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The journal for educators

Information fluency: a NSW journey

Trialling the Information Fluency Framework

Support for HSC science extension



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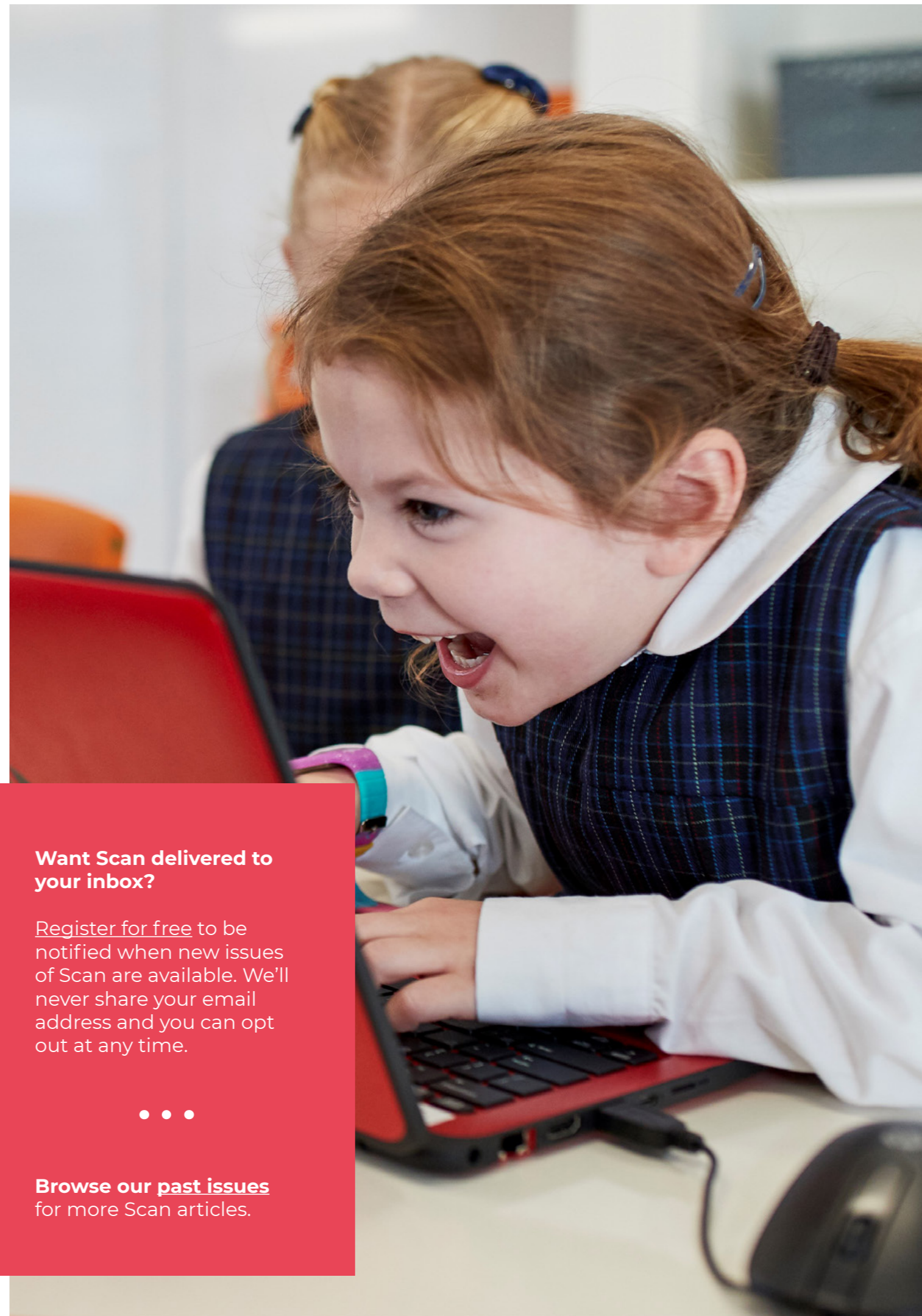


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Information fluency – a NSW journey



June Wall

Library Coordinator, NSW Department of Education

June Wall outlines the development of the department’s Information Fluency Framework and considers its future possibilities.

