Transliteracy in practice

After exploring the meanings and instances of transliteracy in Chapter 3, Exploring Transliteracy, the next question is what it all means in practice. The chapter starts by considering the last research question concerning aids and challenges to transliteracy. The rest of the chapter is devoted to different aspects of transliteracy in formal and informal learning. Transliteracy and learning, pedagogies for transliteracy, and the blurring line between reader, user, and creator are considered in some detail, providing a solid ground for evidence-based practice.

4.1 Aids and challenges

The last research question in the study of transliteracy concerns aids and challenges for transliterate ways of learning and knowledge production. Key aids and challenges are grouped around two issues:

- Underpinning structures—technology, access to information, and work time and space
- Transliteracy capabilities—particularly in relation to skills and traditions, professional development, and collaboration. A need for support expressed by participants is also considered.

4.1.1 Structures: IT, information access, time and space

And because cultural studies are eclectic, trying to break the mould, you just see in … catalogues and everything just that reproduction of those sort of hierarchies and disciplinarity which we’re trying to break down. And it was always a fantasy that electronics and digitalisation would help break those down…

Participant 7/1

All aids and challenges are in some way related to information infrastructures. Particularly prominent are those which define tools and access to information as they are major enablers, and also the most difficult to change on a local level. Time and space for transliteracy projects are determined locally and, by their nature, outline the context in which projects can unfold.

4.1.1.1 Information technology

Solid computers with useful and appropriate software, connected to a robust network, are necessary for most types of work nowadays, and especially for transliteracy work. Software for collaborative ways of working and sharing is very important, but according to study participants, it is very often either unavailable or not functioning properly. Academics in particular require user-friendly software for
certain tasks, but there is often a gap between what is needed and what is available. For example, at the time when interviews were conducted, they struggled with software for manipulating large digital maps or for voice recognition and transcription.

While new technologies often trigger new ways of working, many participants of all ages believed that old and new technology have some unique advantages. Digital technology is not perceived as reliable by some so it should not replace analog technologies. Participant 7/1 commented, “Well, also there’s... still the underlying fear that if it’s electronic, it can be wiped. Entirely.” This researcher kept everything in hard copy if it was possible.

Attitudes to working with technology could be a major enabler or a stumbling block. It was particularly evident with students who either claimed they were not “good with technology” or, in one case, preferred not to use any of the online tools. All academics who demonstrated elaborate transcribe behaviors were open to using any technology that was likely to enable effective work. Although attitudes to technology may be a result of experience, they are also likely to have some impact on practices.

**4.1.1.2 Access to information**

Access to information is another well-established contemporary requirement. While students usually discussed the value of having access to well-organized information of good quality in the library, academics commented on information structures and politics of access, which often impose restrictions. The conditions of database use and organizational access impose artificial boundaries around information. Information provision was described as a reproduction of societal hierarchies. Participant 7/1 commented:

> Everything either belongs to a journal, a particular journal, or a particular kind of academic field. So, ideally, I’d like to be able to search for Cook across academic articles that have been published in all fields, you know, but you just can’t do it. So it takes ages. And because cultural studies are eclectic, trying to break the mould, you just see in... catalogues and everything just that reproduction of those sort of hierarchies and disciplinarity which we’re trying to break down. And it was always a fantasy that electronics and digitalisation would help break those down, but where you’ve broken down a kind of a discipline or a field category, then what’s intervened is the power of a publishing corporation.

Limited rights, and issues of technical and intellectual access were noted as barriers in using sophisticated technology. As mentioned in previous sections, students also commented on copyright and branding restrictions. For them, it was not only a matter of frustration about finding copyright-free resources but also a reflection on the protection of online resources. Participant 15/1 and his team decided not to use some innovative applications as they would limit access to the content.

Availability of digital information is an issue in some fields. Alongside the abundance of information that has been made available with or without restrictions,
there is a “poverty of knowledge about many areas of the globe,” Participant 14/1 commented and added:

I happen to work in American history and if I want to look up anything about American history, I can find it out very easily on the net. And I think that encourages more knowledge about America. But, you know, I’ve just been looking up, because of the work that I’m doing, the work of Martin Delaney and other people in Africa and if I want to go back and I want to find out how the colony of Liberia was established and how Sierra Leone developed as freed slaves, etc., I’m much better off going back to books. There’s a poverty of knowledge about many areas of the globe.

4.1.1.3 Time and space

Time and space which allows uninterrupted work and a sense of immersion was greatly appreciated by students and academics alike. Most academics discussed organization of work around inevitable interruptions in their offices so they would do tasks such as searching at work, and reading and writing at home or sometimes in the library. Students greatly appreciated whole day workshops when they could feel immersed in their work. Many commented on how they had time to think during these days and complete most substantial parts of their work.

Comfortable space where one can relax and devote attention to work was important. Some academics talked about libraries and archives as places of knowledge, which they enjoyed. Many students commented on how they liked being in the library as it was a pleasant and comfortable environment, which affected how they learned: “Helps you to think in a relaxing way, because we don’t do lessons in the library. In the classroom we would experience it differently,” an Enrichment student commented. For iTell students, free use of space was a very important aspect of their experience. They worked lying on couches, sitting on the floor, or under the tables, choosing the right proximity to the rest of the group. Flexible use of space also signaled a different and more creative learning environment. Thomas (2013) noted Pullinger’s observation that space for transliteracy should be interdisciplinary and it should encourage interaction as well as individual work. Whole day sessions when students had time and space to spread out, be comfortable, and feel immersed in the content of their work were conducive to learning.

4.1.2 Skill development

We can start teaching new media writers, artists, theorists etc., a kind of critical media literacy that engages them in such a way that they learn to improve various stages of development so that they can become… better performers of writing.

Participant 15/1

The development of transliteracy skills is essential, but a very difficult task as it requires much more than organizing courses and workshops. Some indications of aids, issues, and possible solutions are arising from the study data.
4.1.2.1 Traditions and skills

The acceptance and promotion of transliteracy depend to a large extent on academic traditions, discipline, and transliteracy skills. A critical issue is that traditional ways of working in research and educational institutions limit developing transliteracy. Educational institutions favor traditional outputs because they suit established forms of performance evaluation and institutional rankings. High school students are usually assessed on the basis of formal examinations, essays, reports, oral presentations, and discipline-specific outputs. Academics are assessed mainly on the basis of their peer-reviewed papers and books. Other forms of output, especially those crossing disciplinary boundaries, are difficult to assess, and hence are accepted as perhaps valuable and discretionary but not as core activities. This point was reiterated in many conversations with academic study participants. Some senior academics pointed out they were more likely to experiment because formal evaluations had little impact on their careers.

The link between academia and the profession aiming to enable a strong connection between theory and practice is often publicly promoted, but not supported in reality. Professional experience is regarded as counting very little in academic promotions in many institutions, as Participant 2/2 discussed in relation to an applied academic field:

SS: Do you think that if you could use something like audio to support your research, your academic output, do you think that this is accepted and valued?

Participant 2/2: There is huge lobbying and all kinds of things to get it valued. It should be, I think, incorporated into the point system, and the professional practice. I know there are people here at [university] who applied for scholarships and things who haven’t been able to get their work counted as research output even though it’s hugely valued in terms of their employment. So they are employed here because of that, but when it comes to research side of things that’s not counted at all.

Academic traditions and skill acquisition work together in a vicious circle. A historian commented on how difficult it is to assess collaborative and electronic work when the emphasis of academic evaluation is clearly on individual contribution and traditional output. Because it pays off to write academic publications, academics are less inclined to learn and use other skills. But, because the skill base is lacking, it is more difficult to promote transliterate ways of working. Academics commented on the absence of adequate education and training to prepare them for transliterate knowledge production. They also suggested what could be done to change this situation (see examples in outlined quotes). The complexity of change is compounded by the fact that university students are already primed to work in traditional ways. Although there are some notable exceptions, high schools are often focused on preparing students for traditional academic success, especially as measured by external examinations. As mentioned
in the previous section in relation to contributions to learning, high school students in the study commented on how different transliterate ways of working were from their regular classroom experiences. Part of that difference is related to collaborative learning, creativity, the use of different technologies, and a shift to presenting output as a form of communication rather than for external assessment. Another part is to do with time and space for exploration and immersion. One of the Enrichment students commented: “I need a project to work on. If it’s going to class every lesson and it’s—having something to work on, you are building on it. And every lesson you feel fulfilled.”

