

How to Use a Transition Matrix with National Standards Data

What is a transition matrix?

A transition matrix is a table which allows us to look at student data from two different time points, and consider students' progress, as well as achievement. It is a useful way of getting a "birds-eye view" of student progress and achievement across a diverse group and identifying areas for further inquiry.

Looking at achievement

End Year 4 2010			WB	Be	At	Ab
	Total	84	14 17%	31 37%	29 35%	10 12%

In the above example we have 14 students who are well-below the standard, representing 17 per cent of the total number of students, 84. This gives us a picture of this group of students' achievement at that point in time.

Looking at progress

In the following table, we look at how those 14 students who were well-below the *By the End of Year 4* standard achieved against the *By the End of Year 5* standard the following year.

End Year 5 2011		Ab					
		At	1				
		Be	7				
		WB	6				
End Year 4 2010		Total	84	WB 14 17%	Be 31 37%	At 29 35%	Ab 10 12%

Of those 14 students who were **well-below** in 2010:

- 1 is now meeting the standard.
- 7 are now below the standard
- 6 are still well-below the standard

This means that 8 out of those 14 students have made more than expected progress over the year. 7 are closing the gap and one has now reached the standard. This allows us to see the difference that has been made for that group of students.

Now let's look at the students who were **below** the *By the End of Year 4* standard in 2010.

End Year 5 2011		Ab		2			
		At	1	12			
		Be	7	13			
		WB	6	4			
End Year 4 2010		Total	84	WB 14 17%	Be 31 37%	At 29 35%	Ab 10 12%

Of those 31 students who were below the *By the End of Year 4* standard in 2010:

- 2 are now above the standard
- 12 are now at the standard
- 13 are still below the standard
- 4 are now well-below the standard.

This means that although 14 students have made more than one year’s progress in relation to the standards, 4 have made less than one year’s progress in relation to the standards, and are now well-below.

The whole picture of achievement and progress

		Total	84					
End Year 5 2011		10	12%	Ab	1	3	6	
		29	35%	At	1	5	7	
		34	40%	Be	7	13	2	
		11	13%	WB	6	4	1	
		End Year 4 2010	Total	84	WB	Be	At	Ab
					14	23	32	15
					17%	27%	38%	18%

We now have a complete picture of how the whole group is now, how they were a year ago and how much progress has been made by every student. Looking at the diagonals:

- the light blue area contains students who have shifted up two or more bands in relation to the standards
- the dark blue area contains students who have shifted up one band in relation to the standards
- the green area contains students who have stayed at the same level in relation to the standards
- the yellow area contains students who have shifted down one band in relation to the standards
- the orange area contains students who have shifted down two or more bands in relation to the standards.

Looking at the diagonals allows us to consider the progress that has been made by every student, regardless of their starting point.

Looking at the columns allows us to see what happened to a particular group of students over the course of a year. We can use this to evaluate the impact of our actions in regard to a particular group. For example, of those students that were well-below the standard in 2010, how many are now below the standard?

Looking at the rows allows us to see where a particular group of students came from in terms of their achievement. This may be useful information for students’ next teachers. For example, of those students currently at the standard, how many were below the standard a year ago?

Demographic subgroups

A more complex version of a transition matrix can be used for inquiring into patterns for subgroups like gender or ethnicity. The table below includes Māori, Pasifika and English language learners. All of these groups need to be included in the total for us to understand the difference that is being made for all students. However, separating groups out can be useful for establishing a basis for further inquiry.

Year 5 Cohort Progress

		Total	84					
		Māori	10					
		Pasifika	12					
End Year 5 2011	All	15	18%	Ab		2	7	6
	Māori	0	0%					
	Pasifika	2	17%			1	1	
	ELLs	0						
	All	32	38%	At	1	12	16	3
	Māori	4	33%			2	1	1
	Pasifika	5	42%		1	1	2	1
	ELLs	0						
	All	26	31%	Be	7	13	5	1
	Māori	3	25%		1	1	1	
	Pasifika	3	25%		2		1	
	ELLs	0						
	All	11	13%	WB	6	4	1	
	Māori	3	25%		1	2		
	Pasifika	2	17%		1		1	
	ELLs	4			4			
End Year 4 2010	Total	84		WB	14	31	29	10
					17%	37%	35%	12%
	Māori	10			2	5	2	1
					20%	50%	20%	10%
	Pasifika	12			4	1	5	2
					33%	8%	42%	17%
	ELLs				4	0	0	0

It is vital to note that when subgroups are separated out, numbers can quickly become quite small. There are two reasons that such data needs to be handled carefully:

- Reporting it publically has the potential to infringe on an individual's privacy.
- Percentages or proportions can quickly become misleading, making changes appear more significant than they really are. It is important to check the actual numbers of students to understand what is really going on.