Reduce Teacher Workload with Smarter Timetabling

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About Edval

Edval is a global timetabling and educational consulting group. With offices in both Australia and London, Edval has client schools all over the world, including USA, Ireland and Asia. In addition to provision of smarter timetabling technology, Edval has a large team of Educational consultants who can assist schools to improve in many areas through the use of innovative technology.

It is unfortunate most schools miss one of the biggest levers to drive positive outcomes in almost all areas, cost, academic performance, behaviour, HR – staff retention and happiness, parental engagement and much more. The lever is timetabling. It's missed because it's hard. It's a dark art. Edval is changing that, and would love to engage with your school.

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Chris is a co-founder of Edval, a company transforming education through smarter timetabling. With offices across Australia and in UK, client sites in USA, Ireland & Asia, Edval has global reach across several sectors. Chris has consulting experience to government, and has achieved cost savings in staffing of £150k+ across several UK schools. Edval provides advanced software compatible with SIMS NovaT6 and others, provides full 'timetable audits', and timetable construction services.

Smarter Timetabling Reduces Teacher Workload

The school timetable is the main place where 'work' is allocated to teachers. It is the document that tells them where to go, which class to teach, when they should work, when they should take breaks, when they should meet and who they must teach. While some view teaching work as being allocated 'by the school' or 'by the head of the department' – in real terms the timetable is the ultimate *work direction* document.

Teachers say that three of the biggest areas that can lead to unnecessary workload are: marking, planning and data management. Therefore, to reduce teacher workload, we should focus on the timetable. By re-thinking this document and generating smarter schedules, we can dramatically reduce teacher workload. The timetable is not the end result in publishing the work directives, it IS the work directive. Understanding this key distinction allows schools to innovate, save, and generally, make life at school so much easier for all.

Here are 33 ways that smart timetabling can directly and significantly reduce workload:

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1. Reduce syllabus preparation.

Increasing the number of occurrences where a teacher receives two or more classes of a subject in a given year can significantly reduce workload. In this scenario, teachers might only need learn or prepare the syllabus once, but for two or more classes. For some practical subjects, a teacher may take 'a lot' of classes in a year.

While this means reduced effort in syllabus planning, we must be mindful of potential overload assessment deadlines, reports and parents' evenings. For mainstream classes however, having two English classes in a given year may be ***a lot less work*** than one in Year 7 and one in Year 8, for example. Smart timetabling makes it easier to organise arrangements that better suit staff, such as multiple classes in a year, to reduce planning workload.

2. Reduce teacher movement.

This can be achieved via smarter rooming algorithms. Saving teachers just five minutes or more a day, can cumulatively save days each year. Reductions of 25% movement have been seen in timetables in some cases, by focusing on this important aspect. Yet timetablers don't always look into this area. Good manual timetablers attempt this, but algorithms offer new levels of quality in how much movement reduces across campus by teaching staff.

In addition to saving time, teachers feel less stressed about having to move around the campus, especially if it is raining. There's a mental energy cost for teachers to move (disruption), where remaining can allow for more focused mental activity. For reference, very few UK timetablers use auto-rooming tools, as these don't work well.

Contrast this with Australia, where almost all schools now use auto-rooming tools as a core business process. This is because most schools are using Edval, and the algorithms in Edval are far more powerful and match needs. The benefits of auto-rooming can be significant.

The administration process of rooming may take a timetabler at least a whole day to complete, where auto-rooming is done in seconds. While saving one day of work a year for one person (the timetabler) is great, the real benefit of smarter rooming is in saving incremental time of all students and all teachers across all days of the school year.

3. Reduce student movement.

Edval's white paper on 'Curbing Bullying through Smarter Timetabling' is a good example of movement reduction applied to benefit students. This, in turn, benefits teachers, as they now spend less effort dealing with the effects of bullying, as there is reduced opportunity for it to occur in the first place.

4. More efficient option blocks.

More efficient option blocks allow fewer classes to be run, as each have more students. The benefit of this is that it unlocks teacher load. The same pool of teachers taking fewer classes means, on average, each teacher is then slightly underloaded. There is also a reduction in the administration of managing those classes which would otherwise be required.

5. Better balance in class sizes for work equity.

Traditional focus on option blocks quality is around the number of students satisfied. This is only one of a range of quality metrics schools can look at, but only more advanced timetabling software caters to this. Imagine if teacher A has an Economics class with 24 students in one block, while teacher B has an Economics class with 12 students in another block. Each have 'a class' to teach, but one has twice the amount of students to teach, to mark, to control, to manage. This can lead to resentment, as well as less efficient teaching. The ideal would be equal numbers, but that doesn't always work due to the complexity of generating option blocks. Smarter timetabling software can significantly improve the balance in class sizes for courses running in multiple blocks. This better spreads and thus relieves work effort and raises educational standards.

6. Reduced split classes.

This leads to reduced teacher communication, effort and the need to coordinate between partner pairs.