Information fluency is a journey and NSW teacher librarians have been on this specific journey since 2018 (Wall, 2018 and 2019). As all good travellers do, we’d like to share this experience and seek inspiration for the next stage of an extended trip.

Travelling from the past Information Skills Process

Developed in 1987 and updated in 2015, the Information Skills Process (ISP) is the information literacy model developed by the NSW Department of Education and recognised ([Library Policy - Schools](#)) as the supporting document in implementing information literacy in NSW public schools. Information literacy in this model is defined as follows:

‘The information process is the series of physical and intellectual steps that anyone takes to complete an information task.’ (Information Skills in the School, 1987, p 5; Information Skills in the School: Engaging learners in constructing knowledge, 2015, p 8.)

The ISP as a model has not changed since then. Define, Locate, Select, Organise, Present and

Assess are the 6 stages in the model. These stages are representative of most information literacy models, with other models placing emphasis on different aspects. (See [The Big6](#), [Seven Faces of Information Literacy](#), [Seven Pillars of Information Literacy](#), [Six Frames for Information Literacy Education](#) and [Kuhlthau’s Information Search Process](#)). They are also embedded within inquiry learning models such as the [I-LEARN model](#), the [5 E’s](#), [Kath Murdoch’s inquiry model](#), [Guided Inquiry Design](#) by Kuhlthau and, in more recent times, Barbara Stripling’s inquiry learning model represented through the [Empire State Information Fluency Continuum](#) and [FOSIL](#) from the UK. All of these models essentially cover the process of needing information for a specific purpose, through to presenting that information. They also include evaluating the user’s ability to use information and develop further skills. The focus is on information use.

Contemporary learning

As identified in previous articles (Wall & Bonanno, 2014a, 2014b), contemporary learning practices incorporate information literacy as viewed through an information use lens. Stripling’s model for The Empire State Information Fluency Continuum integrates a more wholistic view of information, as does the FOSIL model. However, the skills and learning attributes increasingly being required for contemporary learning have tended to segment many different types of literacies and have caused difficulties in forming a consistent approach to learning across an information-focused and crowded curriculum (Watanabe-Crocket & Churches, 2017).

Global shifts or trends in technology, urbanisation, economics, demographics and resources scarcity (PwC, 2018), as well as the increasing demand from business for creativity, emotional intelligence, problem solving and collaboration skills, have created a need for students to be able to:

‘continuously adapt, engage with others in that process, and most importantly retain [their] core sense of identity and values. For students, it’s not just about acquiring knowledge, but about how to learn’ (PwC, 2018, p 4).

Information fluency is the ability to critically think at an unconscious level while engaging with, creating, and utilising information and technology, regardless of medium.

The [general capabilities](#) (ACARA) and the [OECD 2030 conceptual learning framework](#) (2019) also recognise the importance of cognitive, metacognitive, social, emotional, practical and physical skills:

‘Thus, to remain competitive, workers will need to acquire new skills continually, which requires flexibility, a positive attitude towards lifelong learning and curiosity ... education should focus on imparting “fusion skills” – the combination of creative, entrepreneurial and technical skills that enable workers to shift into new occupations as they emerge.’ (Organisation for Economic Co-operation and Development, 2019, p 8)

During a long period of reflection, research and review, the team of teacher librarians started to view all aspects of learning as important to the role and the teaching practice of a teacher librarian. As a consequence, a different perspective started to emerge. One which valued the need to focus on lifelong learning and the various skills, literacies, competencies and fluencies inherent in being a lifelong learner.

The present journey

Information fluency – a definition and perspective

Information fluency is the ability to critically think at an unconscious level while engaging with, creating, and utilising information and technology, regardless of medium. The development of fluency from a learning perspective has been defined as ‘the subjective ease or difficulty with which cognitive processes can be executed (Reber & Greifeneder, 2017, p 84).

