

Using data to target teaching

Table 1: Standard and developmental models of thinking about assessment

| Standard model | Developmental model |
|--|---|
| Assessment occurs after instruction is complete | Assessment is used to improve teaching |
| Teachers don't question each others' data or strategies | Teachers hold each other accountable based on their data and teaching strategies they use |
| Teach whole class at once, with a bit of help for the lower kids and a bit of extension for the top kids if possible | Targeted teaching as much as possible – ideally individually but even 3-5 levels is usually sufficient |
| Compare students to norms and focus on what students cannot do | Compare students to criteria and focus on what students can do and what they are ready to learn |
| Deficit thinking: students must be at a certain year level norm and I must correct all the deficits they have | Developmental thinking: assessment tells me where a student is in their development and I teach them from there |

Greater student growth is seen using a developmental model rather than the standard model of thinking

Introduction

The best use of assessment in school education is to improve teaching, not to provide summative information at the end of a teaching sequence (Griffin, Care, 2009). Using skill-based rubrics that conform to certain guidelines, teachers can gain valuable, high quality data they can use to target teaching to student point of readiness. This article will briefly examine the theoretical underpinnings of the method, discussing the difference between the standard and developmental models, and the benefits of rubric use. How to gather and record assessment data from rubric will next be looked at, followed by an explanation of how to assign targeted activities based on this data. Finally, a suggested method for developed targeted learning activities will be shown, with an example of a composite rubric and set of activities mapped onto it.

Standard vs. developmental models of thinking

The majority of people, including most teachers, have a standard model of thinking when it comes to thinking about the connection between learning and assessment. To advance student learning, it is suggested a developmental approach be taken (Griffin, Care, 2009). Table 1 demonstrates some of the differences between these two different ways of thinking.

Greater student growth is seen using a developmental rather than the standard model of thinking. There are, of course, challenges. Developing a culture of challenge rather than just support within teaching teams can prove difficult. Developing the teaching material and classroom management strategies to implement small group and targeted teaching, especially in the secondary environment where it isn't a common occurrence, is also something requiring attention.

Using rubrics

Using rubrics that conform to certain quality guidelines, as linked previously, provides benefits for students, parents and teachers. Students can see the domain of the skill or knowledge they're being asked to learn, and not have to infer or guess it from limited teacher comments. They can see what they need to do to get better at a glance. They get higher quality feedback on their performance rather than a letter or number and a 'well done'. They can use assessment data as information, rather than see it as a value-laden judgement about themselves.

Parents know what their child can do and how to improve, rather than how they compare to others. If used correctly, they will also see a higher level of motivation from their children, especially those at the higher and lower levels.

Figure 1: Rubric for Year 7 History essay about Spartan soldiers

| | | | |
|---|---|--|---|
| 3: Applies knowledge to justify beliefs | 3: Writes descriptive and/or creative sentences | 3: Uses history concepts correctly | 3: Includes bibliography using Harvard style formatting |
| 2: Describes specific details | 2: Writes easy to read sentences | 2: Explains some history key words correctly | 2: Produces author, date, title format for bibliography |
| 1: Lists facts | 1: Writes sentences | 1: Uses history key words correctly | 1: Refers to sources |
| Knows content | Communicates | Uses terms and concepts | Produces bibliography |

Figure 2: Spreadsheet with rubric data

| Name | Knows content | Communicates | Uses terms and concepts | Produces bibliography |
|-----------|---------------|--------------|-------------------------|-----------------------|
| Student 1 | 2 | 1 | 1 | 2 |
| Student 2 | 2 | 2 | 2 | 3 |
| Student 3 | 2 | 2 | 3 | 1 |
| Student 4 | 2 | 1 | 2 | 2 |
| Student 5 | 3 | 2 | 3 | 3 |
| Student 6 | 3 | 3 | 2 | 3 |
| Student 7 | 1 | 1 | 1 | 1 |

Rubric use makes judgments between teachers more consistent, leading to easier moderation

Teachers also benefit. Rubric use makes judgments between teachers more consistent, leading to easier moderation. The rubric provides more detailed information for reporting to parents and requires less individual comments for assessment tasks. The creation and use of rubrics also leads to rewarding professional discussions between teachers about what is being taught, how and why. Finally, as this article will argue, teachers can use rubric data to target teaching to where the student is ready to learn.

Recording data from rubrics

To record data from a rubric, we need to assign numbers to each level. Have a look at Figure 1 as an example.

Now each level has a number, it can be entered more easily into a spreadsheet for further manipulation. The spreadsheet containing this information should look like Figure 2.

Student 7 scored a '1' in the 'knows content' skill. We know that a '1' in the 'knows content' column *codes for* 'lists facts'. Because the rubric has been written in a way that lists increasingly difficult displays of skill, we know the student can list facts, and therefore the thing they're ready to learn next is 'describing specific details'.