7. Improved split pair teacher relationships.

Imagine teacher A is split with teacher B. For any other class, it would be less ideal to split A with C, as if we can replicate the existing split pair A-B, we can reduce communication friction effort as this pair are already talking and working together. Smarter splitting is where this pair has two classes split between them instead of one, making any communication more efficient.

8. Reduce the number of teacher-student relationships.

Any new relationship comes with a degree of friction, as each person needs to learn and understand the other. High numbers of shared classes mean far more relationships to manage and thus more 'work'. Further, some students may be placed into a lot more shared classes than others, or some teachers may have more shared classes than others.

In each case, the participant is disadvantaged and yet this isn't always easily visible to others in the timetable. It has a major impact, but requires specialist understanding of timetabling, and specialist reports to uncover. Smarter timetabling can balance out split classes so certain individuals are not greatly disadvantaged compared to others - thus reducing workload and improving equity in disruption.

9. Improve lesson sequencing.

Mental transition often comes at a cost. A teacher taking two Year 12 classes followed by a break, and then two Year 7/8 classes is better than switching between senior and junior classes every period. This has been a suggestion from teachers in the UK. Switching ***across breaks*** is less mental effort to prepare. This is an advanced timetable concept that isn't a focus for manual timetablers, who work hard enough to generate the timetable in the first place, without taking it to the next level in reducing mental state switching.

For reference, see:

http://steer.global/articles/thought-pieces/understanding-the-steering-mind-and-how-it-affects-our-learning

Or the scientific paper itself:

http://steeringcognition.org/wp-content/uploads/2015/06/Thinking-straight-or-true-1.2-1.pdf

10. Improve teacher spreads.

Balanced days with free PPA periods spread evenly out across the week means less full-period days. Most timetabling has no focus at all on the quality of timetable for teachers and PPA is merely backfilled where there are gaps. Smarter timetabling ensures this aspect is considered when classes are allocated to times. Better quality staff timetables reduce stress and workload, by providing better balance.

This aids lesson preparation, ensures teachers are more on-time and reduces staff absenteeism. More commonly staff are 'sick' on their especially busy days because it's hard to cater to a slight sniffle if you know there will be no free period break all that day!

11. Reduce time at parent teacher evenings.

Reduce time at parent teacher evenings, by reducing the finish time of events – and giving better schedules. There are a large number of workload reductions in online algorithmic interview scheduling systems, which is very different to systems which merely facilitate parents to 'book' interviews.

12. Teacher interviews – give teachers a night off.

Reduce the need for some staff to attend parent evenings at all on a given date, if a multi-date event. Smart scheduling can place all their interviews on one date and give them a subsequent date off as a result.

13. Better assignment of staff to classes.

Auto-staffing via algorithms are not currently 'a thing' in the UK. It's not yet trusted and the legacy systems that support this feature don't work well at all. Contrast this with the majority of Australian schools now using auto-staffing.

Edval is used in 65% of NSW schools in Australia alone, with almost all using auto-staffing to some degree and many using it exclusively. This approach allows better staffing balance. Rather than some staff overloaded, algorithms can allocate better – such that staff get a better mix of classes and are more equally loaded. This reduces workload and stress.

14. Better socially optimised class lists to reduce student behaviour issues.

Grouping students is not yet something UK schools consider. Yet this can also offer benefits. If smarter timetabling software is able to manage student relationships, for example, considering teachers who are also parents of students and cannot teach them etc. better groups can be produced very quickly.

Not only is this a saving in administrative time, it can also result in educationally better arrangements. Gender balance, size balance, academic balance, social balance are all areas algorithms can consider to reduce work effort. Issues like two core classes splitting into three practical classes can also be easily managed using algorithms to do the work.

15. Better break duty rota.

Better break duty rota to balance workload – including equity in allocation of duties, placement to less busy days.

16. Reduce time to generate a school timetable.

Reduce time to generate a school timetable with better software, and do so with less effort.

Numerous case studies listed here all with a common theme that requirement based algorithmic timetabling with smarter systems like Edval, greatly speed up the process – saving weeks, not days or hours.

17. Reduce staff absenteeism.

Reduce staff absenteeism with better timetables and thus remove the effort in others having to deal with absent staff. This might include covering classes internally during designated PPA or taking other additional responsibilities, such as break duties or administration.

18. Reduce staff turnover.

Better timetables make staff happier, and less likely to move on as quickly. Staff turnover is a high cost and big effort in finding new staff, interviews, training and monitoring. Retaining staff for longer results in a reduced workload for the rest of the department and HR teams.

19. Better management of staff loads.

Better management of staff loads through automated algorithms. Reduce instances of one teacher being overloaded and a few being underloaded. Optimising staff loads may allow more staff to be on-load, or many just under, as opposed to some being well under while others are not at all.

20. On-timetable meetings.

Smart timetabling can increase the level of staff meetings being held ***during*** school time. This reduces the time staff need to stay back at school for late meetings. Traditional timetabling schedules meetings at the very end, and/or at a very low priority. Staff like not having their working day extended if it's not needed and prefer to do work in work time. Smarter timetabling facilitates this as a priority, which reduces workload and stress.