I don’t think that anything is done to promote the use of electronic media. Where this shows up is in teaching. There’s not a single course that we teach in this department in which there is, which is devoted to history students or history graduate students learning about the use of electronic sources. (U Participant 14/1)

But I think people don’t actually know what’s out there so I think there could be a lot more projects and we could have PhD students working or we could have more of a team based approach to things. But I think people are doing what they are doing. And a lot of people I worked with in radio are not actually in the radio history or media history. Only other person I know who does what I am doing is someone who went to UTS so he has this theory-practice crossover so I think that’s the unique media studies-cultural studies approach, which comes from a degree when you’ve done production and you understand production side of things. (U Participant 2/2)

And digital communication—that’s an important one, and if it’s possible to introduce students to digital communication in the way of creating it, not just using it, of course, but a way of creating it, that would be a pretty valuable step forward. In other words, you say to people, to your students, ‘You’re going to do an interview with somebody—good. A. take a video camera. B. don’t just send them [i.e. interviewees] a video back. What are you going to do with this material? How are you going to use to communicate to the family and to other people as well? Let’s think about the ways of disseminating this information’. Now, it’s only the very first step. It’s not what we were talking about just now in terms of videos, I mean, the websites being a different form of communication. But nevertheless it’s a step forward towards that. (HoAS Peter Read)

This is something that I think we can do in an educational context because we can start teaching new media writers, artists, theorists etc., a kind of critical media literacy that engages them in such a way that they learn to improve various stages of development [so] that they can become, I don’t know, better performers [you might say], better performers of writing. (U Participant 15/1)

4.1.2.2 Professional development

Professional development of teachers on all levels is critically important to support students in developing new skills and exploring transliterate ways of working. However, both academics and high school teachers discussed limitations in their
preparedness. When Participant 14/1 explained how students do not learn about electronic tools and resources, I asked whether academics need to learn about it as well:

Yeah. Undoubtedly. There is no in-service kind of training, there’s no seminars, I’ve never heard of a staff seminar about this... It’s something that might be discussed in the staffroom as a kind of lunchtime topic, along with plagiarism and whatever else but... Historians are not terribly reflexive about their own practice. So they’re all just using it kind of willy-nilly, everybody learns, no-one ever told me to use them, no-one ever gave me any instruction at all. And that’s probably reflected in my serendipitous way of going about it. And my ignorance of certain things. It’s kind of like a benign neglect.

Participant 14/1, emphasis by SS

An academic from another institution commented in a similar vein that there was no discussion about electronic media and resources and no one who could provide advice. A senior academic commented on the conundrum of professional learning when timing and purpose are as important as the provision of learning opportunities:

If you’re not sufficiently trained or taught how to use it [i.e. technology and search tools] efficiently, you can waste an awful lot of time being incompetent, as I suspect is the case with me. But in order to be trained and taught properly, you have to take time out from other things and so you tend not to do it. You think, well, I will learn how to do this if I’m learning how to do it in doing my own research. You tend to remember things if they’re important to you. Whereas if somebody is just saying, ‘Well, here’s a program, you can do x, y and z with it and you can do this and this’... Unless I want to do any of those things, I just forget it, it just means nothing to me. I think with a much younger generation of people who grow up with computers automatically, this will not be a problem. But for people like me, there’s neither the appropriate training to exploit these things properly or else we resist it because we think there are other things to do.

Participant 6/1

In the high school environment, highly motivated teachers discussed similar inadequacies in preparing educators for innovative teaching. A common complaint is that the only time to promote new practices is in staff meetings and in-service opportunities when teachers are being given information with limited or no time to discuss new ideas and innovative teaching approaches. The French teacher commented on the excited response of the Languages Department when they were invited to contribute to transliteracy curriculum mapping. “It’s all about hands on, the concrete,” she said.

4.1.2.3 Collaboration

Collaboration is being considered in this section as an aid for transliterate practices. Learning in collaboration with peers has already been discussed, but it is worth
pointing out some of the ways in which collaboration supports transliterate forms of learning.

For the French students, it was valuable to have plenty of opportunity to hear differences in how people speak the language. It was not just the teacher who was asking questions but also student peers, so changes of roles and practicing both questions and answers supported learning. With adults’ help, students can be more effective in encouraging each other to persevere. Student B. commented about her experience in iTell:

“They [i.e. other students] gave me a lot of ideas and advice on how it should be written or they told me what their story was about so I go, ‘Oh, maybe I should write that’. They help me to write in a different way and it was also fun listening to their stories as well. I mean if I was all by myself I don’t think I would be able to do it as easily. I would be stuck. Still.

Unlike set group work, collaborative work in transliteracy projects was to a large extent voluntary. In digital storytelling projects, students chose how much they wanted to be involved with others. Student Y. liked working close to others while maintaining a sense of separation: “That gave us almost some room to breathe or something.”

For academics, communication and collaboration arising from transliterate practices were very beneficial. Formal collaboration is becoming more prominent in the humanities, one participant observed. She attributed it to a better understanding of how research breakthroughs are achieved, an active push from an Australian key funding body, and a more prominent presence of women in research. The result is that “the problems are more complex as well, looking across national contexts or geographical contexts because there are many interesting work that comes out because people are coming together and being engaged across different distances” (U Participant 2/2).

Collaboration requires a wide range of skills, from technical, project management, understanding of protocols and ethics to an organizational culture of collaboration, and reflection embedded in the professional practice. It is hardly surprising that sustained collaboration is rarely a common practice in schools and university humanities departments. Skills in collaboration do not come naturally to generations who did not learn how to collaborate at school and who do not work in teams on a regular basis. Although collaboration appears as an easy-to-adopt soft skill, the reality is very different. Many teachers and academics, who are used to working on their own and with students, need much more than an opportunity to work collaboratively to develop new skills and practices.

4.1.2.4 Assistance and support

While formal learning in the classroom and professional development opportunities are needed, assistance and guidance at the time of need are highly valued by students, teachers, and academics. Many of them need someone who knows sources and understands the content to guide them through the process.
High school students appreciated individual explorations supported by guidance and scaffolding. Students in iTell often commented on their appreciation of the knowledgeable guidance library staff had offered in digital storytelling workshops. Students in the Enrichment classes liked scaffolding provided by resources as well as feedback from their teacher and librarian. One of the students commented on the benefits of working in the library with staff “who were interested in that topic and who knew about it because they learnt about it before. And we had any book that we wanted to read, and any resources that we needed we can access easily, so that really helped.” Another student commented on a helpful combination of advice and resources while her peers confirmed her comments: “I looked at all those books that you suggested to me—because I wasn’t sure before that. Once I started reading through, it gave me ideas of topics. And it was more detailed and I trusted it more than using the Internet.”

In a similar way, the French teacher commented on how it was helpful to implement transliteracy in existing programs. She suggested that many professional learning initiatives could be taken by following the flipped classroom model where teachers would have a chance to hear an introduction, reflect on what they are already doing, and then work with a specialist on implementation. “If it sits on that abstract level, it will always be in a ‘too hard’ basket,” this teacher commented.

Academics expressed a need to have the assistance of a highly specialized information professional who had a good knowledge not only of the subject area but also of a narrow field. Researchers who explored very broad topics felt overwhelmed and wished to have someone on call who could help them. Knowledge of scholarly protocols and a comprehensive understanding of databases were also required.

What are some aids and challenges? Summary

- Reliable networks and computers; software that can support particular tasks
- Access to information across domains and subject fields
- Time for immersion and space that can be used freely
- Need for teaching and learning transliteracy skills
- Limitations imposed by some educational and academic traditions
- Comprehensive support for professional development
- Benefits of collaboration and need for skill development
- Guidance and practical support by knowledgeable professionals needed.

4.2 Transliteracy and learning

Transliteracy belongs in the information and knowledge field in a broad sense, so it is hardly surprising that the crux of discussions about aids and challenges revolves around capabilities and learning. The rest of this chapter will be devoted to considerations of what transliteracy means for the practices of teaching and learning.

Transliteracy is a powerful epistemic framework, grounded in experience, easily related to thinking about information practice in the modern world. Its broad
meaning also leaves an impression that transliteracy is difficult to grasp. We may agree it is important, but can it be taught? Where do we start with it? Transliteracy assumes a skill set, and also a range of meanings and behaviors with complex underpinnings. It has connections with conceptual thinking, but it is firmly grounded in practice. Transliteracy is about a combination of knowledge and competencies that enables a person to work and live in complex information environments. These environments are changeable and their contexts are many and different. New technologies appear almost daily and educators have difficulties keeping up with all of them. In order to be useful, transliteracy needs to be understood as a dynamic, flexible, yet applicable framework in different educational contexts.

### 4.2.1 Transliteracy palettes

A model of transliteracy palettes is proposed as a tool to aid the development of transliteracy in teaching and learning. Transliteracy palettes are based on the conceptual understanding presented in Fig 3.1. They emerged as a result of iterations of inductive and deductive approaches in thinking how a broad concept can be applied in the practice of teaching and learning. They are based on reading, experience, and conversations with colleagues in the education and information professions and, importantly, are grounded in the research data.

