticeships is in competition with females and occurring at a higher educational level. The pressure to succeed in education is higher than ever. For girls, following the traditional role model leaves the individual no worse off while responding to the encouragement to take their formal education further has obvious benefits.

The second is the long overdue move to provide greater opportunity for women. Despite the introduction of equal opportunity policies and the community discussion of the implications of greater gender equality, Australian society is in a period of transition and male role models are

predominately the primary breadwinners. The success of society's 'heroes' is often attributable to their physical dominance. There is a policy to encourage female students to attain higher educational levels. I think in a world of changing opportunities and values it is reasonable to propose that there is greater stress on our youth than in previous times, in particular males, as it is their traditional role which may be perceived as being under greater threat. Their awareness of their changing position in society occurs at a stage when their self-image is most vulnerable.

As I have said above, my interest is in improving student learning in general. It is my belief that after the early primary school stage the students perceive learning as a risky business. Students who feel other stresses will be the most threatened. It is important that the learning environment be as supportive as possible. Research has shown that where teachers are told that their students have the capacity to perform well the students perform above the level of their previous results. The reverse has also been shown to apply. There is the potential for a more positive outcome if teachers believe the learning environment, over which they have some control, is responsible for a student's under-performance rather than genetics over which they have no control. The psychological advantages of a teacher's support when a student is struggling is well recognised and implemented by teachers to the extent that time permits. This would be a reasonable explanation for the improved performance of girls as a result of programs to encourage them to take their education further. Since this is a proven technique it is important that the potential economic benefits of making more individual tuition available be compared to the additional cost.

The second area I wish to address is a discussion of the aims of education. In my experience the best graduates at either year 12 or as tertiary graduates are those that can analyse information, use the analysis to problem-solve and effectively communicate their thoughts to others. It is also important to have a knowledge base but the exact extent of the knowledge base is difficult to define. Remembering the Melbourne Cup winners for the last 100 years represents knowledge but doesn't provide much insight into the history of horse racing or anything else. Knowledge is usually only significant in the context of an analysis, that is, placing it in context like the pieces of a jigsaw puzzle. The individual pieces of the puzzle are of no relevance on their own. The value is gained after the individual pieces, when connected, lead to some insight in the developing picture. The development of a cerebral system analogous to a computer database is a prerequisite to analyse as it

establishes a storage and retrieval system. Analysis provides the keyword connections that form a starting point for using the knowledge. As the mental picture takes shape memorized knowledge can be supplemented by written knowledge, books and the internet. Continuing the analogy of the jigsaw puzzle, problem solving is analogous to determining the image on a missing piece in the puzzle using the parts of the puzzle already in place. The solution to the problem is achieved when the missing piece is in place.

A child's intellectual development will begin with a simple database required to use words. Progress can be observed in the transition from words associated with concrete features to abstract ideas, as the database becomes more sophisticated. The next progression is to reading. Reading requires that the information read be analysed, that is, converted into a mental picture. Again, it seems reasonable to propose that this skill development moves from the concrete to the abstract. The final development stage is the development of problem-solving skills. I have suggested that this represents providing the missing piece or pieces in a knowledge picture. It is quite probable that currently a large percentage of the population do not reach this development stage. My experience is that a large proportion of first year tertiary students has not reached this stage. They operate satisfactorily on known strategies. But modern society requires that we are more inventive in our solutions to problems and our education systems must develop problem-solving skills in as many students as possible.

These development stages are not independent. A sophisticated database requires analysis skills to relate knowledge held in memory. This provides an aid to memory, as related facts are easier to recall, and provides a context for using the facts. Problem solving advances as analysis becomes more incisive. As an example, I think the study of mathematics provides many people with an introduction to problem solving. Mathematics problems are solved by algorithms. The steps are performed, at least initially, from memory. The challenge is to perceive the problem so that the algorithm can be applied. This is the problem-solving aspect. I think most students learn to be mathematicians by doing as many problems as possible. A review of any well regarded mathematics text shows that it has numerous problems progressing in the imagination required to interpret the problem so that the algorithm can be applied. The experience of doing the problems develops the student's problem-solving techniques, that is, the procedure of thinking of and testing potential strategies. Poor problem-solvers will be limited to remembered strategies or minor variations of them. The process is

frustrating as inevitably failed strategies will outnumber successful ones. Students lacking confidence become frustrated, their perception of the problem narrows and the solution evades them. The good mathematics textbooks are more successful because the large number of problems advances the learner through the more complex strategies in small steps. Once a strategy is used it becomes knowledge, linked in the memory to the circumstances that made that problem unique. The mathematics textbook provides other problems requiring very similar strategies to re-enforce the knowledge gained and re-assure the students of their success. The problem-solving strategies are subject specific, but the problem-solving skills of broadening perception, using imagination, testing potential solutions against the known facts are universally applicable.