Information fluency, therefore, was considered to be learning at a level of unconscious effort. While learning content requires a conscious view and use of the content by the learner, the ability to know how to learn the content and the learning processes

needed by the learner are part of being a fluent learner:

'In particular, knowledge about fluency and its role in information processing empowers citizens in their daily life. ... The ease with which learners acquire knowledge influences not only their metacognitive judgments but also their liking of the learning process' (Reber & Greifeneder, 2017, p 96)

The Information Fluency Framework that has been developed is therefore one that scaffolds student learning from a conscious skills base to an unconscious fluency of learning.

The Information Fluency Framework

The Information Fluency Framework (IFF) has 5 elements: Social, Literate, Innovative, Critical and Creative, and Ethical (SLICE; Figure 1). These 5 elements describe the competencies, attitudes and behaviours that a student with information fluency will demonstrate from K-12.

The outcomes within each element are viewed through the lens of interacting with information in two ways:

- as consumers
- as creators.

Within each of these strands are sub-elements which break down each element into a small number of statements that describe the development of student outcomes for each

learning stage in NSW terms: Early Stage 1, Stage 1, Stage 2, Stage 3, Stage 4, Stage 5 and Stage 6.

Outcomes are presented along a progression, linked to learning stages. The outcomes are informed by the [Australian Curriculum, Assessment and Reporting Authority \(ACARA\) general capabilities learning continua](#) and [NSW Educational Standards Authority \(NESA\) syllabuses](#).

A pilot of the IFF was held in Term 2 ([Grimmett, 2021](#)) which has shown value in the IFF for teacher librarians to utilise the framework in a variety of ways. For example, a school could:

- develop a scope and sequence of nominated elements that are required to be taught in each year or stage over the 6 or 7 years of schooling in that school
- identify the gaps in existing classroom practices against the IFF and focus on those when teaching from the library
- focus on one element for a specific year or stage. For example, Social and Literate elements for ES1 and Stage 1
- nominate specific units of work that suit specific elements in the framework.

There is an ambitious plan to develop this framework so that it becomes part of the toolkit for every teacher librarian and teacher.

The Information Fluency Framework that has been developed is therefore one that scaffolds student learning from a conscious skills base to an unconscious fluency of learning.

The IFF is flexible and yet complex enough so that each school can utilise the framework for the school context.

The 'Innovative' element provided in Table 1 shows the progression and outcomes for K-12.

Our future possibilities

There is an ambitious plan to develop this framework so that it becomes part of the toolkit for every teacher librarian and teacher – one of the reasons library related jargon has been removed as much as possible. Next steps in the development are:

- identifying specific skills or capabilities
For each outcome, the specific skills or capabilities which students need will be identified..
- curriculum mapping
Each of the core curriculum (English, history, geography and science) outcomes will be mapped, where possible, to the IFF. In doing this, it will also mean that the IFF will be mapped directly to curriculum.
- teaching strategies
Some core strategies to teach the skills or capabilities identified will be included.

- assessment
Assessment strategies and tools will be identified or developed to show evidence of information fluency.
- digital decision-making tool
As a result of the above steps, a digital tool could be developed to enable multiple entry points into the IFF. For example, once an IFF outcome is identified as a learning need in the school, the teacher librarian could immediately identify which curriculum or units of work could be utilised to teach that outcome. Or, the teacher librarian could be tasked with a history outcome, with the digital tool immediately showing the appropriate IFF outcome, strategies and assessment that could be utilised.

This plan is one of high expectations, providing explicit teaching strategies with assessment and feedback that will enable the teacher librarian to use the data effectively for further teaching and diagnosis of student needs. Together with a learning environment in the library that enables and

... the IFF as a learning progression enables a different lens to be attached to how teacher librarians view their core business of supporting and mediating student learning using information.

