Chapter 9
Developing Media Production Skills for Literacy in a Primary School Classroom: Digital Materials, Embodied Knowledge and Material Contexts

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Abstract This chapter investigates the relationship between technical and operational skills and the development of conceptual knowledge and literacy in media arts learning. It argues that there is a relationship between the stories, expressions and ideas that students aim to produce with communications media, and their ability to realise these in material form through technical processes in specific material contexts. Our claim is that there is a relationship between the technical and the operational, along with material relations and the development of conceptual knowledge and literacy in media arts learning. We place more emphasis on the material aspects of literacy than is usually the case in socio-cultural accounts of media literacy. We provide examples from a current project to demonstrate that it is just as important to address the material as it is the discursive and conceptual when considering how students develop media literacy in classroom spaces.

Keywords Media arts • Media literacy • Technology • Media production • Knowledge • Classroom practice

Introduction

In recent times, research into media literacy education has tended to focus on the social and conceptual aspects of communication; while technical and operational skills have had much less focus. This is despite their being an essential component of how media knowledge is produced. This chapter draws on theories of embodiment, particularly Katherine Hayles' (1999) concept of incorporation, to argue that the

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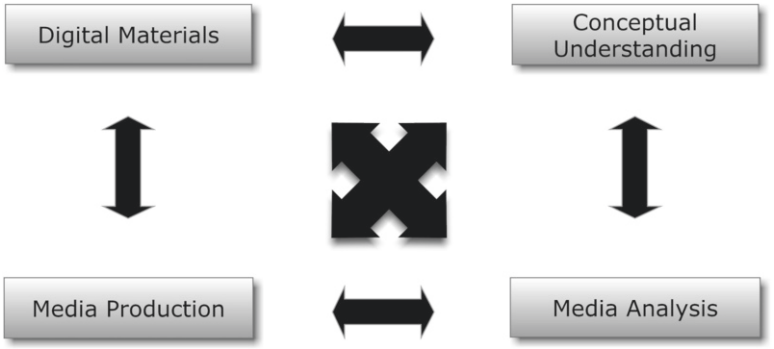

Fig. 9.1 The building blocks model – four building blocks of digital media literacy teaching and learning (Adapted from Dezuanni, 2014)

bodily practices of digital material culture are a crucial component of the theorisation of media arts literacy. We argue that it is impossible to successfully participate in digital media ecologies without operational skills and embodied knowledge. Media arts skills have a range of specificity and complexity that needs to be explicitly taught as an aspect of the production of media knowledge and for students to become 'media literate'. In this sense, media arts literacy involves both material and conceptual practices and knowledge production.

Here we draw on a generative 'building blocks' framework (see Dezuanni, 2014) to understand digital media literacy. Dezuanni's model identifies the knowledge, skills and processes students require to successfully participate in digital culture. Figure 9.1 provides a diagrammatic representation of how these categories work together in the building blocks model. By this way of understanding, digital materials and conceptual understandings are knowledge domains and media production and media analysis are procedural domains. The purpose of isolating these building blocks is to consider how they might productively become the objects of educational attention in classrooms at particular times and within particular contexts, and not to suggest that they work in isolation from each other as young people engage in digital media literacy activities and practices.

In this chapter we draw on empirical work in which we have been involved at one primary school as part of a much larger school reform project.[1] The data used includes participant observation notes, photographic evidence and student artefacts collected

[1] This data was collected as part of an Australian Research Council Linkage project entitled the URLearning project. We thank the ARC for their support of the research. The project was a collaboration between researchers at QUT, the teachers' union and the school in which the project was located. We thank the children, teachers, leaders and community of the school who are our research partners. All participants have provided consent and where appropriate images have been blurred for anonymity reasons. Our research colleagues on this project include Allan Luke, Amanda Levido, Karen Dooley, Beryl Exley, Vinesh Chandra, Katherine Doyle, Kathy Mills, and John Davis from QUT and John McCollow and Lesley McFarlane from the QTU.

within a media arts program implemented within several year four[2] classes in this school. The school was located in a low-socioeconomic and culturally diverse area of South East Queensland, and the media arts curriculum was introduced to assist students with the development of digital media literacy and to impact on literacy pedagogy in classrooms and student literacy outcomes more traditionally configured.