Assigning targeted activities

Using the information from the spreadsheet, we can add another two columns, 'targeted activity #1' and 'targeted activity #2'. It is up to teachers how many targeted activities they wish students to complete. The example in this article assumes teachers will use two.

In the targeted activities columns, we put the next (higher difficulty) level of performance. So, in our

example above, Student 7 would have 'describing specific details' listed as one of their targeted activities. Students are assessed on four skills in our example, yet we have only assigned them two targeted activities. We could potentially assign them four. However, experience has shown that between one and three targeted activities is about the right amount, given time constraints and the attention span of students to complete targeted activities.

To decide which of the four skills to ask students to complete targeted activities in, teachers should use their professional judgement. Factors that should be taken into account when making this decision include previous assessment or knowledge of the student, and class and school curriculum priorities.

Figure 3 shows an example of a full set of assigned targeted learning activities, using the data in the table.

In this example, preference has been placed on the importance of improving students' communication skills, then content skills. Note that two students have been assessed at the top of the rubric in all but one skill, and so have been assigned an extension activity. This could be something from the topic being studied, but of a more complex nature. Ideally, extension activities should involve developing higher order thinking skills.

The quickest way to determine which activities to assign to particular students is to use the filter feature of Microsoft Excel. By applying a filter to the top row, one can sort columns one at a time and assign a particular activity to each person with a particular score for a skill. In the above example, one could first sort the 'communicates' column

Figure 3: Spreadsheet with rubric data

| Name | Knows content | Communicates | Uses terms and concepts | Produces bibliography | Targeted activity #1 | Targeted activity #2 |
|--------------|---------------|--------------|-------------------------|-----------------------|--|--|
| Student 1 | 2 | 1 | 1 | 2 | Writes easy to read sentences | Applies knowledge to justify beliefs |
| Student 2 | 2 | 2 | 2 | 3 | Applies knowledge to justify beliefs | Uses history concepts correctly |
| Student 3 | 2 | 2 | 3 | 1 | Applies knowledge to justify beliefs | Produces author, date, title format for bibliography |
| Student 4 | 2 | 1 | 2 | 2 | Writes easy to read sentences | Applies knowledge to justify beliefs |
| Student 5 | 3 | 2 | 3 | 3 | Writes descriptive and/or creative sentences | <i>extension</i> |
| Student 6 | 3 | 3 | 2 | 3 | Uses history concepts correctly | <i>extension</i> |
| Student 7... | 1 | 1 | 1 | 1 | Writes easy to read sentences | Describes specific details |

from smallest to largest, and quickly assign every student who scored a 1 in this skill the activity ‘writes easy to read sentences’.

Continue doing this for all skills until every student has two activities assigned to them. As mentioned, some students might score so highly they will need extension activities. However, if students are consistently scoring very highly on all skills, teachers should consider adding higher levels of difficulty.

Writing targeted activities

Now all that remains is to create the targeted activities, and to get students to complete them. There are many different ways this could be achieved depending on the nature of teaching teams. Below is a composite rubric document that has hyperlinks within it to a large number of targeted activities for middle school (Years 7–10) history skills.

<https://aitkenhumanities.files.wordpress.com/2016/05/composite-rubric-history.pdf>

The first page shows a large rubric, which is a combination of all the smaller rubrics used for individual assessments. It caters for skills from roughly a Year 5 level up to post-secondary. Some skills on this composite rubric contain a hyperlink to activities that have been written for them. Only about a third of skills have activities written for them at this stage.

The template for creating these activities used in this example was:

- Name of skill
- Explanation of what the skill is

- Text/diagram (video links would also be good) teaching the skill
- A statement saying “read the examples and complete the exercises”
- Two worked examples
- 2–3 exercises for students to complete.

Summary

A developmental model of thinking brings benefits to students, parents and teachers. Students know what they can do and where to go next. Parents can see what their children can do and how to help them, not how they compare to others. Teachers can use the data to target teaching intervention. By using assessment data from rubrics, we can assign individual tasks to different students at their point of readiness. Creating a large bank of these targeted activities in teaching teams allows schools to target teaching while keeping teacher workloads manageable.

The benefits of targeted intervention are well-documented (Goss, Hunter, 2015; Timperley, 2009). It is time we took the plunge.

References

- Goss, P, Hunter, J 2015, *Targeted teaching: How better use of data can improve student learning.*, available at <https://grattan.edu.au/report/targeted-teaching-how-better-use-of-data-can-improve-student-learning/>, accessed 1 May 2017.
- Griffin, P, Care, E 2009, ‘Assessment is for teaching’, *Independence*, vol. 34, no. 2, pp. 56–59.
- Timperley, H 2009, *Using assessment data for improving teaching practice*, Paper presented at the 2009 ACER Research Conference.

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