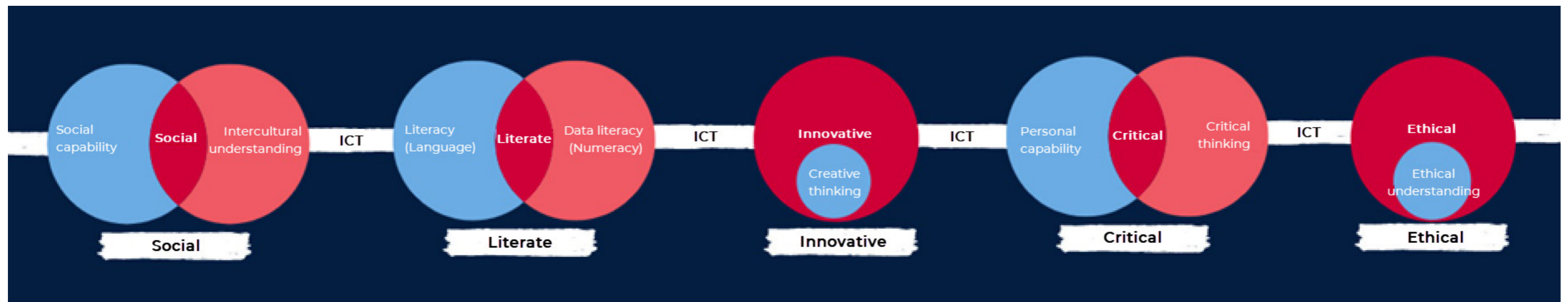


Figure 1: The 5 'SLICE' elements of the Information Fluency Framework

encourages student learning, and the collaboration that teacher librarians are renowned for, the IFF and its surrounding tools and strategies will meet current research standards for best practice in teaching (Centre for Education Statistics and Evaluation, 2020).

While information literacy is still part of this framework, the IFF as a learning progression enables a different lens to be attached to how teacher librarians view their core business of supporting and mediating student learning using information.

To paraphrase both Frost (1915) and Peck (1978), this is a case of a road less travelled being one worth exploring, providing a future journey that is exciting and empowering – a journey NSW teacher librarians will eventually share with all schools.

Learning stage	Early Stage 1	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Examples
As consumers, students:								
1. Pose questions to be answered using information	pose questions based on personal interests and experiences	pose questions to identify and clarify issues, and compare information	pose questions to expand their knowledge about the world and clarify information	pose questions to expand and interpret information	pose questions to probe for causes and consequences	pose questions to investigate complex issues	pose questions to analyse complex issues and abstract ideas	Generative questioning activities to initiate an information search
2. Connect and combine ideas Sense of wonder	draw connections between similar ideas, with guidance	use imagination or creative thinking to connect two things that seem different	build on what they know to understand information in a new way	expand on known ideas to create new ideas or understandings	combine ideas in a variety of ways and from a range of sources	draw parallels between known and new ideas to create new ways of achieving goals	create and connect complex ideas using imagery, analogies and symbolism	Concept formation activities to compare, contrast and classify ideas, objects, and events
As creators, students:								
1. Generate and evaluate ideas	share their thinking about their ideas to others	discuss the quality of ideas	create ideas and possibilities in ways that are new to them	create and refine ideas and possibilities, suggesting alternative solutions	select from a range of new ideas by applying criteria	generate a range of ideas and evaluate their utility	design criteria to evaluate self-generated ideas	Divergent and convergent thinking activities
2. Implement ideas under given constraints	predict what might happen in a given situation when putting ideas into action	investigate options and predict possible outcomes when putting ideas into action	experiment with a range of options when putting ideas into action	assess and test options to put ideas into action	explain how constraints are considered when implementing ideas	successfully navigate constraints when implementing ideas	plan for, undertake, and evaluate implementation of ideas in consideration of constraints	Design an implementation strategy for an information creation

Table 1: The 'Innovative' element from the Information Fluency Framework - 'students generate and implement new and useful ideas'

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Trialling the Information Fluency Framework: A report from the pilot schools



Carmel Grimmett

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The Information Fluency Framework (IFF) represents a new chapter for teacher librarians across NSW Department of Education settings. As [Wall \(2021\)](#) has outlined, it formally recognises, and provides programming structure for, the delivery of future-focused learning from the library.

This article shares the voices of teacher librarians who, together with myself, trialled the new framework.

Pilot schools

'The end result, the whitepaper, is presented as a launching pad, that is a tool for teacher librarians to implement, evaluate and improve' ([Cook, 2021, p.5](#)).

Carmel Grimmett reports on the experiences of a group of NSW teacher librarians who piloted the Information Fluency Framework in Term 2, 2021.