Transliteracy palettes describe what people have at their disposal to shape their transliterate practice and understanding. Transliteracy palettes consist of an *information palette* and a *form palette*.

**Information palette** (Fig. 4.1). Information and ICT capabilities have already been identified as critical to one aspect of transliteracy. These capabilities are also integrated in the well-established information literacy framework. The components of the information palette are closely aligned with the ACRL information literacy framework and standards (ACRL, 2000, 2016) and the Australia and New Zealand information literacy framework (Bundy, 2004), which have become a key part of library and information, as well as educational, practice (The New South Wales Department of Education and Training, 2007; Hobbs, 2011). The understanding of the information process presented in the information palette draws upon Foster’s

```
DEFINE question, info needed, main sources
FIND—ACCESS sources and info
EVALUATE—SELECT
MANAGE
CREATE—PRESENT—ACT
REFLECT on process, ethics, norms
```

**Figure 4.1** Information palette.
comparison of the information process with an artist’s palette, in that its range of activities remains available during information seeking (Foster, 2004).

The titles of the different components of the information palette have been adjusted to capture essential information qualities and practices, especially in relation to transliteracy.

- **DEFINE** question, information needed, and main sources relates to the conscious understanding, which takes a person into a particular direction in the information process. It is based on identification of an information need.
- **FIND AND ACCESS** sources and relevant information captures the search process, in which relevant information may be found in a range of sources. Finding the sources and relevant information is a part of the process, but so is an ability to access them. Access has been clearly identified here as it relates to the study findings pointing to the significance of access conditions and understanding of social contexts surrounding information access.
- **EVALUATE-SELECT** refers to evaluation as a well-recognized aspect of the process, but it also brings to the fore selection. Valuable information may or may not be selected for a number of reasons, which may be related to considerations other than the quality of information. Selection decisions need to be a distinct part of a holistic understanding of the process and conscious information strategy.
- **MANAGE** is about organizing information based on content, technical, and any other relevant characteristics. The word “manage” has been chosen instead of “organize” as it better captures the potential complexity of working with information.
- **CREATE-PRESENT-ACT** is about various forms of information use to create new information, understanding, and knowledge; combining existing information elements for presentation purposes; and about the use of information to inform decisions and action.
- **REFLECT** is part of the process in which individuals and groups reflect on the process, ethics, norms, and personal meanings. Reflection comes at the beginning of the information process as people think and realize an information need, throughout the process as they decide about the next step, and at the end of the process to evaluate and understand recent experience. In educational contexts, it is important to embed reflection as a formal part of any inquiry.
- **HOLISTIC UNDERSTANDING** of the process is indicated by the idea of the palette rather than individual colors. It emphasizes the importance of understanding the information process and its components as a whole.

**Form palette** (Fig. 4.2) captures “forms” that shape interactions with information.

- **EXPERIENCE** is about opportunities to act, sense, and think through a range of different experiences such as writing a story, performing, reading, and working visually.
- **MEDIA** relates to the use of different media formats (e.g., book, video, database).
- **COMMUNICATION** is about using different forms of communication through different channels in a variety of genres, languages, and for different audiences.
- **COLLABORATION** is about working with others formally and informally face to face, online, and in blended environments.
- **CITIZENSHIP** refers to understanding of a range of social issues, which determine successful participation in information environments. It includes legal, normative, cultural, and ethical issues. Copyright, plagiarism, and appropriate online behavior as they are commonly taught in educational settings are part of this “form.”
The transliteracy palette (Fig. 4.3) consists of both information and form palettes, and offers the ability to mix them in many different combinations. If context is a frame, information and form palettes provide materials to create a transliterate design. Learning to apply different colors to many different forms in a range of different situations is a way to develop transliteracy.

### 4.2.2 Transliteracy curriculum mapping

Formal teaching and learning are organized around curricula and measurable outcomes. The coordinated development of students’ knowledge and skills in formal education depends on the integration of these skills in the everyday practice of teaching and learning. When a learning area is missing from teaching documents and measurable outcomes, there is no mechanism to monitor its implementation in practice. That area of learning is destined to take a back seat every time there is a pressing demand on the teacher’s time to achieve prescribed outcomes and complete administrative tasks. Without an insight into the content of teaching across the board, it is difficult to know whether there is a need to unclutter and remove duplication to create space and time for new content.

As illustrated with transliteracy palettes, integration of transliteracy depends on integration of information capabilities in a variety of ways. Some schools and individual teachers integrate key capabilities, which constitute transliteracy, better than the others, many do it with enthusiasm and talent, achieving excellent results. However, outcomes for individual students often depend on the teacher they happen to have. Even more arbitrary is the development of an ability to apply skills across different contexts. There is no guarantee students would learn all the critical transliteracy skills during their time in formal education unless there is a system in place to track students’ progress from one classroom to another and, ideally, from one school to another. Very few learning areas are more important for life and work in the information age than information and ICT capabilities, yet very few important skills are taught in a more haphazard way. The main reason is that education, especially secondary and tertiary, is based on subject or discipline specialization.
Figure 4.3 Transliteracy palettes.
whereas information, ICT capabilities, communication and collaboration, creativity and critical thinking are not subject-specific. These capabilities need to be developed in all subject areas.

Transliteracy is a core literacy with application in all subjects and learning areas. It can and should be taught in individual subjects, but its real implementation is cross-disciplinary as learners find different ways to connect disparate areas of their learning. Its broad coverage is an opportunity and a challenge for formal education. At the same time, the broad transliteracy framework opens up many opportunities for new connections, provides a flexible approach to implement new technologies and pedagogical interests as they arise, and encompasses key modern literacies within a unifying and purposeful transliteracy framework.

A good start for the implementation of transliteracy in formal education is a definition of the concept and outcomes for different educational stages. Many universities already have aspects of information and digital literacy integrated in their graduate outcomes and some have done considerable amounts of work on integrating information literacy into their discipline-based courses. For schools, national curricula define literacy outcomes for primary and secondary education. Bush (2012) observes that transliteracy is implicitly present in the Common Core Standards. This is also the case with the new Australian Curriculum. Existing curricular documents and tools for schools provide some direction for transliteracy as long as they are used as flexible guides rather than finite prescriptions. A major educational challenge, however, is to ensure that good general plans are implemented in practice. A large proportion of documents used in the education are guides, standards, and plans, rather than records of what is happening in the classroom.

A possible pitfall is that curriculum mapping can become an administrative tool for focusing on outcomes and quality assurance, rather than on individual learners and their needs. Wang (2015) warned that curriculum mapping tends to have a vocational orientation in that it helps students to include ranges of skills required
for particular jobs, rather than preparing them to navigate an unpredictable life and teaching them independence. Wang proposes a rhizomatic (as proposed by Deleuze and Guattari) instead of a hierarchical, arborescent approach, stressing that learning can grow from any node, not only via charted pathways:

In applying curricular practices, teachers are invited to connect, both with the global environment and with learners’ inner selves. By knowing the world, students open their minds and expand their lives. Students should not only be successful in tracing an entrepreneurial self; receiving a higher education has the potential to free them from a pre-designed self by mapping the self in other ways. Therefore, the purpose of curriculum mapping is to educate a cartographer to create his or her new life.

Wang, 2015, pp. 1557–1558

In order to ensure the development of transliteracy, it needs to become an integral part of formal education as well as to branch out in many other directions. Prescriptive documents and open-ended learning both have their places in education. Curriculum mapping, I believe, can be very useful for transliteracy, both as an arborescent and as a rhizomatic approach.

Curriculum mapping of transliteracy skills aims to make sure, firstly, that the main skills are being taught, and secondly, that students have opportunities to “move across.” In an arborescent structure of curriculum mapping, following the structure of the curriculum, this means learning across the curricular content, experimenting with a wide range of media, technologies, and genres, with opportunities for cross-disciplinary application of knowledge and skills. Using a rhizomatic perspective, the emphasis is on the student’s and the educator’s recognition of personal meanings and learning that happens outside the classroom and school space. Individual projects, which connect with a range of student experiences and interests, provide opportunities for students to explore less structured approaches and to use mapping as a tool of reflection. Schools, libraries, youth, and special-interest groups can all use maps to chart and scaffold individual learning journeys.

With a curriculum map, a school or faculty has an understanding of what is happening across the board. It provides an opportunity to identify areas of shared interest and variations in meanings, and to highlight gaps and overlaps in learning. The next step is to think about students and their needs to see what sort of “mixing and matching” is required to enable the learning of transliteracy. The aim is to focus on particular areas for development and use the transliteracy palettes to ensure many combinations of information and form palettes across a wide range of different contexts.

