Literacy across the curriculum at secondary school

School resources

Effective literacy practice in secondary schools enables students to access and engage in learning in all subject areas. This research review explores the literacy demands of the secondary school context, and outlines some ways in which secondary school teachers may develop and enhance learning through a disciplinary literacy approach.

The literacy demands of secondary school

In order to engage successfully with the secondary school curriculum, adolescent learners must have a range of literacy abilities to allow them to connect with each subject or learning area for a range of purposes. As students move through secondary school, the texts that they engage with become more complex, the concepts and ideas become more abstract, and the purposes for reading and writing become more specialised[1]. The vocabulary that students encounter throughout secondary school becomes increasingly specialised, technical and subject-specific.

In addition, today's adolescents are immersed in a world of complex digital media environments that require skills in navigation, comprehension, analysis and evaluation across multiple sources. The array of information available to students is vast, and the literacy skills and knowledge required to use that information are increasingly complex. This means that the literacy skills and knowledge that students obtained at primary school will not be sufficient to see them through secondary school, and that literacy learning needs to be ongoing.

Disciplinary literacy

Disciplinary literacy provides a means of conceptualising literacy learning within the context of each secondary school learning area. It is an approach that pays attention to the ways in which learning occurs in each context, so that literacy is not seen as 'additional' to teaching and learning but rather as an essential component of how learning happens. Disciplinary literacy examines what is valued by the discipline and how students in that subject read, write, think and communicate. For example, in the English learning area, students often engage in the study of literature that involves an understanding of how an author constructs a text, the recognition and interpretation of language features, and the development of a personal response to literary texts[2]. In science, knowledge is gained from empirical evidence gathered through hypothesis testing and observation, and focuses on accuracy and supporting evidence. Students are required to design, carry out and record results of investigations, link practical investigations to theory, and communicate their findings[3]. Learning in History requires students to think analytically and critically about the contexts in which texts or ideas are produced, and to seek and find sources of evidence to challenge or corroborate claims[4].

Whilst the literacy skills that constitute secondary level science, English, history or any other learning area share some common features, each subject uses literacy differently. When teachers develop students' literacy skills in the context of each subject, they also build an understanding of how knowledge is produced in the disciplines, rather than just building content knowledge[5]. Literacy therefore becomes an essential and integrated aspect of teaching practice rather than a set of generic strategies

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brought into the discipline to improve the reading and writing of texts. Viewed in this way, disciplinary literacy teaching and learning require teachers to consider:

- What is valued practice in my learning area?
- What kinds of reading, writing, thinking and communicating are expected ?
- How do I support students to develop these skills in my context?

Attending to students' disciplinary literacy learning increases access to and participation with the texts and task that students encounter. Disciplinary literacy also has a role to play in in promoting equity and social justice. Literacy is fundamental for success in school and in later life, and students who are able to read, write and communicate effectively are able to engage in learning, particularly at higher levels of the secondary curriculum, leading to academic qualifications and increased opportunities beyond school.

Effective disciplinary literacy practice

There are a number of strategies that may be used at classroom, department and school level to support strong disciplinary literacy practice across all curriculum areas.

Build awareness of disciplinary literacy

An initial step in developing effective practice is to build awareness of the literacy demands within the context of each learning area. Awareness building might happen at a departmental or school-wide level, and could involve teachers sharing examples of the texts and tasks (oral, written and visual) that they use with students, whilst talking about the strengths and challenges that students experience when using those texts. Teachers might also share examples of lesson planning, and talk about the expectations they have of what 'good' reading, writing and communicating looks like in their own context.

At a department level, teachers might also discuss their expectations of students at the upper end of secondary learning, and then examine how they are progressively building students' literacy skills and knowledge from early to late secondary. This exercise supports teachers making connections to the disciplinary literacy practices that are part of their everyday work. As teachers develop their own understanding of disciplinary literacy, they increasingly share this understanding wtih their students, leading to greater clarity about the norms and expectations of each subject. Consequently, students increase their awareness of and practise the types of reading, writing and communicating that are valued by each discipline.

Provide opportunities to read, write and discuss

As teachers think about the literacy practices that are part of their particular learning area or subject, they may also consider the opportunities that are provided for their students to read, write and discuss. Research conducted in a sample of New Zealand secondary schools found inequities in terms of opportunities provided to students, particularly in relation to the types of texts that are presented[6]. The findings from this research indicate that students from lower socio-economic (SES) schools had fewer opportunities to read longer texts, texts provided in their original form, or texts written for adults rather than young people. The researchers also noted that teachers in high and medium SES schools devoted more time to developing students' literacy skills than did teachers in low SES schools, including more opportunities for discussion.