The Information Fluency Framework was trialled in 21 NSW public schools during Term 2, 2021. Teacher librarians from 16 primary schools and 5 secondary schools participated in the pilot. Some members of the pilot group had been involved in drafting the framework, while others were new to its content. However, we were all keen to trial the framework in our different programs and settings.

Implementation

The brief for teachers trialling the framework offered broad scope:

The purpose of the pilot is:

- to determine appropriate staging of the outcomes across a K-12 spectrum
- explore how the framework can be used in conjunction with curriculum
- develop teaching strategies or skills appropriate to each outcome.

The major question that will be explored is: How does the framework support learning from the library?

- Does it provide a useable structure?
 - What do we need to consider or change to improve the IFF?
 - How should it be best 'rolled out'?
- (J. Wall, personal communication, March 23, 2021).

At the end of the trial, participants were surveyed about their experiences of the IFF pilot program; 17 participants responded.

Although there was only a short time available to explore the draft framework and use it to review/write library programs for the new term, most participants were able to readily pick it up and work with it in some form.

Survey responses reveal that members of the pilot group used the framework to write teaching programs across K-10, and particularly in Stages 2 and 3. This was not surprising, considering that the majority of participants were from primary settings.

Most members of the pilot group who responded to the survey (15 of 17) reported that the framework provided 'an easy-to-use scaffold for programming learning across the curriculum'.

Survey responses reveal that participants valued their involvement in the pilot for multiple reasons. In

addition to assessing the usefulness of the framework, participation was also seen as an opportunity to review teaching programs, reflect personally on the role of teacher librarians, and evaluate teaching practice and the delivery of learning experiences. As these teacher librarians noted:

- 'I was looking for a way to incorporate and build upon the general capabilities in library lessons, beyond the English syllabus. A way, or framework, that would reflect 21st century skills and allow for more collaborative and inquiry-based learning.'
- 'It gave me a chance to review and refine my program through a different lens.'

Evaluation

Staging of outcomes across Early Stage 1 to Stage 6

Participants were asked to investigate whether the outcomes were appropriately distributed across the various stages of learning. The Information Fluency Framework is comprised of five main elements: Social, Literate, Innovative, Critical and Ethical (SLICE). Survey respondents valued the presentation of outcomes as a continuum under these SLICE elements, and considered them to be stage appropriate. One teacher commented:

'The progressive style of outcomes in the framework was also helpful in differentiating, being able to see at a glance where students were coming from and where they are heading.'

During the pilot, the IFF outcomes were also made more accessible by the development of a numbering system and stage overviews.

Using the framework in conjunction with curriculum

Part of the pilot brief involved considering how to use the framework with curriculum. Mapping the IFF across the entire curriculum would be a huge task – and is arguably not necessary when the framework is intended to provide a 'responsive and future-oriented K-12 framework' (Wall, 2019).

The pilot group's findings indicate that the framework can be used effectively in conjunction with curriculum and that, when utilising SLICE, each of the five elements gives a different perspective to our use of overall curriculum and enhances specific

syllabus outcomes. Participants' responses about using the framework ranged from statements about its broad application ('I felt it could be utilised in any library and with any KLA, regardless of diversities in approach to library lessons') to statements about a particular syllabus ('I find the outcomes from the framework can spell out in a more specific way how to address an English outcome').

The SLICE elements give scope to implement the framework across the curriculum. Some areas which may previously have been considered outside the teacher librarian's remit are clearly encompassed. For example, the Literate element includes aspects of numeracy, such as interpreting data. Most significant is the capacity to use the Social and Ethical elements to promote intercultural understanding and develop empathy - powerful tools when used in combination with the Critical element to promote wide thinking across the curriculum.

Members of the pilot used the framework to write new programs; review existing programs; and develop learning intentions and success criteria, assessment tasks and rubrics. Participants reported that the framework 'provided direction and structure in programming and lesson development'. As one teacher librarian explained, 'meeting with stage teachers and asking what they felt their students needed was also easier as they had a list of outcomes to choose from'.