This way of thinking about learning is supported by educational research and practice as well as the application of educational insights to the field of information literacy. Bruce et al. (2006, p. 6), for example, pointed out the variation theory, which “proposes that learning occurs when variations in ways of understanding or experiencing are discerned.” They give examples of learning music by discerning different sounds and learning information searching when it is experienced in different ways. “Bringing about learning through widening experience, and thus
revealing variation, is the underlying principle.” Similarly, the experience of interacting with information in many different ways, applying skills in novel situations, and reflecting on the process enhances an ability to deal with information in novel situations in the future.

Embedding transliteracy at St. Vincent’s College: curriculum mapping

At St. Vincent’s College we have done some preliminary work to prepare for embedding transliteracy in teaching and learning. These are some milestones we have achieved, not necessarily in this order:

• A draft of transliteracy objectives and outcomes for each high school stage presented to the HODs for an initial consultation. Objectives and outcomes were developed with the idea of backward design, in which the final outcome is determined first.
• An exercise in marking common topics for one year group and discussions about cross-overs.
• A pilot project to map transferable skills in Semester 1, Year 7 (the first year of high school in Australia).
• A sample grid showing how transliteracy is integrated in a teaching unit (Table 4.1).
• The transliteracy grid shared with departments to start mapping.
• Opening discussions: Presentations of transliteracy and research findings to teachers; experience with the French Transliteracy Project, and relevant scope and sequence for the unit shared by the French teacher.

Pilot project. Additional explanation is needed to highlight some details of the pilot project to map transferable skills in Year 7. It started with a clear rationale and a problem statement related to the best interests of students against the background of requirements of the new Australian Curriculum and a sense of compartmentalized teaching practices. The scope and methodology were identified in advance. Heads of departments used a shared spreadsheet to plot topics, and subject-specific and transferable skills taught in the first semester in Year 7. A working group consisting of teaching staff with different areas of expertise analyzed and coded responses. Four categories of transferable skills emerged from data analysis:

1. Rules and practices
2. Study skills
3. Thinking skills
4. Communication skills.

The absence of some skills was also noted as part of analysis. The group provided some recommendations for further work in this area, including

(Continued on page 96)
Table 4.1 Transliteracy grid

Subject: French  
Year: 10  
Topic: School life

Overall task: Compare Australian and French school life; record a conversational video; use your research to write a letter to the Principal with recommendations for change or design a poster to promote your school. You can use an augmented reality app to combine your poster with video

<table>
<thead>
<tr>
<th>Experience</th>
<th>IT &amp; Media</th>
<th>Communication</th>
<th>Collaboration</th>
<th>Citizenship</th>
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<td>Define</td>
<td>Conversation</td>
<td>Websites</td>
<td>In pairs to prepare videos</td>
<td>Online interactions</td>
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<td>with a French exchange</td>
<td>Magazines</td>
<td>With other students to solve IT issues, share images &amp; info</td>
<td>(Edmodo, “following” other users on the app Aurasma)</td>
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<td>student and teacher</td>
<td>Textbooks</td>
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<td>Reading magazine articles</td>
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<td>Files and folders on computer</td>
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<td>Download images from camera</td>
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<th>Experience</th>
<th>IT &amp; Media</th>
<th>Communication</th>
<th>Collaboration</th>
<th>Citizenship</th>
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<tr>
<td>Create/Present/Act</td>
<td>- Writing (video script; letter, etc.)&lt;br&gt;- Performance for video recording&lt;br&gt;- Video editing&lt;br&gt;- Visual presentation of a poster/letter, etc.&lt;br&gt;- Camera&lt;br&gt;- Video editing software&lt;br&gt;- Aurasma</td>
<td>- With an audience (at school and outside when videos are published on the website)</td>
<td>-</td>
<td>- Presenting appropriate content to the Principal &amp; online&lt;br&gt;- Authorship&lt;br&gt;- Acknowledging sources</td>
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<tr>
<td>Reflect</td>
<td>- Watching all videos and providing feedback to other students&lt;br&gt;- Completing survey&lt;br&gt;- Participation in class discussion for the transliteracy study</td>
<td>- Online surveys (evaluation of other students' videos and survey about the experience)</td>
<td>- With researcher and the class</td>
<td>- Participate in research</td>
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a need to establish common terminology. Findings were summarized as follows:

The pilot revealed that curriculum mapping has a significant potential in revealing similarities across subject areas and gaps in skill development. Grouping of data indicated potential areas for further investigation with implications for informing curriculum planning within and across disciplines, and enhancing classroom practice. HODs and other teachers appeared to be interested in the process. Although some team members had reservations about the value of curriculum mapping, they started to believe in its potential by the end of the pilot.

**Mapping on the transliteracy grid.** Some time was required for the introduction of transliteracy as a way of thinking about classroom practice, to allow teachers to adjust and process information. The Languages Department found it easier to accept since they had already completed a transliteracy project. Table 4.1 illustrates a transliteracy grid, using the French Transliteracy Project as an example.

### 4.3 Pedagogies for transliteracy

Many student-centered pedagogies are congruent with transliteracy, which is developed through a range of learning experiences in thinking, interacting, and acting across the information field. Teaching methods for inquiry-, project-, problem- and phenomenon-based learning, multiliteracy and connected learning are particularly well suited for transliteracy, but other approaches may be suitable as well. The guiding principle is the ultimate aim: to empower and equip students to face new situations in the increasingly complex information world with resourcefulness, creativity, and understanding.

#### 4.3.1 Inquiry-, project-, and phenomenon-based learning

The value of project- and inquiry-based learning has been well recognized in educational theory and practice. This type of learning promotes critical thinking and engagement with real-life issues and topics of student interest, and encourages exploration and meaningful interactions with information, while tapping into numerous skills required to progress through the project. Aspects of the information process are so critical for inquiry-based learning that they are often integrated to the extent that they become invisible as discrete information skills. Hobbs (2011) identifies essential dimensions of digital and media literacy—access, analyze, create, reflect, act—and sees them in terms of digital rather than information literacy. It may be a useful way of thinking about digital literacy, but from the transliteracy perspective, it is important to keep an awareness of key skill sets. Identifying information with digital capabilities may lead to a neglect of one capability and exclusion of analog technologies, which may be appropriately combined with digital
technologies. In working with teachers, librarians may need to point out how some capabilities are part of transliteracy, but teachers who are experienced in guiding inquiry-based learning would easily understand the significance of information capability. In addition to this, school librarians have gained significant experience with the guided inquiry (The Center for International Scholarship in School Libraries, 2016), an approach grounded in Carol Kuhlthau’s research, which can be successfully used to teach transliteracy.

Phenomenon-based learning takes project-based learning a step further. It is an integral part of the Finnish education reform (Sahlberg, 2015; Halinen, 2016), which recognizes the need to align education with broader societal changes. Once the Finnish reform is adopted, phenomenon-based learning will happen during assigned class time when students will engage in cross-disciplinary investigation of real-life issues. Students will be involved in planning and assessing their learning. As Sahlberg explains, phenomenon-based learning is a continuation of a tradition of holistic teaching in Finnish classrooms. At the time of writing this book, the Finnish reform has not been implemented yet, but it will be interesting to learn about its development. From the description and existing experience with project-based and inquiry-based learning, it appears a very good approach for the development of transliteracy and a step further in ensuring cross-disciplinary approaches in education.

4.3.2 Multiliteracy and multimodality

The theory and practice of multiliteracy can provide some useful ideas and tools for a transliterate classroom. Although their roots, frames, and foci are different, transliteracy and multiliteracy share some common themes (The New London Group defined its multiliteracies manifesto in Cazden et al., 1996). Multimodality, engagement with technologies, and interest in a variety of texts, situated learning and critical reflection are elements which connect transliteracy with the concept of multiliteracy.

Tools and techniques for connecting different modalities and genres are particularly useful for transliteracy. “Dance a thesis” competitions have produced some entertaining, clever, and educational work around the world. Visualization provides some fascinating examples of transfers between modalities. Infographics and the concept of beautiful information at the site http://www.informationisbeautiful.net illustrates how artistic visual devices and communication techniques can be used to present a range of messages, including the communication of scientific and statistical information. Technologies for manipulating sound bring a visual aspect to the auditory experience. Similarly, music has been made on the basis of patterns in scientific data. An Australian couple, Fran and Jacques Soddell, for example, produced electronic music based on a computer analysis of fungal growth. Music technology students in Lupton’s study related to sound by understanding “aural information (what the sound sounds like) and affective information (the feeling that the sound
evokes, e.g., an eerie feeling)” as well as the visual presentation of the sound (Lupton, 2008, p. 71). This comment is related to the experience of an academic described in the study on transliteracy who thought of access to auditory information in terms of different sets of metadata, sound, and visual representation of sound waves. In these examples, technology aids a sense of synesthesia as a lived and embodied experience rather than an abstract idea.