21. Cover classes faster.

Cover classes faster with more modern systems. Multi-user web based systems like Edval Daily save time in covering classes, and can be scheduled at home or anywhere! Legacy systems are often single user and tied to the school server, making remote working harder, or less responsive.

22. Communicate with supply staff much faster.

Administration effort can be greatly reduced by removing the need to actively contact supply teachers for covers. Modern systems support direct messaging and SMS replies, which are automatically routed to the cover system. Many schools still waste time each day on the phones calling around for supply teachers.

23. Reduce covers.

Modern cover systems can actively prompt users to merge classes where this is likely to be appropriate. These opportunities may be otherwise missed if not 'guided' by the technology. Each lesson merged with another is one less period that needs to be covered, and this can reduce administration effort.

24. Align support classes.

Align support classes better so students can be drawn from class as larger groups with similar support needs. This enables fewer support periods to be run in total, with slightly more students in each support lesson. This can be difficult to timetable via legacy systems as student support needs and extraction of individual students from lessons is not 'standard' timetabling. Consequently these functions are not really found in legacy systems and hard to optimise. Support staff usually end up running a lot more support than they need because they have no control over the timetable to better align support.

25. General timetabling savings.

There are numerous areas of timetabling for which more ***modern software*** can save time. Many testimonial comments cover these areas, for example:

- Reduce effort in capturing student option block choices e.g. Edval WebChoice
- Reduce effort in generating option blocks
- Reduce effort in generating mock exam schedules
- Reduce effort in generating set lists / class lists

26. Reduce effort by collapsing classes.

Where students leave the school or drop a subject, it may not be viable to run two or more classes in a given subject due to low numbers. Traditionally it is difficult to collapse classes if they are on different option blocks.

However, modern software like Edval Timetables can cleverly rearrange existing option blocks in a way that classes can be collapsed 'across blocks'. This unlocks the effort that a teacher

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needed to put into this small class, allowing them to have more free time or be used in other creative ways. It also unlocks an additional room from the collapsed class. This can be a large reduction in workload if there is less 'work' to be done. The marginal cost of having a few extra students in your class is low, compared to having to prepare a syllabus and teach a class every week.

27. Outsource timetabling.

Timetabling is traditionally an inhouse role. Specialist providers may be able to offer significant value in either constructing, collaborating, or consulting on the process of timetabling in a school. With a staff allowance of sometimes £10k pa for timetabling, this wage cost may be a lot more expensive than getting the timetable outsourced by professionals. Further, the allowance means the staff member still needs time to do this task, where outsourcing frees up internal staff for more educational than administrative areas. There are other savings in time and money as well, if the cost of training and supporting internal staff in the role of timetabling is considered. Outsourcing requires no training and has no associated support fees.

28. Support flexible working.

Encourage and support retention, as well as attract and increase the happiness of part-time staff. Reduce stress on those who may otherwise have to teach period 1 which can make it difficult to drop young children at childcare. Reduce staff absenteeism and staff turnover by focusing on supporting flexible working (a current DfE initiative) through smarter timetabling.

29. Save effort by smarter use of existing resources.

Effort can be wasted in planning and executing the commission of changes such as building a new science lab, when smarter timetabling can solve this problem at almost no cost or effort.

30. Communicate timetables clearly.

Legacy systems don't support as flexible delivery of timetables as some would like. Different views serve different purposes, and the format of any one view in some legacy systems may be cluttered and not as clear as more modern format. Time and energy can be wasted if the delivery format isn't as good as it could be.

31. Improve communication protocols.

Reduce workload by ensuring schools all use efficient communication protocols to share data. In a report by the Independent Teacher Workload Review Group March 2016, a recommendation was made for LAs, MATs and School Leaders, being:

"Use software which adheres to common definitions and standards."

Edval has been deeply involved with Australian government education departments, including www.edval.com.au/wp-content/uploads/2017/09/EDV-Press-Release-14AUG2017-1.pdf

This work by Edval benefits schools by establishing efficient protocols to capture data at the enterprise level, in ways that reduce the burden of data capture or error checking. Edval has led the design of www.liss.org.au and also had a lot of input to the SIFAu standard used by the government. This includes being a lead contributor in the area of daily variations and timetabling, when designing the data schema.

32. Improve flexible working.

The DfE put out a call for providers to help improve flexible working. Edval attended the DfE summit and spoke briefly to the 50 attendees. Edval has also produced thought leadership on 'Flexible Working', that has received a lot of interest and reshares by senior leaders on Twitter. Edval's pledge was published on the DfE webpage for this summit.

By reducing barriers to flexible working, we reduce workload. Teachers can have more time off when they need it, in flexible ways that better suit the individual. By making it easier to schedule flexible working within schools, the administration effort is further reduced.

Edval's initiative in this area extends to running major events to help educate teachers on smarter timetabling, and how to better schedule flexible working in schools.

33. What-if analysis.

Smarter timetabling facilitates analysis of various curriculum models. It answers questions quickly and efficiently, in ways that existing legacy timetabling cannot. This is invaluable in the planning phase and significantly reduces workload.

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