

FROM THE DIRECTOR OF STUDIES



SCARY SCALING?

Alan Harper | Director of Studies (24 August 2011)

It is a matter of disappointment to me that, after quite some years now, and after many attempts to address the matter, the question of HSC scaling remains so thoroughly misunderstood.

I am consistently concerned to hear students, parents – and teachers – speaking about scaling in ways which reflect a fundamental misunderstanding of what it is, how it works, and most importantly, what its purpose is.

Statements which concern me include ones like these:

- “I won’t do that subject, because I know it is scaled down.”
- “I’ve chosen that subject because it’s scaled up.”
- “I’d really like to do subject A, but I’ve chosen subject B, because a teacher told me it scales better.”
- “My ATAR is disappointing. If only I’d realised that most of my subjects were scaled down, I would have chosen different subjects.”

I have always known that every one of these statements reflected a complete misunderstanding; I have said this in every appropriate forum available to me, and written it wherever I can. I have counselled colleagues on the subject. Yet the myths persist, not only frustratingly for me, but potentially dangerously for students trying to find their way through the HSC to achieve the best result of which they are capable.

Recently, to ensure that my understanding remained current, I went to an information session at the Universities Admission Centre (UAC) at Homebush. It is UAC which does the scaling, and the experts spoke to the group in detail. I was pleased to have confirmed my long-held understanding of scaling; the advice which I have always offered may seem simple, but it is certainly not naïve and it is completely correct.

So let me explain a few matters.

First, it would be an unconscionable public policy that gave an advantage in university entry to people who were clever enough to penetrate an unfair system and make it work for them. It would be indefensible for people “in the know” to be able to pick subjects that would give them some statistical boost, against their peers who did not have the “inside information”. I certainly, and surely any school, would not defend such a policy, and it would rightly be the subject of parliamentary and press investigations which would see its unfairness publicly vilified. Thankfully, that is not the case.

Second, it is important to understand the purpose of scaling. It is not to reward people clever enough to choose the right subjects; its purpose is to ensure fairness in the competitive stakes of university entry. Consider the problem faced by UAC in dealing with the many thousands of applicants for places at universities. They have all studied different combinations of subjects. Indeed, the number of combinations is in the thousands. How can one compare this cart, full of apples, oranges and bananas, with the other cart full of peaches, mandarins and grapes – to extend a metaphor. Is a mark of 80 in Visual Arts worth the same as a mark of 80 in Physics, or French, or Economics, or Ancient History? It is to answer that apparently unanswerable question that UAC uses scaling.

Although this is not the place to offer an intricate explanation of the scaling algorithm, essentially it sets out to answer, for each HSC subject, the following question: If all the HSC candidates had done subject x, then where in the distribution of their results would the students who actually did do subject x fall. Would they fall about the middle, in the upper ranges, or in the lower ranges? The answer to that question – when applied to every HSC subject – essentially gives the answer to how results in different subjects can be compared. And the answer is calculated through a complex process that uses all results earned by each student in all their subjects to determine the “quality of the candidature” of each subject. A very able candidature attracts a positive subject loading (i.e. the subject is “scaled up”); a below average candidature attracts a negative subject loading (i.e. it is “scaled down”).

Does this mean that a very bright student who foolishly studies a subject where the candidature turns out to be below average will be dragged down by them? Certainly not. The very able student will achieve so far above the average mark for the subject that he will be unaffected by the scaling. A review of the published annual statistics on scaling shows that the top scaled mark achieved in subjects that are “scaled down, even quite heavily, can still be, or be very close to, 50 (out of 50), and that students enrolled in such subjects can still earn ATARS in the upper limit of the 90s.

By the same token, students who think they are being clever, choosing subjects that are far too hard for them because they think their bad result will be “scaled up”, actually gain no advantage. By the same logic, their poor result will be so far below the average that no scaling effect will help them. Zero always scales to zero!



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So what does this all mean? Again, it is very simple. Students should choose the subjects that they are good at, and at which they will want to work for two years. They can forget all about scaling, relax, and follow their interests and the subjects they may need for a particular career path. And that is as it should be. The scaling algorithm is designed to ensure that students are treated fairly, irrespective of what subjects they have chosen. That is a defensible public policy!

Finally, a word about the International Baccalaureate (IB) Diploma. Parents, students and teachers often count as an advantage of the IB that there is no scaling. It is true; there is no scaling. This is simply because the number of candidates is so low that no valid statistical processes could be applied. Were the IB to grow much larger, it would indeed be scaled, for the very same reasons of fairness outlined above. Indeed, the lack of scaling of IB results potentially has some negative effects on very able IB students. Clearly some IB subjects are easier than others. Yet there is no reward for achieving in the harder subjects, because all results are treated the same. Similarly, an IB student who chooses the option of taking four HLs rather than the mandatory three also gains no advantage in university entrance, despite having set themselves a much higher benchmark of achievement. So while IB students may count it as a plus that they "don't have to worry about scaling", the lack of scaling may actually be contributing to skewed outcomes.

It is the phrase "don't have to worry about scaling" which is the concern. Nobody has to worry about scaling. For HSC students, rather than something to worry about, it is indeed a welcome guarantee of fairness in the fiercely competitive stakes of university entry.