Cooper et al. (2013) conducted a study into multiliteracy and reported that students found making news with technology different from their regular English classes. A possible explanation may be related to Pang and Marton’s conjecture “that new meanings are acquired from experiencing differences against a background of sameness, rather than experiencing sameness against a background of differences” (Pang and Marton, 2013, p. 1065). It may be that their conjecture relates to student perception of transliterate learning as a novel experience in the sense that transliteracy as movement “across” stands out against a more unified background of classroom experiences.

### 4.3.3 Teaching “moving across”

Inquiry-based learning and the development of multiliteracy may not be part of regular classroom practice, but they are not foreign ideas in most contemporary schools. More challenging pedagogies are those that try to bridge a gap between traditionally separate areas of learning.

Education and academic work are based on divisions between disciplines, curricular and personal interests, feeling and thinking, creativity and analysis. Transliterate “movement across,” on the other hand, requires the whole field. While there is a value in working within one area and developing a single skill, transliteracy cannot thrive within persistent boundaries. Lehmanns and Mazurier (2015, p. 313) found that their research into transliteracy “points out the transformation of learning strategies in collaborative situations, transfers between informal personal digital abilities and formal academic skills and between experts and novices, transition from learning to creating and from creating to learning, cognitive redistribution between spaces.”

### 4.3.3.1 Connected learning

A significant obstacle to holistic approaches to learning is a rather persistent disconnection between learning inside and outside school or university. Students spend a considerable time in formal education, but they spend even more time outside school. During that time, young people talk to family and friends in person, online and by phone, play games, instruments and sport, read, draw, do some housework, watch TV, and experiment with digital content creation. In these activities, they learn and use information most of the time, but connections between formal and informal learning seem to happen only occasionally. Lehmanns and Mazurier (2015, p. 317) studied the evidence of connection between personal
information use and learning at school and found that students “do not easily use their personal skills and do not ‘naturally’ make bridges between their private uses and academic demands.” Both students and teachers “tend to install strong barriers between private life and cognitive process at school, which limits the range of knowledge formats that can be used at school” (Lehmans and Cordier, 2014, p. 126).

Australian high school students spend approximately six hours a day at school, five days a week during approximately forty weeks of school time per year, including public holidays. If they sleep eight hours a day, they spend nearly five times more waking hours outside school than at school. Even if three hours are added to every school day for homework and school-based extracurricular activities, there are three times more waking hours left for nonschool activities.

A recognition of this situation and its implications for student engagement and the quality of learning inspired the development of the idea of connected learning: “It advocates for broadened access to learning that is socially embedded, interest driven, and oriented toward educational, economic, or political opportunity” (Ito et al., 2013, p. 4). The authors recognize that “(y)oung people need connection and translation between in-school and out-of-school learning” (p. 46) and suggest strategies to bridge the gap. Similarly, Hobbs (2011) would like to see learning environments in which students can be part of and contributors to the community. Her advice is to connect the classroom to the world, support leadership and collaboration, and develop integrity and accountability. Lehmans and Cordier (2014, p. 119) note that “(p)orosity between school life and private life, personal history and social practices, is associated with porosity between areas of expertise...” They identified strategies to support transliteracy and suggested that the “transliteracy approach to information activity in education allows the emergence of an information maturity associated with the construction of knowledge, according to a ‘grammar of usage’” (p. 126). Connected learning is a major enabler of transliteracy. With its orientation toward lifelong learning and life demands, transliteracy development can only benefit from being guided and practiced outside school.

4.3.3.2 Emotion, cognition, and creativity

A sense of personal connection involves engagement on cognitive and emotional levels that opens another territory of disconnection. “The cultivation of feeling has long been marginalized by academic education... The conventional academic curriculum largely ignores the importance of developing the ‘soft skills’ such as an ability to listen and to empathize. This is not a coincidence or an oversight. It is a structural feature of academicism,” wrote Robinson (2011, pp. 177–178) in relation...
to creativity in education. The evidence for the importance of emotion in information processing and learning has grown in recent decades (Damasio, 2000a, 2000b; Weiss, 2000; Dalgleish, 2002; Scherer, 2002; Kaluzniacky, 2004; Lacewing, 2004; Nahl and Bilal, 2007; Bowen, 2014). It is still unclear how exactly emotion and cognition work together, but the conclusion that they interact in multiple ways cannot be denied on the basis of existing research (Robinson et al., 2013). The leaders of the Finnish educational reform, again, recognize the importance of emotion for learning and specifically address its inclusion (Halinen, 2016). From the transliteracy perspective, construction of personal meaning, self-reflection, creativity, and working with others are not possible without acknowledgment and integration of emotion in learning. Furthermore, the ability to move across the cognitive-emotional division is a basis for deeper insights and work in different knowledge domains.

Closely aligned with the separation between cognition and emotion is that between analytical thinking and creativity. Analytical thinking has been the main area of educational work for centuries, while creativity has often stayed on the margins of mainstream educational interests. This is partially because the social value of creativity may be less obvious, perhaps because creativity was often seen as an innate attribute of talented individuals. However, contemporary views of creativity are moving away from both the idea of its being less visible or valuable to the society and its being the result mainly of personal talent. Csikszentmihalyi (1988) argues that creativity cannot exist outside social and historical contexts, pointing toward the importance of societal influences in addition to individual abilities. Innovation, as a social construct with significant value in modern economy, is related to creativity. Robinson considers creativity as one of the main elements of innovation:

*In practice, a culture of innovation depends on cultivating three processes, each of which is related to the others. (p. 219)*

- *The first is imagination: the ability to bring to mind events and ideas that are not present to our senses.*
- *The second is creativity: the process of having original ideas that have value.*
- *The third is innovation: the process of putting original ideas into practice.*

Robinson, 2011, pp. 219–220

The value of original ideas is socially determined and so is the process of putting creativity into practice. Zhao (2012) considers creativity to be a key aspect of successful education for participation in the future economy. Considering the importance of innovation for the economic success of nations and individuals, it is understandable why the development of creativity is increasingly of interest to many groups, not only educators.

Discussions about creativity in educational and organizational theory revolve around the view that everyone has some creative ability that can be developed.
Cropley (2001) identifies six components of educational environments which foster creativity: divergent thinking; a general knowledge and thinking base; a specific knowledge base and specific skills; focusing and task commitment; motives and motivation; and openness and tolerance of ambiguity. Embedded in these components are investigative and independent learning, playfulness, and support for fantasy and imagination. Components of an educational environment which support creativity are also beneficial for transliteracy.

All previously mentioned pedagogies, which can support transliteracy, are congruent with the development of creativity. As a framework based on establishing connections and moving across epistemic and technological contexts, transliteracy provides a fertile environment for holistic pedagogical approaches. Free movement across the fields is required to develop transliteracy, which, in turn, provides conditions for deepening connections between traditionally disparate ways of knowing.

4.3.4 In the classroom

With all the opportunities young people have in environments rich with information and technology, formal educational settings are still critically important. First, it is easy to assume that young people have already gained all the digital and information skills they need in their private lives, but this is not the case. The notion of “digital natives” who know everything important about digital environments has been repeatedly debunked, as mentioned in the first two chapters of this book. Secondly, socioeconomic differences among student families have an impact not only on educational outcomes in general, but on digital skills as well. Hargittai (2010) found that race, gender, and parents’ education influence variations in the Internet skills of 18- to 30-year-old study participants. If these skills are not systematically taught at school, the divisions can only become more significant. Thirdly, when it comes to formal learning, students consistently rely on institutional authority in selecting resources (Lea and Jones, 2011). It may sound counterintuitive, considering the problems with plagiarism and low-quality sources used in many assignments, but teachers and librarians can confirm that most students at least try to follow authoritative advice about information use, providing that they know how to locate reliable sources in the first place. Lea and Jones invited teachers to make sure a range of texts is being used and to pay attention to the whole learning process, not only the outcomes in the form of final assignments. A conversation between a student and a librarian about the suitability of different sorts of information can go a long way in teaching the student how to evaluate information for academic purposes and understand the value of nonacademic resources for current topics (Megwalu, 2014). Cooper et al. (2013) found that teacher technology skills, the integration of technology, and effective learning scaffolds are most important for the effective achievement of multiliteracy outcomes.

The experience with transliteracy at St. Vincent’s College confirms the relevance of information advice pointing toward the importance of bringing the whole school on board with transliteracy, to actively promote and support collaboration between departments, and teachers and librarians. The insights from work at the college
provide some practical clues about what works for transliteracy. Study findings from the previous chapter offer insights into the inner workings of transliteracy in practice, but it is worth summarizing some aspects that proved to be successful in the classroom.

Timing is important. Many schools that take project-based learning seriously block out longer periods of time for it. iTell was rescued from its shaky start once the program was moved from a one-hour after-school time slot, spread across the term, to a more compact whole day schedule. Whole day sessions for part of the program were appreciated by students in the Enrichment program. Whole days are not always necessary or even desirable, but a longer session at the beginning of a program is useful to set the tone and initiate student connections around the content.