Two secondary teacher librarians used the framework at a Year 10 level. The first reported that 'I used the framework [in] Stage 5 as the basis for a semester program with a Year 10 elective. It gave me dot points to follow in creating the program and specific objectives for assessment tasks'. The second, who used the framework to develop a Year 10 unit, stated that 'it helps put [the] library scope and sequence into a matching perspective with the KLA scope and sequence' and 'enhances collaboration between [the] teacher librarian and faculty staff'. Other participants described using the framework 'to become a library scope and sequence - [with] sequential development of skills'. Others found it useful in 'guid[ing] learning intentions and success criteria' and 'being able to structure learning across the stages in bite-sized pieces that build onto each other'.

Developing teaching strategies or skills appropriate to outcomes

The final aspect of the IFF pilot project involved developing teaching strategies or skills appropriate to each outcome. A selection of these [individually written units](#) is available for Early Stage 1 to Stage 3. All units were written within a short timeframe and are included with the intention of demonstrating the versatility and scope of the document. There is still much room to collaborate to develop teaching strategies matched to framework outcomes. This could include linking the framework outcomes to the 'examples' column in the whitepaper and providing additional enhancements in collaboration with specialists from other areas of the department, such as curriculum support advisers and colleagues working in the Innovative Learning Environments (ILE), School Learning Environments and Change (SLEC) and General Capabilities (GC) groups. While some examples of the varied responses of pilot group members are provided, the framework offers many opportunities to develop and deliver learning experiences using teaching strategies and skills appropriate to each outcome.

How does the framework support learning from the library?

The reported experiences of teacher librarians involved in the pilot demonstrate the versatility with which the framework supports learning from the library:

Programming

- 'In terms of programming, it provided structure and an ability to link activities to outcomes.'
- 'I used the IFF to help program and [it] will be helpful when evaluating the program.'
- 'The framework linked into my programming easily and made it easier to see how I was already integrating the general capabilities. It helped me to take notice of items I had been covering in classes and things that I would need to spend more time on.'
- 'I can write a unit of work set out in steps for the students to follow. Using the framework, I can justify those steps.'
- 'The framework provided a legitimacy to the library program.'
- 'The IFF formalises the teaching and learning activities and contributes towards the KLA syllabus outcomes.'
- 'I could backward map the IFF to slot in with the program already planned.'

... the voices of teacher librarians who trialled the new Information Fluency Framework ... powerfully convey the view that the framework is a welcome, versatile and effective tool to support teaching and learning across all stages.

Outcomes

- 'The framework made it easier to show evidence of outcomes being met.'
- 'It provides recognised outcomes to program with and then assess against. Rather than "borrowing" from an array of subjects or creating outcomes that were solely for my program, the library program had its own unique goals/outcomes that could be used across libraries and provide a unified program/outcomes for library as its own discourse.'
- 'Students learnt from a broader selection of outcomes (things I hadn't realised I'd been avoiding teaching). I had focused on what teachers asked me to cover, and had dropped the ball on things like ethical and responsible use of information.'
- 'I found the IFF checklists ideal for keeping a record of the outcomes covered.'
- 'I have been using parts of the checklist to be able to write learning outcomes and success criteria for Stage 3.'

Progression

- '[The IFF] was an organising tool for skills I was already teaching, which suggests following it would help to improve skills at different stage levels as they follow the continuum.'
- '[The IFF follows a] clear progression, enabling understanding of where students have been, are, and where they will go to next. In saying this, it also allows for students to progress at their own pace. Stage 2 framework outcomes were used to support developing students while Stage 4 framework outcomes were used to extend and challenge high potential and gifted students.'

Scope and sequence

- 'The framework has helped me develop a library scope and sequence for library classes at my school, as well as to focus on information literacy and the use of digital technologies for students to demonstrate their learning.'
- '[The Information Fluency Framework] helps put [the] library scope and sequence into a matching perspective with the KLA scope and sequence.'

Collaboration with teaching colleagues

- 'It enhances collaboration between [the] teacher librarian and faculty staff.'
- 'The direction of the library lessons was clear, making it easier to use learning intentions and success criteria which gave more value to other staff as it was put into a framework which could be adapted to support KLAs in the classroom.'
- 'The IFF gave more direction in to how library can help achieve and collaborate with KLA's. It gave an importance to information skills being taught in a primary school library as a part of the RFF program.'

