Edval's Free Choice Model

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A 2006 University of Georgia study of US high school students found a markedly higher rate of 'intrinsic' (inherent) motivation in students enrolled in electives compared to 'required' subjects. That might seem like old news, but the same study also found an even higher rate of motivation in students who had a hand in the selection process (as opposed to choosing between subjects on pre-determined lines).

Free choice is core to a successful education. Students who get their choices are more engaged, perform better and more likely to pursue their interests beyond school. Likewise, schools who keep a pulse on student demand and deliver subjects accordingly are an attractive choice for parents. But granting students the subjects that they want is a constant challenge for timetablers, who must consider staffing availability and resources when generating elective lines. These factors are all too often considered by timetablers as rigid limitations. But what if they could be adopted as 'rules' in a more fluid timetabling system that responds, as much as practically possible, to student preferences?

Using Edval's software, schools have found they don't have to simply offer students a choice between A or B, or spend hours going back and forth with subject re-selection when limitations emerge. Staffing and resource availability and constraints on student choice (for instance, a schools' decision to make a language compulsory) are incorporated into the subject selection module and built into the timetabling program. Students choose their subjects freely and Edval's algorithms generate lines that take into account the school's unique needs and resources.

The results might surprise you
Edval consultant Moira Toohey says all too often, schools do not realise that there is a better approach to elective line generation. Many schools still use 'fixed lines': pre-determined lines (or option blocks) that offer students a choice between A, B or C. This approach is typically attractive to schools because it allows the timetable to be signed off and recycled (with minor tweaks) from one year to the next, but it is far from ideal.

"Fixed lines ensure that resources such as teachers and rooms are fully utilised but overlook the most important factor which is student choice," Toohey said.

"Often schools discover that the subjects that they thought were popular aren't. So they would traditionally have run two classes, and now only need to run one. Because they're not actually popular. And on the flip side the subject they think is not popular actually is popular."

At the other end of the spectrum are schools who feel they have done everything in their power to ensure student preferences are met, and as a result are putting up with a timetable that doesn't work as efficiently as it could. Robert Aerlic, timetabler at Matraville Sports High School in New South Wales, had already signed off on his school's elective lines, but decided to give Edval a try.

"They were able to show we could cut two whole classes and yet still satisfy more preferences than the lines we had proposed to run. This was just an amazing difference, especially for a relatively small school, and was achieved so quickly and easily," Aerlic said.

From selection to granting: putting students first
At subject selection, students use an online module called WebChoice. Students are urged to rank the subject choices in order of preference and list back-up choices. School-specific rules incorporated into the form prevent invalid subject input. According to Moira Toohey, this eradicates "a huge amount of admin and builds a system that is more receptive to student choices.

"If you had an elective program at Year 9 or 10 and they could choose four subjects, but [as a school] you wanted them to do one art subject, one technology subject and one humanities subject, we can write rules to make sure they choose one of each."

Though it is not always practicable for a school to offer an extra class, even if there is demand from students, in this 'free choice' system, schools are able to look at student preferences overall to limit disappointment.

"Our software generates reports about the popularity of courses, where subjects sit in student preference levels, and even popular combinations of subjects," Toohey said.

Schools are able to use this data to ensure 'net' student satisfaction is met. For instance, if a school is faced with a decision about cancelling a music class and a drama class, they might see that both subjects are popular with a particular group of students and decide to cut only one subject. Better still, Edval can suggest the appropriate subject to cut with minimal disruption.

Students will more often be granted their top subject choices rather than their lower preferences, in cases where a school cannot run all classes. Schools may in fact decide to run an extra class in a subject that was a popular third choice for students over a subject that was a top choice for a handful of students.

Leveraging the student preferences data
Giving students an open slate to choose their own subjects can be a daunting exercise, particularly for schools which feel settled in their approach to electives, but from a progressive point of view, the benefits can be enormous. Using Edval's reports, decision-makers can take note of trends and adjust subject offerings accordingly.

"If suddenly there's a swing away from humanities subjects towards science subjects, you'll need more science teachers. And since schools start this process in July/August, they will have plenty of time to look at their staffing needs," Toohey said.