Space and the way it is used matter. Students were repeatedly saying how they liked working in the library, as it was a different space from the classroom. It is true, but it matters that the room was used more freely, as students could use the whole library and sit wherever they liked. Sitting under tall tables with a laptop worked for some of them. Space and tools for collaboration are important, but so is space for distance.

Rules and spontaneity are both needed. A transliterate way of working is new to most students. Setting the rules and expectations is important for a sense of security, trust, and shared understanding of its aim, but so is a sense of flexibility, playfulness, and connection.

Playfulness and a sense of surprise are irreplaceable in setting the tone. They ignite wonder and open pathways to creativity.

Team teaching is advisable. Transliteracy work is enjoyable for students and teaching staff but requires nimble and resourceful staff who can think quickly and laterally. Guiding lots of individual projects, especially when they are cross-disciplinary and require significant use of technology, is time-intensive for teaching staff. This is why transliteracy projects are best done in teams that tap into different types of staff expertise and can provide individual attention to students. In my experience so far, transliterate projects have always been opportunities to build a sense of a learning community as students and teachers all come together as learners in some way. As discussed in the previous chapters, students enjoyed a sense of being in a learning community in which they fed off each other’s ideas and benefited from the competent guidance of the adults. The same can be said about librarians and teachers, who gained insights from everyone’s ideas, but felt they particularly benefited from learning from and with their colleagues.

Tools and resources do not have to be expensive, but they need to be available and suited for the purpose. We used laptops and mainly free software for specialized tasks in all projects. A variety of information and appreciation that it is coming from different sources is important. Students who talk about their projects outside class, share information, advice, and stories, and run their ideas by teaching staff learn many valuable lessons about the information process while gaining social, technological, and content-related skills and insights. A sense that education is multifarious gains strength in the process of collaborative transliterate learning from sources of different quality and provenance, regardless of the setting. Even an experienced
historian like Peter Read felt that access to diverse knowledge is something extraordinary as he admired the traditional knowledge of an Indigenous scholar.

The “human library,” a relatively new library service which allows clients to “borrow” people from the community and learn from their experiences, has an objective of promoting the sharing of experiences, expertise, and community knowledge and connections. Schools also acknowledge different types of knowledge and authority by inviting people outside education into the classroom or by taking students on excursions where they can develop a sense that there are many different sources of valuable information.

There are many classrooms in which teachers employ similar methods to those used in transliteracy projects. It is likely that they achieve similar results. But it is important to remember that what seems to matter in transliteracy is a whole picture, rather than particular teaching methods and techniques. It is worth keeping in mind students’ perceptions that their experiences with transliteracy projects are significantly different from their regular classroom experiences. The perception was also recorded in the groups, which had the same teacher, the usual timing of the lessons and formal assessment, pointing toward transliteracy as a point of difference. With transliteracy as a dynamic pattern of new combinations and connections developed for real people in their unique contexts, it can be expected that transliteracy will keep offering fresh experiences, but “moving across” will become a habit of the mind.

### 4.4 Transliterate reading and writing

Reading and writing are key learning and information practices in the Western world. A great deal of information is accessed through reading and communicated in writing. Learning to read and write is instrumental in becoming a literate person, an educational goal over centuries. Both skills were typically learned in formal education, and practiced by using pen, paper, and printed material. Recent technological developments have changed the situation which, with some variations, has persisted through centuries. We now read throughout the day from paper, mobile devices, and computers, and write more than ever before in various ways. It is hardly surprising that the impact of technology on our reading and writing has become a topic of common interest. Stories about the effect of digital technology on reading and education have become regular features in the media, concerns about our diminished ability to focus on reading are frequently raised in blogs and academic writing, while social media provide a daily offering of pictures and videos of babies and pets “reading” from various devices. Businesses have seized the opportunity by offering new methods and software to amplify reading experiences and abilities at any age. It is often difficult, even for experienced library and educational professionals, to distinguish the hype from the hard evidence. Before proceeding to transliterate reading and writing, it is worth considering research findings on the topic of reading and writing in the digital world.

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1 This section is based on the paper “Transliterate reading” (Sukovic, 2015).
Most concerns are related to reading, as the more fundamental of the two practices. Questions arising from the proliferation of digital reading devices could be roughly grouped into two categories: (1) questions around the suitability of the screen for print-based types of reading and (2) questions about the emergence of new reading practices and behaviors. An overwhelming proportion of current discussions belongs in the first category. A critical issue in these discussions concerns the impact of the screens we use daily on the quantity and quality of our reading.

Despite a common assumption that people nowadays read fewer books than they did in the past, American and Australian studies (Rainie et al., 2012; Australia Council for the Arts, 2014) have found that the opposite is true, although these findings are not definitive. According to Australian studies by Roy Morgan Research (2014, July 21; Roy Morgan Research, 2016, May 10) book reading is declining, but online activities do not seem to distract people from reading books. People who spend more time on the Internet also spend more hours reading, a study found (Roy Morgan Research, 2014, July 21). The latest research of readership in the United States shows a fall in book reading since 2011, but it remains statistically even with findings in 2012 (Rainie and Perrin, 2015). In order to put these trends in perspective, reading in the United States has increased significantly since the 1950s and research shows that access to digital content has affected an increase in overall reading by people in younger age groups (Baron, 2015).

Studies of the quality of reading as a focused activity generally favor paper, while electronic text is preferred for searching and skim reading. Although this is a trend, it is often difficult to compare findings. Most studies rely on participants’ self-report and, when testing is involved, it is usually impossible to compare the results of different studies because of their different designs. Contradictory findings also indicate that reading is a multifaceted and contextual activity. Recent studies (Stoop et al., 2013; Chen et al., 2014) confirm well-recognized advantages of tablets and e-readers, that they can carry a large number of texts, are instantly searchable, and can be skim read easily. On the other hand, physical interactions with hard copies, the stability of print text, ease of browsing, and nonlinear reading all aid immersed reading, comprehension, and learning (Hillesund, 2010; Mangen and Kuiken, 2014). There are plenty of opportunities for distraction while reading online, so it is hardly surprising that participants in Baron’s study (2015) reported that they were significantly more likely to multitask when reading on screen. However, reading from screen on its own may not hinder comprehension. Margolin et al. (2013) compared comprehension after reading different text types on computer, e-reader, and paper and found no significant difference. Similarly, Chen and Catrambone (2015) found no difference in comprehension after reading from screen and paper under test conditions. A study of narrative engagement found that reading from a tablet negatively affected the reader’s engagement when text was perceived as nonfiction, but the effect was not observed when text was perceived as fiction (Mangen and Kuiken, 2014). It is possible that the habit of skim reading factual texts online was behind participants’ reading the text differently when they thought the story described a real event. Chen et al. (2014) reported that reading from paper improved literal (also called “shallow”) comprehension, but the difference was less
significant for deep comprehension, especially when participants were familiar with tablets. A study by the National Literacy Trust in the United Kingdom found that electronic devices have advantages in improving the reading habits of some groups of children and noted a general preference among young people for reading from screen (Picton, 2014). An Australian study, however, found that teenagers do not necessarily prefer e-books to paper books (Merga, 2014).

Reading and writing often go together, especially in the practice of note taking during reading. A large student survey indicated a preference for reading on paper, especially because of the ease of annotation and highlighting (Vandenhoek, 2013). Familiarity with digital tools may be an issue, but it is not the only reason for the preference. In the Vandenhoek’s study, around half of the participants indicated they knew how to highlight on screen, but only 29% used this feature, while 70% took notes on paper, while reading on screen. Mueller and Oppenheimer (2014) found that copious and verbatim notes taken on laptops are associated with shallower information processing while hand-written, summarized notes are better for conceptual understanding. They interpret their study findings as an indication that notes taken on laptops may even impair learning. Another study found that transcription on laptops can be beneficial for recall, particularly for people with poor working memory (Bui et al., 2013). Studies like this indicate that different note-taking techniques may be appropriate for different people and purposes, but it seems advisable to include summarized hand-written notes at some point in the learning process.