In secondary classrooms, reading is often assigned for homework and reviewed during class time, but this may mean that students avoid the reading and wait for the review in class. However, fluency, stamina and comprehension are all boosted through ongoing opportunities to read, and as outlined later in this

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guide, reading also has a positive effect on writing. Reading during class time has multiple benefits, and might involve a number of approaches such as:

- Reading individually or in groups
- Working together to make sense of a piece of text
- Providing a choice of reading material
- Linking reading to a writing task

Preview texts

An important component of effective literacy practice is teachers carefully previewing the texts to be used for instruction. This includes digital and printed texts as well as visual texts such as diagrams, posters or videos. When previewing texts, teachers pay attention to the structures, vocabulary and knowledge that supports learning through each text, so that they can share that knowledge with their learners. For example, a social sciences article about actions during World War Two may provide a model of writing using a cause and effect structure. Students learn about the content of the article, but their attention is also drawn to a model of writing used by that learning area that they can utilise in their own writing. Similarly, a complex diagram might be used in science to illustrate the Water Cycle. Teachers can draw attention to the content that is being shown, and also the features of the diagram that have been used to communicate effectively with the reader. Previewing material also highlights any complex concepts or ideas that may need to be discussed prior to using the texts, and signals the key vocabulary that needs explicit instruction.

Make connections to prior knowledge and experiences

Making connections enables students to build on their prior experiences to further construct knowledge, and to make meaning of the world around them. An explicit focus on making connections provides opportunities for students to deepen their understanding of concepts and ideas, and to build new knowledge in each learning area. This may involve teacher prompts such as:

- 'What do you already know about…?'
- 'What does this remind you of?'
- 'What is the same/different?'

A visual representation of a key concept can assist students to connect their existing knowledge to new knowledge, such as a physical or digital 'concept wall' where new vocabulary, definitions, and diagrams are added throughout the progress of a unit of work.

Explicitly teach vocabulary

The development of academic language in secondary school is critical, given the increasingly specialised language of each learning area. As students navigate between subjects, they need to adjust to different forms of reading, writing and communicating. Sometimes they encounter the same words that have different subject meanings, which can lead to confusion. For example, 'scale', 'value' and 'factors' have different meanings in mathematics and history.

Teachers need to identify and explicitly teach the challenging vocabulary in the material to be used with students. This may include subject-specific and technical vocabulary that may be new to students, such as 'symbiosis' or 'parameter', as well as any complex general academic vocabulary found in many disciplines, such as 'contradiction', 'elaboration' or 'justify'. Vocabulary instruction may involve:

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- Examining parts of words (prefixes, suffixes and root words), for instance 'anti-', 'photo-', 'pro-'
- Finding other words that start with the same prefix
- Matching root words with a prefix or suffix
- Creating word maps around key vocabulary - for example, including the word, a definition, an example, a picture or diagram, and other similar words
- Providing multiple opportunities to introduce new vocabulary through reading a range of texts
- Writing using new vocabulary, for instance: 'Use these key words in your paragraph'
- Discussion using new vocabulary, for example: 'Use these key words to talk about...'

Develop strategic readers

Within a disciplinary literacy approach, teachers identify the types of reading that students are required to do in each subject, and consider how they are supporting students to read. All learning areas require some form of reading (print and/or digital). For example in mathematics, reading might be in relation to word problems, equations, graphs, reports and/or diagrams. There are several strategies that teachers use to support students to read strategically.

First of all, **setting a clear purpose for reading** supports students to be more strategic and focused in their approach to reading a text. A general instruction such as 'Read this and make a summary of the key points' may not provide enough direction to students. A more detailed purpose for reading might be: 'As you read this text, look for ways that friction could be reduced between two solid surfaces' (in science), or 'As you read this article, look for two different viewpoints about how the block of land should be used' (in the social sciences).

Teachers can also **check text navigation** to ensure that students are able to confidently navigate the texts they are using. Sometimes assumptions are made that students know how to use the available cues in a text in order to aid their understanding, but this may not always be the case. In a digital environment, check that students can use the functions available to them such as hyperlinks, drop-down menus, and navigating within a website. In both print and digital texts, check to see if students are noting textual cues such as words in bold or italics, using footnotes, headings and sub-headings, dates and source of publication, and linking diagrams to print, in order to support their overall understanding. It may be necessary to point these out to students and provide practice using them.

Co-construct approaches to making sense of text

Researchers have described this as 'capturing the reading process', whereby students begin to notice and share the strategies they use to make sense of challenging text in the context of each discipline[7]. The teacher first models the process by describing their own reading processes, as in the following examples:

- 'When I read this sentence about trialling for the sports team, I could picture that in my mind'
- 'When I came to the pronoun "they" in the third sentence, I had to check back with the first sentence to see who "they" were'
- 'When I came across the word "antioxidants", I broke it down into parts – "anti" which means against and I know the word "oxidation", so I could make sense of the word'

Students then share their approaches to making sense of text, which may include such things as re-reading, referring to other parts of the text, breaking down the word into parts, using a glossary or online

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dictionary, or asking a peer. Recording students' ideas about making sense of text on a class chart or digital record provides a useful reference that they can use and add to over time.

Foster quality discussion across the curriculum

Oral communication, including presentations, arguments, debates, informal talks and discussion activities in small or large groups, is part of every discipline in some form. Each learning area will have expectations around the ways in which students communicate orally. For example, a subject such as English may invite students to talk about their personal response to texts, whilst students of history may be asked to discuss the reliability of sources. Improving classroom talk and discussion can improve outcomes in reading, writing and understanding across the curriculum[8].