Students

- 'It was interesting to consider the idea of [students] being a creator and consumer. This changed how I programmed.'
- 'I saw an increase in students citing their research and they were also looking for more reliable sources of information.'

Reflection

- 'It helped me to focus my teaching and prioritise my time with classes.'
- 'The framework guided the learning in a particular direction/focus. Before, units often jumped all over the place to teach the 'topic'. With the framework, it guided the information fluency learning using the topic, rather than the other way around.'
- 'The framework became a pause point, with a reflection on what I have done in the past and a 'where to' for the future.'

Making improvements

Some improvements to the framework were undertaken and shared by members of the pilot group. For example, one participant took stage outcomes from the continuum and created separate pages which list the outcomes for each stage in one place. Another prepared a slide show explaining the framework, for use in other settings, such as staff information sessions and teacher librarian training.

Other suggested improvements included:

- developing more examples to fit into the framework
- reviewing some of the descriptors of students as creators and consumers
- linking in teaching skills and strategies
- sharing sample units of work, including digital teaching resources
- exploring ways of designing the physical environment to enhance the delivery of future-focused learning.

Looking to the future

This article has been constructed using the voices of teacher librarians who trialled the new Information Fluency Framework. They powerfully convey the view that the framework is a welcome, versatile and effective tool to support teaching and learning across all stages. Implementing the framework would represent the first major change in our approach to information fluency in more than 30 years, marking an important new phase for teacher librarians in NSW public schools.

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Finding support for the HSC science extension course



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Caitlyn Forster offers practical advice for teachers assisting students to produce a scientific research report for the HSC science extension course.

The science extension course is a great opportunity for students to dip their toes into research in a project that resembles a short honours research project. As explained in the [NSW Science stage 6 syllabus](#), 'Science extension is a course with a focus on the authentic application of scientific research skills to produce a scientific research report generally acceptable for publication'.

Students undertaking extension science learn a range of research skills including statistics, experimental design, and independent research. The subject is also beneficial for providing students with the chance to manage their own project and think critically, skills that are invaluable for any future career.

However, this subject can be difficult for teachers to facilitate links with mentors for their students.

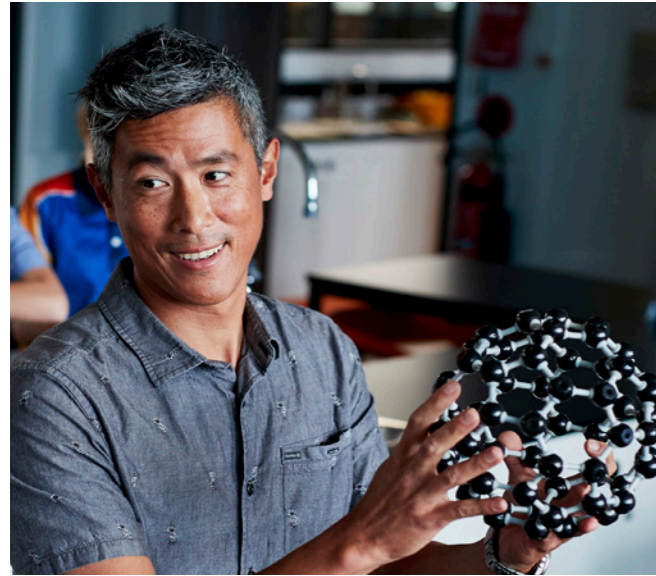
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Given the diverse breadth of ideas keen students have, sometimes getting help from an expert will be necessary, but how do you find people to get help from? Academics can be busy and often unable to be supportive. Nevertheless, here are some tips to help extension science students to find and engage with researchers.



How to find researchers

Learn the literature

An important skill for research is discovering what literature is available in a particular field of interest. While not all schools have access to databases, [Google Scholar](#) is a useful starting point to discover relevant journal articles. The online journal, [The Conversation](#), is also a convenient way to begin a literature search and to find researchers. All articles are written by academics, and The Conversation often publishes pieces based on new research, which means there is a strong chance of finding academics currently researching topics of interest.