People’s comfort and their perceptions of the usefulness of different technologies are important when considering the advantages and disadvantages of different modes of reading and writing. A series of studies on perceptions of reading and writing, conducted in several European countries, provides some comparable results as the researchers used the same study design. University students were asked to write essays about their experiences of reading and writing with pen and paper compared with keyboard and computer. The initial study conducted in Italy (Fortunati and Vincent, 2014) found that students perceived writing on paper as a more free, personal, and creative activity. It can be done on any surface, it supports exploratory and creative responses, such as doodling, and handwriting provides information about personality and the moment of writing. Students also appreciated the possibility of “augmented writing” on computer with access to dictionaries, hyperlinking, and the advantages of text manipulation and use of other digital tools. Reading preferences depended on the material and purpose—the computer is preferred for short texts and purposeful reading in which digital tools can be used. Paper is preferred for focused reading. A study in Germany, the United Kingdom, and Italy confirmed the key findings of the initial Italian study with no indication of major cultural differences (Farinosi et al., 2016). Paper—screen, pen—keyboard were not seen as opposites by study participants for whom the choice depended on situation and purpose. Handwriting was perceived as a slower process, which allows better processing and supports learning, but the advantages of digital writing were noted too. Overall, the conclusion was that analog and digital technologies exist and are used side by side. It is common that people draw on paper, scan, and share digitally.
Some differences were found in a study conducted in Finland, where students have been more immersed in the digital world (Taipale, 2014). While students’ descriptions of their reading habits were similar to those seen in other studies, digital writing had the default status when the Finns compared handwriting with electronic text. They appreciated writing by hand for the same reasons as others, but emphasized the advantages of fast writing with a keyboard as they could follow their thoughts more quickly and modify text more easily. When it came to the physical aspects of reading, the Finns preferred to work with pen and paper, as these technologies are more adaptable to different situations and bodily positions (Taipale, 2015). In considering the pros and cons of different technologies, none of the studies provided the evidence that digital media could replace the rich communication enabled by the use of pen and paper.

Research into the suitability of new technologies for existing reading and writing practices points toward the importance of both analog and digital technologies to meet a range of needs and requirements. However, the transfer of existing behaviors and practices into the new environment is only one focal point. Another must be concerned with the emergence of new qualities of reading and writing, if we are to understand the nature of a significant cultural shift.

Reading from screen and paper: transliteracy study

Scholar
Some of the research practices described by the academics in the transliteracy study are skim reading of search results and a large number of texts, printing for more convenient reading and intellectual assimilation, and remixing passages from a textual collection in novel approaches. Skim reading was usually performed on screen to assess the usefulness of retrieved information before more focused reading. Some scholars mentioned speed reading a whole novel on screen, while a few participants practiced reading from screen even when they read in a more focused way and for extended periods of time.

Printing for in-depth reading or speed reading of longer texts was common, as most people found reading from screen very tiring. Some researchers preferred to take printouts home to read in an armchair rather than at their desk and talked about different physical settings required for focused reading. Frequent interruptions at work were not conducive to focused reading. Another reason for printing was to aid the intellectual assimilation of material. Participant 2/1, for example, felt that she had not read the text properly if she read it on screen, while Participant 13/1 needed to make printouts at some point for synthesis, because it was easy to keep adding electronic files without any intellectual grasp of that material. The printed text was usually marked and annotated.

Working simultaneously with hard and electronic copies was a way of using time in an archive efficiently. Participant 7/1 described how she worked in overseas archives, where she would conduct a catalog search and save it for a

(Continued)
(cont’d)

day, and then she would start ordering materials in hard copies. While waiting for the hard copies to arrive, she used a digitized version to make printouts. Participant 6/1 worked in a similar way by printing digitized rather than archival hard copies. In these examples, the reading of digital copies for assessment, examination of originals when the content and physical aspects of the document were of interest, and subsequent reading of page images were all part of a process in which the reading of electronic copies and originals have their specific purposes. One scholar described his practice of reading the text of an archival document into a tape recorder when photocopying was not allowed.

Community

For research fields based on scattered evidence and knowledge situated outside well-established institutions, search engines enable a deeper reading than codex. The website *A History of Aboriginal Sydney* offers hundreds of images and videos as well as some textual overviews and interactive tools to present parts of a dispersed history and enable their discovery. During the project, team members were considering and learning new ways of presenting textual information online and combining it with images and videos. In the process, they were discovering different possibilities for reading the material—in a broad sense of the word. By answering numerous questions and comments from website users, the team was learning about community interest and how historical memories presented online connected with users’ personal stories. Peter Read commented on user reading of the research data:

> You’d be able to make all those links yourself, which is what we historians do and put it together and say, ‘I know the history of Sydney, even if it’s not on this website, I understand it differently now. I’ve got a certain feeling from it, from that website. I can use all information again, not just because it’s a big encyclopaedia, but because it presents a certain view that I can make the connections between them.’

Another team member commented that no user of the site would watch several hundreds of videos and read all the material:

> So everyone is going to form a different picture. And it will always happen because you will always bring your own mind into something, but in a different way from reading a book . . . People are going to just dip in and take what they want . . . There are underlying themes to get a felt sense of what is going on. Whatever you explore, somebody is going to tell you one particular perspective.

(Chantal Jackson)

Julie Janson, an Indigenous researcher on the team with strong connections with the Indigenous community in Sydney, commented on the importance of presenting history online and the sense of user engagement:

> When I introduce people to it and they have a look, they ring me up and say, ‘Oh, my God, that was extraordinary! I stayed up all night looking at all these stories, and the way it was easy to interact, and between the different sections, and the

(Continued)
galleries and video galleries.’ And I had nothing but very excited feedback from Aboriginal community.

Teenager

Creative reading was at the core of iTell as students explored new approaches to their favorite texts through digital storytelling. An interesting aspect of iTell was a collaborative reading and construction of meaning. Collaboration emerged with a group of Indigenous students who created a pastiche comprised of individual memories about events affecting their community. They used newspaper articles, drawings, digital images, voiceover, and sound effects to relate personal memories to a publicly known story and present it as a collaborative interpretation of events. The way in which they worked and interwove personal and collective meanings had strong associations with reconstructions for and “readings” of the website *A History of Aboriginal Sydney*. Once removed from the dominant presence of print, Indigenous teenagers found a way of connecting aspects of Indigenous culture with contemporary memories and communication tools. At the same time, they modeled collaborative storytelling for other students. Some non-Indigenous students decided to work in pairs in subsequent workshops, choosing popular books to present their creative reading, strongly echoing personal issues. The slow process of building a digital story using a variety of digital and analog tools enabled reflection and the construction of meaning through a personal connection with the text and a dialog with the co-authors.

4.4.1 Reader–user–creator

The snippets of digital behaviors (*Scholar, Community, Teenager*) which were observed and recorded in the three research projects that form the primary evidence for this book illustrate the practices of very different groups of people. Looking into a fuller pattern of behaviors, what emerges is not a picture, but rather an animation with numerous transitions and transformations. A clear delineation of practices, named and defined in relation to print culture, is often limited or redundant. Old habits, new ways of doing well-known activities, and new practices are coming together to shape online behaviors.

Transliterate reading emerges as the practice of reading across a range of texts when the reader seamlessly switches between different platforms, modalities, types of reading, and genres. Reading is part of a range of netchaining activities, such as searching, watching, and communicating, guided by a personal interest and context. Transliterate reading is based on abilities to search effectively, read across resources, handle files in different formats, and have a trained eye and brain to establish connections. The lines between reading, using, and creating are often blurry, but a transliterate reader demonstrates an ability to adjust reading and
incorporate it in other activities. Transliterate reading does not replace or supersede traditional forms of focused and deep reading of a single text. Transliterate reading, however, extends the range of reading skills and situations when reading comprehension is required.

Netchaining emerges as a key capability in “reading across.” Any number of reading practices can be part of netchaining—from in-depth reading when a useful reference is found at the bottom of the text or an argument is followed in a text, to search and skim-reading for particular information, to scan-reading for information about the author of the newly found source. The authorial voice presenting an argument or a story is replaced by the reader’s/user’s/creator’s idea, which guides netchaining. The scholar switches between a whole range of activities and different levels of reading following the development of a guiding question. Many users of *A History of Aboriginal Sydney* said they stumbled across the site accidentally and then stayed there to explore stories related to their families and communities. Names of people, places, and events are their guiding ideas as they skim read or carefully read search results, and explore films and images. The spiral of searching—reading—watching unfolds around personal connections.

Ongoing searching and probing into the wealth of online information, which often requires a significant ability to process information quickly and make decisions about the trustworthiness of information, leads to new ways of exploring ideas. Unlike databases of the past, Internet search engines are starting to support the exploration of semiverbal ideas:

> *What I do love about the electronic text world is, you can get a kind of half of an idea or a hunch or a sort of tip-of-the-tongue feeling about an idea that’s not quite come yet but you kind of, you might be able to form that idea and I do often do it by sort of Boolean searching, you know, by just going ‘Ah, it’s this, it’s red and it’s blue and it’s sharp and it’s slow, you know’ [laughter] and then you think, ‘Ah, give me a whole lot of other things that are like that!’*

*U Participant 6/2*

It has been suggested that the focus on computers prevents immersion in electronic literature (Mangen & Kuiken, 2014). For website users, however, the computer is an enabler. A level of familiarity with this type of interface, which does not emphasize technological novelty, is possibly a contributing factor for “staying in a flow.” It is, however, a personally meaningful story that maintains a sense of immersion and makes the user say, “Oh, my God, that was extraordinary! I stayed up all night looking at all these stories.” It is a personally meaningful story developed as a result of deep reading that also keeps teenagers motivated through an often tedious process of searching for images they can use to illustrate their work. Drawing and making photographs and motion animations, which are sometimes technically demanding, are other techniques to bring one’s reading to life as reading merges into creating.