The quality of classroom talk can be improved and enhanced through teacher modelling, and by paying attention to well-designed activities for students. Teachers promote quality talk by modelling the use of subject-specific language, and by explaining complex ideas and concepts clearly and accurately. In addition, students need opportunities to practise using new vocabulary and to describe increasingly complex subject content by talking and by listening to others. When students have had multiple opportunities to talk about and clarify subject content, they are better prepared to write about it.

Teachers are generally familiar with scaffolding students through a writing task, but do not often apply the notion of scaffolding to oral communication. In the same manner as a writing task, students can be provided with sentence frames and prompts to help them form and expand on their responses when they talk within a group. For example:

- English: 'I think (character X) believes … because she says …'
- Maths: 'The first thing I did to solve this problem was …'
- Music: 'The musician has used … to create a mood of …'

Students may also be provided with subject-specific vocabulary and then offered the challenge of using that word or phrase in a group discussion. Various other structured prompts that encourage discussion may be provided to groups, such as open-ended questions, taking sides in an argument, justifying a decision, evaluating an experience, or explaining a complex process to each other. Students can also be given specific roles in a group in order to structure and guide conversation, as in Reciprocal Teaching experiences[9]. Reciprocal teaching to improve reading comprehension involves four skills of clarifying, questioning, summarising and predicting. Teachers coach students to use each skill, and then provide opportunities in small groups to discuss a text that has been read. Students may be provided with prompts for each skill, for example:

- Clarifying: 'Can anyone clarify what … means?'
- Questioning: 'My question is …'
- Summarising: 'This paragraph is about …'
- Predicting: 'I think the next part will show …'

Supporting quality writing across the curriculum

Students across the curriculum write for a number of different purposes, according to the expectations and conventions of each subject area. Whilst there may be some commonalities across subjects, there are also unique differences in the expectations and requirements for each discipline. For example, students in English may be expected to write using figurative language and detailed description in creative writing, but in another context such as economics may need to write concisely and with factual information when writing a report.

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Consider:

- What are the types of writing that are common in my learning area?
- When do students write? (for example, mostly during class time, mostly for homework?)
- What is usually expected in terms of structure, content, detail, vocabulary, length, and accuracy?
- How do I currently support students to write well?

Students frequently experience writing as a product or outcome to demonstrate what they know, and it is often associated with some type of assessment. However, writing can also be viewed as a means of clarifying understanding, making meaning, expressing ideas, or reflecting on learning. Viewed in this way, writing should occur frequently, with numerous opportunities for both short and extended pieces being produced for different purposes. Effective writing practice allows students to experience multiple opportunities to develop their ideas and consolidate their understanding, prior to writing for the purpose of assessment.

Reading and writing are complementary skills. Reading quality texts in each subject area provides an opportunity for teachers and students to examine the discipline-specific aspects of writing in that context. In a science text, for example, this might mean paying attention to how the writer has produced an explanation of a scientific process using clearly illustrated steps, symbols, diagrams and written text that includes key vocabulary. One way to use reading as specific means to support writing is to ask students to **annotate exemplars of written text**, looking for specific features such as where evidence has been provided to back up a statement, where quotations have been used effectively, or how the writer has shown cause and effect.

Students may also be encouraged to ‘borrow’ features such as effective phrases, sentence beginnings, or key definitions, and then try using them in their own writing. This practice is not to encourage wholesale ‘cut and paste’ of long pieces of text from exemplars, but to notice the ways in which written communication happens in each subject, and to gradually **align their own writing to the norms and conventions that are expected**. Teachers may choose to co-construct lists, charts or word banks with their students to refer back to when writing for different purposes.

Students may also benefit from **constructing and co-constructing shorter pieces of writing** before being required to write extended texts. For example, teachers may ask students to:

- Use key vocabulary in a sentence
- Record what they have observed today
- Write a paragraph with three details
- Reflect on their own experience of an event

Over a period of time, the practice of deepening understanding of a topic by writing a series of shorter sentences and paragraphs can result in quality extended pieces of writing being produced.

Extended writing usually involves **planning and organising prior to writing**, and requires practice and development over time. Teachers might consider what types of planning strategies and tools are useful and appropriate to their own discipline, rather than assuming that a generic approach or tool would be best. For example, writing in the social sciences utilises structures such as cause and effect, chronological order of events, and explaining different viewpoints, so the planning tools used prior to writing should also reflect the type of writing required. In order to encourage independence and student

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agency, teachers could introduce students to a range of planning approaches and tools over time, and then ask students to choose the most appropriate strategy or tool to use for their particular writing task.

Teacher modelling of effective writing is another way to support improved writing outcomes. Teachers can 'think aloud' on a whiteboard or shared screen as they demonstrate subject-specific writing to their groups of students. When this happens, students see that writing is not a linear process and that the writer is continually revising and editing as they think about what to write. Teachers can also model the use of sentence starters, effective phrases and vocabulary lists that may have been developed with the class. As with other aspects of effective teaching practice, it is important to **provide effective feedback and feedforward** to students about their writing. The more specific this is, the more impact it is likely to have on improved practice.

Endnotes

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