The SWANs/ABLES Project: A set of resources developed collaboratively with teachers to support the teaching and learning of students with additional learning needs

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Abstract

The inclusion of students with additional learning needs in schooling is part of policy and practice in Australia. However, it has been well documented that teachers lack the resources and training to meaningfully include students with additional learning needs in the full range of learning in their classrooms. The SWANs (Students with Additional Needs) program of work aimed to fill this gap through developing assessments based on learning progressions to provide targeted information to support the teaching and learning of all students, including students with additional learning needs. The development and implementation of the SWANs/ABLES suite of resources illustrates how a practical assessment tool can support teachers to target the learning of students with additional learning needs regardless of their point of readiness to learn.

Introduction

Policies in Australian state education departments support the inclusion of students with additional learning needs in mainstream schools (e.g. Victorian Department of Education and Training) but the responsibility for implementing policy into practice lies with teachers (Sharma et al., 2012). However, teachers can lack the skills, resources and training to meaningfully include students with additional learning needs in classrooms (Senate Standing Committee on Education and Employment [Senate Committee], 2016; Victorian Equal Opportunity & Human Rights Commission [VEOHRC], 2012). The SWANs program of work aimed to fill this gap in knowledge through developing assessments based on learning progressions that provide teachers with targeted information to support the teaching and learning of all students including students with complex learning needs.

Research and development

Assessments based on learning progressions can provide teachers with information about what a student knows and what a student is ready to learn next to progress. An underlying assumption of learning progressions is that the skill to be measured can be structured in a way that describes increasing proficiency in skills and knowledge as students learn and develop. Thus, rather than describing a can-or-cannot conclusion about outcomes, assessments based on learning progressions aim to infer a student's level of achievement on a developmental continuum.

The SWANS program of work began in 2007 and was developed through two Australian Research Council (ARC) Linkage grants in partnership with the Victorian Department of Education and Training.

SWANS applied a method developed by Griffin (2007) that combined the work of Vygotsky (1980), Glaser (1981) and Rasch (1960) to build assessments based on learning progressions. Griffin (2007) equated Vygotsky's (1980) Zone of Proximal Development (a range of learning proficiency at which a student can progress with the support of a more capable other) to the point at which a student has a 0.50 chance of achieving a skill described in terms of criteria of success. In the Rasch model (Rasch, 1960), this point is estimated to be where the ability of the person is equal to the difficulty of the task. The work of Glaser (1981) on criterion-referenced interpretation of student performance was applied to describe students in terms of what they can do against criteria of performance quality.

SWANS aimed to expand the general curriculum to describe learning from a pre-intentional stage of learning to a stage where students are able to independently learn. In this way, it takes a strengths-based approach to describe students in terms of what they can do, regardless of their starting point for learning. Its intention is not to replace the general curriculum but to extend its access to all students. In this way, it describes emergent levels of learning in the following learning domains that were judged to be foundational skills for learning:

- **Communication:** the development of functional communication skills, building towards the use and understanding of social expectations about communication (Woods, 2010).
- **Literacy:** the development of the ability to make and interpret meaning using symbols (including pictures, signs, numbers, and text) leading towards early reading and writing (Woods, 2010).
- **Digital Literacy:** the development of the ability to interpret and use the language, symbols, and tools of digital technologies in a culturally appropriate manner. This includes learning to use technologies and using technologies to learn (White et al., 2017).
- **Numeracy:** the development of skills needed to notice, describe, understand and use numeracy information, including number and its operations, shape and pattern (Strickland et al. 2016).
- **Social Processes:** the development of skills to support social interaction, social responsibility, and a capacity to transcend social difficulties. These are the skills that help a student to learn both from and with others (Coles-Janess & Griffin, 2009).
- **Emotional Understanding:** the development of understanding about the experience and expression of emotions in self and others (Roberts, 2014).
- **Learning Skills:** the development of skills related to attention, memory, and executive functioning in school and classroom interactions, and that help students become more active and independent learners (Roberts, 2014).
- **Thinking Skills:** the development of strategies to actively participate in learning by using trial and error, evaluating outcomes, categorising, initiating activities and making choices. This leads to the development of skills involved in critical thinking such as predicting, planning, evaluating, and monitoring progress (Kamei, 2019).
- **Movement:** the development of the ability to achieve goals through strategic use of the movement capabilities of the body, enhancing agency, participation, and independence (Gale, 2018).