In addition, students could register for [a library card at the State Library of NSW](#) and/or [a library card for the National Library of Australia](#). If students have access to databases such as Web of Science, a search can also be filtered by author affiliations, which is a simple way of finding Australian researchers who are working on topics of interest. If relevant papers are blocked by a paywall, it may be possible to email one of the authors to make contact with a potential mentor. They may even be able to send copies of their papers. A school's teacher librarian would be a key person in assisting and supporting students with their research.

Email interesting people

Given the sheer number of emails academics receive, here are a few tips teachers can use to make sure their email is read:

- Explain what their student's science extension project is. The extension research project may be new to the academic, so make sure to offer some idea of what is being undertaken and how the academic can be helpful to the project.
- Be enthusiastic about the academic's research. Researchers love talking about their areas of expertise!
- Email researchers once your student has a plan in place for their project, so there are clear expectations in place and the academic can guarantee their research interests align with the student's.

Mentorships

Mentorships are a good option for students aiming to get one on one help from researchers at universities. Universities in NSW such as [The University of Sydney](#) and [UNSW](#) offer mentoring programs for students to get help with their projects. Mentors are usually postgraduate students with expertise in a range of fields, who volunteer their time to assist others.

Society contacts

Research societies have contact with people who are often keen to share their interests. Consider emailing relevant societies to see if they can either forward your questions or point you in the right direction of an expert. Their assistance can vary from people who are happy to give talks and career advice, to those who are willing to be mentors.

University websites and social media

Most universities have a system for searching for academics based on research fields. It is also worth having a look at Twitter to find researchers, as a lot of Scientists use this social media to advertise their own work. It is also a great way to gauge the personalities of researchers and see how well they will get on with your students.

What to do once you find a mentor or researcher

Given current circumstances, it is likely all communication will be digital. Establish whether you want the researcher to help as a mentor, or to

give a talk about how to do research. If mentoring is occurring, formalise the meeting expectations and organise a meeting with your student(s). Generally, it is useful to have regular short meetings (such as 15 minute weekly meetings) at the start while students work out their research plan, with reduced meetings as the experiment runs.

A quick note on research projects

Keep in mind that this is a very short amount of time to be conducting research, and schools probably have limited funding associated with individual projects. Academics are great with organising affordable projects so, if necessary, make sure you chat to them about budgets.

A range of ideas on science projects, including several at the Year 12 level, can be found in the [Past Winning Projects](#) section of the STANSW Young

Scientist website produced by the Science Teachers' Association of New South Wales.

It is also important (given the Covid climate) to think about how a project may be completed at home. For instance, students should be sure to have back up experiments that can be moved to the student's home if need be. Similarly, obtaining datasets is also a possibility, and academics are likely to have drawers full of data that needs to be analysed, so consider asking about this too.

Finally, these projects are relatively short, so it is unlikely that any student will be finding a cure for cancer! Nevertheless, there is a vast range of possible research areas and exciting discoveries to be made.

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Writer biographies



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June Wall is the Library Coordinator, NSW Department of Education, and an Adjunct Lecturer, School of Information Studies, Charles Sturt University. She has been a teacher at primary and secondary levels, a lecturer, a professional development and education consultant, Head of Department, special librarian, teacher librarian and computer coordinator in the government and non-government sectors for over 35 years.



Carmel Grimmatt

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Carmel Grimmatt is a teacher librarian at Summer Hill Public School. Before becoming a teacher, she worked as a children's librarian in the public library system. Carmel has previously served on the committee of her local teacher librarian network, and has mentored newly graduated teacher librarians in NSW public schools. More recently, Carmel participated in the department's pilot program, Teachers as Research Practitioners (TARP). She also collaborated on a pilot student voice program, [Kids' Audio Guide](#), for the State Library of NSW with Pauline Fitzgerald (Manager, Learning Services).



Caitlyn Forster

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Caitlyn Forster is a PhD candidate at the University of Sydney. She is using behavioural economics to understand bee behaviour. Caitlyn is passionate about encouraging educators to use their local green spaces to conduct ecological experiments to inspire future generations to appreciate nature.