I don't believe you can teach these skills directly as you can the algorithms of mathematics or the facts of history and geography. A comparison with physical skills is instructive. In any sport there is limited value in instruction. In golf or tennis, a book will provide general instruction but the student only makes progress 'doing' and receiving the feedback of the result and from a coach on how the action might be improved. The range of golf swings and ways of playing tennis strokes testify to the individuality of achieving a satisfactory result. If coaches could transfer the knowledge on exactly how to swing a golf club all competing professionals would have the same swing. I can teach the facts and expect to receive the same response from every attentive student the next day. An explanation of the link between the facts only helps the students commence their own analysis of the facts. The next day the student explanations of the links between the facts could be different in emphasis but still correct. Just as top golfers obtain a 'correct' result despite the differences in their so individuality in knowledge pictures can provide a variety correct explanations. The process of perfecting a golf swing is equally applicable to perfecting thinking skills, practice with a coach. Socrates demonstrated this in 400BC. It was the basis of learning in universities for hundreds of years.

Question and answer dialogue allows the teacher to break the thinking steps down to small quantum consistent with the development stage of each student. With sensitive teaching, the risk to the student's self-image is minimised. With the added confidence the students' view of the facts is broadened and their analysis and problem solving skills advanced. Verbal communication skills also benefit from the question and answer dialogue as

fuzzy thinking can be explored. An improvement in written communication usually follows.

In terms of the physical development of children it is accepted that there a series of dependent stages that children must pass through to achieve a satisfactory level of physical skills in adulthood. It has been shown that if children showing retarded development at any particular stage receive remedial activities they can be moved successfully into line with their peers. I am proposing similar actions with children's intellectual development.

The current curricula is directed at increasing an individual's knowledge base and only indirectly directed at developing intellectual skills. This is like teaching child the rules and basics of tennis and then putting then on the court to play without the repetitious skills training to perfect serve, forehand and backhand etc. They may be able to relate the facts and some will rote learn interpretation, but their ability to discuss the significance of the history or geography or science is missing.

Objections will be raised to the additional cost of a more individual student centred method. Computer-aided instruction can provide knowledge-based instruction and components of assessment at low levels of teacher involvement. This should free the classroom teacher to provide more individual tuition for students experiencing difficulties with their intellectual skills development. Any increase in funds required to address the present indirect method of learning intellectual skills will repay the investment with better educated graduates.

In summary, I am suggesting that the present education system does not directly address the development of intellectual skills but rather throws the children into the deep end and hoped that they will come through. Success in such system will be very dependent on confidence of the individual students. For a number of students, family support provides the development of intellectual skills. The greater success of children of parents with higher education can be attributed to genetics but it can equally be attributed to the role the parents play in the child's intellectual development. I have suggested that currently boys perceive their self-image as under threat because of the change in the roles of male in society. There is a lack of role models representing the male role that society is moving towards. With a self-image that is already under threat, learning, which by its nature involves

some kind of failure, is more threatening. The question is, fight or flight. The option of flight is justified by rationalising the value of what the male is being asked to learn: “It isn’t relevant” or “I’m not interested”. While it is always possible to mount a case for either point of view, the learning of intellectual skills requires a positive attitude on the part of the learner. Subjects can be passed on knowledge without intellectual processing. The interest in learning is related to the desire to make sense of the world. Education should be about developing the skills to achieve this. This doesn’t require drastic change to the current system. The current curricula don’t need to be changed. Teachers will still perform their traditional role.

I am suggesting:

- (1) We need to consider that all students are capable of attaining whatever level of education they aspire to.
- (2) We need to increase the emphasis on the development of the intellectual skills (analysis and problem-solving skills).
- (3) We must accept that different students will develop at different rates at different times. In order to ensure that we provide a system that allows students to utilise their full capabilities we need to provide them with individual support if and when required.

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