Resource Management Timetabling

Terry Phillips discusses the role of the timetable in the efficient management of an EFL school

Any solution to the problem of timetabling, paper-based or computer-assisted, must recognise that the timetable is the key resource management tool in a language school. Tactical management is largely about resource management, and the timetable brings together all the key resources that must be managed by the tactical manager - teaching staff, supervisory staff, classes, rooms, time and, in an elegant timetabling solution, physical resources such as videos, OHPs, etc. The printed timetable can also be one of the key channels of communication by which new and on-going information can be disseminated in a controlled way to staff. Information is one of the key resources that a tactical manager has to manage. If you lose control of the channels of communication, rumour takes over, and the simplest piece of information is distorted in the telling and retelling. The very best kind of communication channel is one which goes to everyone concerned at the ame time and is read by those who received it because they want to, not because are told to. All teachers want to read the timetable as soon as it comes out, so it is the very best way to communicate the majority of day to day information to them.

Ideally, the timetabling solution I am proposing should be database driven. But since I know a fair bit about spreadsheets and very little about relational databases, this version is spreadsheet based. I call it the Resource Management Timetable (RMT).

In the first extract from the spreadsheet (Table 1), we can only see details for two days. This is to simply to improve readability. In the full version, every day that the school is open must be listed - printing would be on A3. Listing every day separately is essential, despite the fact that /ednesday's classes, for example, may be 'the same' as Mondays. The basic structure may be the same, but what if there is a meeting on Wednesday but not on Monday, or if Room 1 will be out of action on Wednesday for some reason? To be fully effective as a channel of communication, each day must be clearly listed.

When reading the following timetable, imagine that this school has:

- 5 rooms numbered 1 to 5
- 5 teaching slots of 1_ hours each day
- 8 levels of General English classes from Level A to Level G
- 8 teachers T1 T8; in the real version, each teacher would, of course, have unique initials e.g. T1 might appear as AM for Anne Murray.
- 2 supervisors (S1 and S2) and two managers (M1 and M2)

The key points to notice about this RMT are:

- Information can be accessed in four main ways - by teacher, by class, by room or by time. We can see at a glance which teacher is teaching which class in which room at which time of each day.
- 2. We can also see who is on Reserve (R) if a teacher is absent at a particular time. This means you, as the tactical manager, do not have to spend your time checking teacher arrivals at every class start time the nominated reserve teacher, for example, could take that role
- 3. We can see which manager is on Duty (D) at each time. All staff - not just teachers - therefore know who to come to in the event of a problem. It is very important that such 'information nodes' are set up in a business so that one

- person, usually the DOS, is not accessed for every possible piece of information.
- 4. Class names are meaningful. A13 is a class at Level A, which begins at 13:30. A132 is a class at the same level and time but it is on a Tuesday. What code name would you give to a different class at the same on a Wednesday? What if you had two classes at the same level at the same time on the same day?
- 5. There is an extra cell for each room for each day. Physical resource information can be given there for example the video set will be in Room 1 on Monday but Room 2 on Tuesday (Cleaner please note).
- 6. Since this timetable is going to every member of staff - including ancillary staff - anyone can help a student or a new teacher to the correct location. The timetable, or a version of it, could even be displayed for student use.
- 7. Special notices which are time-related can be included on the timetable for example, D13 in Room 5 is a new class starting on Monday 12th so the cell is shaded. Oh, and there is a Staff Meeting at 16.30 in Room 2.

In Table 1 we can see how a daily timetable can give key information about occupation of rooms by particular student groups, and teacher allocation. It can also be used to convey general time-related or resource-related information.

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Table 1: RMT for teachers, rooms and student groups + physical resources + general communication channel:

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Table 2: RMT for analysing teacher utilir ation and classes:

But we can go much further than simply laying out the information. We can analyse it in real-time to assist in utilising teaching staff correctly, and, once the timetable is complete, we have automatically created a complete record of each day, week, semester and year in terms of teachers and classes. A one-day extract from such a timetable is shown in Table 2.

Firstly, the spreadsheet automatically adds up the hours of each teacher (divided, if appropriate, into contract and hourly paid) each day, and thereby helps us to ensure that no teacher is timetabled for more hours than their contract, and is teaching on the days and at the times agreed. The spreadsheet also automatically adds up the hours for each type of class to give us d of the number of hours for each product. In the extract in Table 2 we can see, for example, that teacher T1, a contract teacher, is timetabled to teach 4.5 hours on Monday between 13.30 and 19.30, and that there are 7.5 hours of Level A on Monday.