Initial framework development

The method of developing the assessment frameworks applied principles of validity based on the seminal work of Messick (1989) and employed procedures described by Wolfe and Smith (2007a; 2007b) and Wilson (2005).

The structure of the assessment frameworks was hierarchical. It defined the construct, or the skill to be measured. The construct is then broken down into strands that describe broad categories that are critical to the construct and then further into capabilities to describe key skills within each of the strands. Indicators were developed for each of the capabilities that are an indicative sample of a student's competence described as behaviours that students do, say, make or write. These indicators were then broken down into quality criteria that describe how well students can demonstrate competence in each indicator. This method of breaking the construct down into increasingly detailed levels of manifestation helped to ensure that the resulting assessment described the construct defined in the first step (Wilson, 2005).

A review of research was carried out to develop an initial theoretical assessment framework for each of the assessments consisting of a construct, capabilities, strands, indicators and quality criteria.

Collaboration with teachers

One important principle underlying the development of SWANs was that it was a tool for all teachers rather than specialists. Thus, an important aspect of development was the co-design process in collaboration with teachers. This phase of the methodology involved a series of workshops with subject matter experts (SMEs) who were teachers experienced in the teaching and learning of students with additional learning needs.

The SMEs reviewed the initial theoretical frameworks. They modified the initial framework and drafted additional indicators and quality criteria to reflect what the skills would look like in an educational setting in language that was accessible to all teachers. This process of review and drafting a pool of items ensured the assessments were interpretable and practical for all teachers and did not require specialist expertise. Moreover, it fostered a sense of shared ownership of the developed resources.

Large-scale field trial

In the next phase, large-scale field trials were carried out to collect student assessment data. The indicators were written as question stems and quality criteria as response options. This provided a set of questions in observation-based multiple-choice format for teachers to respond to based on their knowledge of their students accumulated through their regular interactions with them. Thus, students were not required to sit tests or to carry out specific tasks. Judgements of competence were made by teachers using their stored knowledge about students to choose responses based on evidence of what their students typically do, say, make or write.

The data were analysed using the Rasch partial credit model (Masters, 1982) to check the technical quality of the assessments. Estimates of difficulty were used to empirically order the quality criteria from lower to higher levels of difficulty. This information was used to derive a learning progression based on student assessment data.

SMEs were called on to review the empirically derived learning progression. They provided judgement as to where the key transitions were as students progressed in the domains of learning.

This step ensured that the resulting level statements described transitions that would be useful to teachers for planning their teaching and instruction. SMEs focused on recognising transitions that were observable key transitions that were useful for teachers while students progress from one level of learning to another. These were used as the basis to write level statements for the learning progressions.

Instructional strategies

In the final step, SMEs were drawn on to review and write evidence-based instructional strategies mapped to each level of learning in the learning progressions to progress students from one level of learning to the next. Workshops took place where SMEs were presented with case studies of students and asked to make judgements on appropriate instructional strategies for them. Subsequently, the strategies were piloted with a separate group of SMEs who provided feedback on their practicability and applicability.

Structure of the assessment tools

The SWANs assessment instruments have subsequently been programmed to be delivered online in a questionnaire format. Figure 1 is an example of a SWANs item for Thinking.

Figure 1 SWANs item for Thinking

The screenshot displays a web-based assessment interface. At the top, a breadcrumb trail shows 'Period 2 2021, Thinking Skills' > 'Class1' > 'Test Student'. Below this is a 'Show full details' link. A progress bar at the top shows 18 items, with the first item (1) selected. The current item is '1/18 Focusing on relevant information'. The instructions state: 'Choose the closest match to this student's typical performance. If the student's performance falls between two levels, select the lower one. Students may demonstrate their skills/understanding with or without the use of assistive technology (e.g., switch, closed captioning) and by using their typical communication mode (e.g., speech, signing, picture exchange, AAC device, etc.)'. The options are:

- ☐ Attends to an object, noise or activity produced by a familiar person (e.g., looks, listens, turns towards the object, noise or activity)
- ☐ Selects information or objects from two choices according to relevant cues with support (e.g., if asked to look at the size of objects, makes choices based only on size and ignores irrelevant characteristics such as shape or colour with visual or verbal prompting)
- ☒ Selects information or objects according to relevant cues (e.g., selects the red pencil, the tallest tree or the biggest triangle visually, aurally or tactually)
- ☐ Compares the key information to guide a search strategy or complete a task (e.g., when asked to circle capital letters, student circles the first word in the sentence and proper nouns, while ignoring lower case letters and punctuation; selects and compares relevant pictures, objects or information while disregarding all irrelevant ones to complete a task)
- ☐ Is moving towards but has not yet achieved these skills/behaviours

At the bottom, there is a 'Reset' button and a 'Next' button. A progress bar at the very bottom shows 100% completion.

Teachers respond to the series of questions and a report is generated based on their responses. An example of a learning report is shown in Figure 2.

Figure 2 SWANS learning report nutshell statements

Figure 3 SWANS learning report extended statement

Figure 4 SWANS teaching and learning strategies

Figure 2 illustrates the learning progression for the learning domain by presenting 'nutshell statements' or brief descriptions of the competencies within each level of learning. The level within which a student is working is denoted by the dark black line.

Figure 3 shows an extended statement that describes in more detail the level within which a student is working. Teachers can use this information to set targeted short and long term goals for their student.

Figure 4 shows teaching and learning strategies that provide suggested teaching and learning strategies for teachers to use to progress their student from their present level of learning to the next.

SWANs and its connection to ABLES

The SWANs suite of materials were developed in conjunction with the ABLES (Abilities Based Learning and Education Support) work to strengthen its connection with the Victorian curriculum and enhance its use in Victorian schools. The ABLES version of the assessments links the foundational skills to the most relevant learning domains in the Victorian school curriculum (Victorian Curriculum and Assessment Authority [VCAA], 2021) and reports student progress in these terms.

Impact and further development

The SWANs and ABLES tools were subsequently programmed online to be disseminated nationally. Approximately 360 000 student assessments have been carried out to date by the SWANs/ABLES assessments.

Informing the curriculum

The SWANs resources informed the development of the Victorian Towards Foundation Curriculum (Underwood, 2020) that was developed in response to the Disability Standards for Education (Australian Government Department of Education and Training, 2005) that set out that all students should have access to curriculum on the same basis. Teachers of students with more severe disability commented that often, it was hard for them to 'see' their students in the curriculum (Underwood, 2020, p. 209). The SWANs research on interpersonal skills or social skills, communication, emotional skills, and cognitive or learning skills were particularly relevant to both the content and structure of the Towards Foundation Curriculum (Underwood, 2020).

Ongoing development

The SWANs work has been foundational in the development of further resources and work is ongoing. There have been two projects with the Victorian Department of Education and Training to adapt the SWANs suite of resources for use for students with additional learning needs in early childhood settings. This resulted in a set of assessments called Early ABLES. This has then further led to work to adapt the Early ABLES suite of resources for all children aged two to six years in funded kindergarten programs called the Early Years Assessment and Learning Tool. This work commenced in 2020 and is ongoing.

In addition, work has taken place with the Australian Curriculum and Assessment Authority (ACARA) to map the SWANs suite of resources to the national literacy and numeracy learning progressions. This was undertaken to ensure that the learning of all students, including students with additional learning needs, was included in the national learning progressions. This also led to further work to map the SWANs resources to the ACARA Critical and Creative Thinking and Personal and Social Capabilities Continua.

Conclusion

The SWANs program of work has continued since 2007 through two ARC Linkage grants in partnership with the Victorian Department of Education and Training. It drew together input from hundreds of assessment specialists, school leaders, teachers, specialist professionals, and curriculum leaders and is based on thousands of points of student assessment data. Through this process, all teachers now have the tools to understand students using the perspectives of teachers experienced in working with students with additional learning needs.

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