The juxtaposition of ideas is an essential feature of moving across a range of information presented digitally. For a user of a website, understanding emerges
from the juxtaposition of resources and snippets of information in search results. An academic described how reading across documents provides opportunities for creative insights:

\[\text{\ldots when you've got your computer going and you've got a couple of different documents open and you're cutting and pasting or you're toggling between two or three documents \ldots you're just feeling ideas come out of this idea, idea number one and idea number two, when they pop up against each other often completely other idea, idea number 25 will, sort of, turn up out of that.} \]

U Participant 6/2

New digital practices are emerging, but we currently do not have a clear understanding of the forms of reading happening on screen or in readers’ interactions with mixed platforms, let alone how they can be captured and measured. What is becoming evident, however, is a need to recognize very different reading practices. The question is not so much whether we read better from the print page or screen, but which form of reading is most suitable for the task and text at hand. A cultivated ability to adjust and apply skills in novel ways online and offline may result in differently trained eyes, ears, hands, and brain to participate in a fully transliterate reading experience.

### 4.4.2 Education for transliterate reading and writing

An ability to “go with a digital flow” or stop for focused reading requires a new combination of skills and sophisticated metacognition. While there are rules and conventions developed over hundreds of years on how to present writing in a book; and education prepares young people for reading and interpreting ideas on paper; there are very few definitive rules for the construction of digital environments and almost no training for reading on screen. Academics and teenagers alike are unsure what they are expected to know about digital tools and resources. It takes a leap of faith to be open to the possibilities of and acknowledge “idea number 25” when it appears.

Instead of focusing on traditional reading and writing, transliteracy points toward the possibility of shedding a broader light on literacy. Engaging with one aspect of learning may become a conduit for another. For example, Student T. commented on how she discovered an interest in reading and writing through digital storytelling:

\[I \text{ never would have thought I could do things like this because I'm not a very good person at writing or reading much. And this sort of helped me. Now I read a lot more and that's basically what I liked about iTell...I always thought reading was really boring, but now it's opened my eyes that it's not and it'll help me with my spelling as well because I'll learn new words and stuff so that should be good.}\]

The end of year school report after iTell is the only one during her high school years which mentions T.’s notable engagement with texts studied in English classes. Three years after the quoted interview, I asked the student how her newly
discovered interest progressed. She explained how her initial interest lasted for at least several months. She had not become an avid reader, but she did not find reading boring anymore. However, a temporary change in reading interest and habits as well as a shift in attitude provides room for the consideration of possibilities for engaging students in learning. The authors of *Hanging Out, Messing Around, and Geeking Out: Kids Living and Learning with New Media* (2010) observe that many initially exciting experiences with media and alternative forms of learning do not in themselves lead to long-lasting interests, but they provide knowledge and skills as stepping stones to deeper engagement with their environment and new areas of interest. Student interests may also translate to enhanced reading ability as they engage with a range of texts.

An argument for developing critical thinking by reading across texts was strongly promoted by Gainer and Lapp (2010). Although they did not refer to transliteracy, their book *Literacy Remix: Bridging Adolescents’ In and Out-of-School Literacies* raises pertinent questions and provides examples for the introduction of transliteracy into the classroom. The authors argue:

> Just as it did in previous time periods, reading instruction needs to change with the new demands faced by citizens. In an information age, critical literacy involving reading and writing in multiple modes is imperative. The following examples from Ms. Woolven and Robert Cheshire’s 12th-grade English-social studies integrated classroom illustrate the notion that reading well in our present society involves remixing old and new literacies technologies in multiple and multimodal ways across the curriculum.

> *Gainer and Lapp, 2010, p. 59*

The authors provide examples of teaching English and social studies as part of a joint research project in which students communicated their findings in a range of forms and genres for different audiences. Their argument for widening our understanding of what constitutes writing is supported by examples of a variety of multimodal written expressions.

Digital storytelling is a good example of a genre and approach to developing transliteracy, which could be used in different settings to promote transliterate reading and writing.

### Digital storytelling: an approach to putting transliteracy into action

*Based on Sukovic (2014)*

Digital storytelling (DS) is a useful example of how transliteracy can be applied in classrooms from kindergarten to university and in situations of informal learning. Bridigo-Corachán and Gregori-Signes (2014) present a wide range of contexts in which DS has been used. Institutions, including libraries and community groups, utilize DS to record memories of a community, as was the case in the project *Capture Wales* (BBC, s.a.), and to aid...
reflection in the treatment of people recovering from trauma and adverse life events. Educational institutions use DS to engage with learners and tap into multiple intelligences and literacies (Ohler, 2008; Frazel, 2010). Opperman (2008, p. 178) observed that DS has the capacity to engage students in learning about complex ideas: “The format of the digital story allows the compression of complex ideas through the use of multiple media... For students, digital stories have proven to be a powerful medium to express their voice with intellectual depth in a form other than writing.” Storytelling and emotional engagement create a learning space for students to develop a personal connection with complex theories (Benmayor, 2008; Coventry, 2008; Opperman, 2008). As a pedagogical tool, DS “brings the creator/student and the viewer together in a dialogue around the nature of representation, meaning, and authority embedded in imagery and narrative” (Fletcher and Cambre, 2009, p. 115). According to Coventry (2008), the use of multiple modalities and less familiar forms of communication through multimedia is likely to enhance learning.

DS can be used successfully to meet educational standards (Ohler, 2008; Frazel, 2010), and to make writing composition more visible, while enriching student experience with writing (Opperman, 2008). In the project Reflect 2.0, students reported that multimedia helped them to be reflective and they appreciated the opportunity to be creative (Sandars, 2009). Their tutors noted that the DS enhanced reflective learning for students who did not have a preference for writing.

DS has been described as a powerful educational tool to build confidence and establish a sense of a community and collaboration (Benmayor, 2008; Leon, 2008). Gregori-Signes (2008) discusses the usefulness of DS in a languages classroom setting, pointing out that it helps students to make themselves heard.

Traditional forms of assessment and assessed skills need to be revised. Online reading comprehension usually appears as part of research and problem solving, but the abilities to read and evaluate search result, and produce media genres are not typically assessed at school (Leu et al., 2013). Coiro (2009) demonstrated a difference in print and online reading comprehension, showing that they tap into different skills, and stressed that assessment must take this into account. Achievements assessment in project-based and cross-curricular learning provides experiences and methods to be used in conjunction with the transliteracy framework.

Conversations about transliteracy are part of broader discussions about learning and knowledge production for this century, often in contradiction to traditions. Teachers have had the unsettling feeling that they are constantly being asked for more, with many requirements clashing on operational and philosophical levels.
The answer from a transliteracy perspective lies in reconfiguring the existing educational field to allow more purposeful explorations. The area for transliteracy could be perceived as large as knowledge itself, but teachers and librarians already know how to guide learners through the knowledge field. A more difficult question concerns the removal of a common obstacle course, consisting of many requirements that do not serve student learning, to create space for exploration. Mapping what we do in the classroom and what we want to do with learning is a practical start. The use of transliteracy palettes can provide tools to encourage transliteracy to develop in many different directions, bound by the context and learners’ needs. A key role of educators is to support and guide new investigations as they emerge. It is important to remember, however, that investigations and guidance can both appear in many forms. As the shifting sense of authority and leadership emerges in the society and the classroom alike, it becomes acceptable and even expected that different people may become guides during the learning process. The educator is then a teacher and learner in a thriving learning community.

4.5 Summary

This chapter started with considerations of aids and challenges to transliteracy. They revolve around two main issues: underpinning structures (such as suitable technology, access to information, time, and space) and transliteracy capabilities, particularly in relation to skills, traditions, professional development, and collaboration.

The rest of the chapter considered transliteracy and learning. Transliteracy palettes were presented as a tool for the implementation of transliteracy in teaching and learning. A transliteracy palette consists of an information and a form palette. Mixing them in as many combinations as possible in a range of contexts is proposed as a way of developing skills for transliterate “movement across.” Curriculum mapping was proposed as a way of ensuring that transliteracy is embedded in classroom practice.

Pedagogies suitable for the development of transliteracy are those which enable exploration, student-based learning, and boundary-crossing. Particular attention was given to reading and writing in interaction with different technologies. Findings from the literature and transliteracy study point toward a gap in our understanding of how different technologies support existing forms of reading and writing and, especially, of emerging practices. Approaches to the development of transliterate reading and writing were considered.

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