It is obvious that, by adding together the teacher results for each day, we can get a composite result for the week. We can keep a running total of contract teacher utilisation and compare that with targets that we have set for each week and for each month / semester / year. In order to read the TEACHERS example in Table 3, you need to understand the following:

- Available = number of hours they are contracted or have agreed to teach
- Taught = number actually taught
- Util = percentage utilisation
- Target = your budgeted number of hours

- Variance = the difference between your budget and the Taught amount
- % Variance = the % difference between your budget and the Taught amount

Table 3: RMT for teacher utilisation:

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AVAILABLE	TAUGHT	UTIL	AVAILABLE	TAUGHT	TARGET	VARIANCE	%VARIANCE					
25	19	76%	100	90	90	0	0%					
25	25	100%	100	100	90	10	10%					
24	21	88%	96	84	88	-4	-55%					
74	65	88%	296	274	268	6	2%					
15	20	133%	60	60	60	0	0%					
6	6	100%	24	24	24	0	0%					
6	6	100%	24	20	20	0	0%					
3	3	100%	12	12	12	0	0%					
0	0	-	0	0	0	0	0%					
30	35		120	116	116	0	0%					
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You should be able to see from this that you are broadly on target. Note - contract teacher utilisation can rarely be 100% - here the target is set at 90%.

On this basis, T1, for example, is down this week but on target for the semester to date. What about T2 and T3?

You can also see at a glance your current and your semester to date contract to hourly paid ratio - a key indicator in many schools as there is a significant difference between the costs of each type of teacher.

By adding together the class figures for each day, we can also get a running total of hours for each level - see Table 4. This is useful as a cross check with the teacher hours figures above. It is also important information if different levels are also different products i.e. they sell to different market sectors and have different cost structures. It is not enough to keep a record of total number of hours taught against budgeted hours in this case. If a high profit margin level / product is under or over budget, that will clearly indicate a change in your predicted profit margin. In order to read the CLASSES example below, you need to understand the following:

- Taught = number of hours actually taught for this level
- % = percentage of total hours for this level
- Target = your budgeted number of hours for this level
- Variance = the difference between your budget and the Taught amount
- % Variance = the % difference between your budget and the Taught amount

Table 4: RMT for product mix:

			CLASSES							
	THIS WEEK		SEMESTER TO DATE							
LEVEL	TAUGHT	%	TAUGHT	TARGET	VARIANCE	VARIANCE %				
A	36	35%	144	160	-16	-10%				
В	22	21%	88	88	0	0%				
С	15	14%	55	55	0	0%				
D	12	12%	40	24	16	67%				
E	10	10%	30	24	6	25%				
F	5	4%	15	15	0	0%				
G	3	3%	12	12	0	0%				
н	2	1%	6	6	0	0%				
TOTALS	104	N. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	390	384	6	90/				

So in this example we can see that you taught 36 hours of Level A this week, which was 35% of the total.

W. In also see (bottom right) that overall you are 2% up on hours taught against target. But you are 10% down on the number of hours budgeted for Level / Product A for the semester to date. What about Level D and Level E? If Level A is high profit and Level D is low profit, your profitability has declined although the

number of hours taught has increased. Perhaps you have been thinking whilst reading the analysis tables - surely this information is confidential and would not go to the staff, or be displayed on a noticeboard. That, of course, is your decision. If you adopted something like the RMT, you could, of course, simply print and distribute the actual timetable information with none of the analysis. However, you may be missing an important element in

achieving staff satisfaction and involvement if you do that. In my experience, contract teachers are extremely concerned about the number of hours they teach and, perhaps more importantly, the number of hours that others teach. The first thing many teachers do when they get the timetable is to add up their hours and the second thing is often to add up all the other contract teachers' hours. So publishing this information, for the week and for the semester to date, shows that you are aware of discrepancies and, assuming this is true, that you make adjustments in the medium term which ensure that all contract teachers are treated equally.

This article is about a process, not a product. I do not have an all-singing, all-dancing version of this idea and I would be delighted if someone produced one, or, even better, paid me to do so. But I do have an electronic version available of what you see here, which enables you to play with it and see the possibilities. If you would like a copy, email me at terry@wtc-in-elt.com.

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