Literacy and Material Practice

Theories of literacy that have supported understandings of literacies as social practice (see, for example, Barton, Hamilton, & Ivanic, 2000; Luke, 2003; Street, 1984, 2003) and multiliteracies theory (New London Group, 1996) are familiar to the media literacy education field that upholds its own aims to develop young people's capacity to participate in digital media cultures (Erstad, Gilje, & de Lange, 2007; Fisherkeller, 2011; Share, 2009). Those approaches that understand literacy as social critical practice provide important insights into the ways in which social, cultural and critical aspects of literacy practice work alongside operational features to provide individuals with the ability to successfully participate in literacy ecologies (see, for example, Luke & Freebody, 1997). For instance, media literacy educators have argued that technical production skills have value when they allow students to develop conceptual knowledge of media languages, audiences, representations, institutions and socio-cultural knowledge of technologies (Buckingham, 2003, 2007; Dezuanni, 2011). In this sense, it might be argued that media literacy educators consider conceptual knowledge to be of a higher order than skills and operational knowledge. A relationship exists, however, between technical and operational skills and the development of conceptual knowledge in media literacy education. There is a link between the stories students want to produce and their ability to realise them in material form through technical processes (Bass & Bandy, 2010; Gilje, 2011). Technical and operational skills are an essential component of how stories are told, how concepts are explored and how knowledge is produced and reproduced.

Multiliteracies approaches and research from the New Literacies Studies have tended to focus on discursive rather than material practice and, until recently at least, have placed less emphasis on the material aspects of literacy than is necessary to fully understand how students may develop digital media literacies. Luke (1992) draws on Foucault's work, specifically the 'technologies of the self', and Bourdieu's concept of habitus to argue that material practice, and the training of the body are crucial aspects of literacy learning and development. Luke aims to "retheorise what occurs in the material culture of classroom events as bodily transcription and to show how that culture constitutes the morally regulated, literate subject" (Luke, p. 123). The present chapter argues that, likewise, the bodily practices of digital material culture are a crucial component of the theorisation of digital media literacy. It is impossible to successfully participate in media arts contexts without operational

[2] In Australia Year Four is in the middle primary years and caters to children aged 8 and 9.

skills and embodied knowledge. In this sense, media arts literacy involves both material and conceptual practices.

For Luke the value or "cultural capital" of bodily remembrance for literacy is "in acquiring the bodily habitus for student reading thereby ensuring discipline and promotion within the institution [of schooling]" (Luke, 1992, p. 126). This chapter extends this idea by drawing on Katherine Hayles' work (1999) to argue that students use both bodily writing – inscription – with digital media technologies and their bodies' disciplined capacities – incorporated habits – to participate in digital culture. The chapter argues there are three locations of materiality through which students are involved in digital media production in classrooms: with digital materials, through operational skills and within the broader material context of school places and spaces.

After a brief introduction to the research project that is the basis of this discussion, we investigate materiality in three domains. Drawing on the building blocks model put forward by Dezuanni (2014) we discuss three elements of materiality that are components of media arts production and learning in the primary school curriculum. First, we consider digital materials and the importance of setting operational foundations. Next, drawing on notions of incorporation, we consider the bodily aspects of hardware use in digital media production. Finally, we consider the material spaces and places utilised in classroom media arts production and the constraints of the modern school on quality media production work.

The URLearning Project

The URLearning project is essentially a school reform project that has worked to investigate links between media arts and digital literacy learning and improved school outcomes for students in low-socioeconomic status (low-SES) and culturally diverse schools. The approach has involved researchers, teachers, the union, the students and their families, and communities working together to reform literacy pedagogy, and called on media arts and the introduction of digital literacies in pedagogy and assessment as catalysts for reform of teaching and learning. We have worked with the school leadership and staff to investigate what is required to turn around the performance of a school providing education in a low-SES and culturally diverse community. Our aim, broadly, has been to describe how enhanced teacher professionalism, realised through school-level curriculum planning for literacy, a focus on digital media arts, multiliteracies pedagogies, an after-school media club program, and helping to provide spaces for the rich Indigenous culture and knowledge evident in the area to be the focus of recognitive social justice moves, can generate improved outcomes for students in ways that more highly defined and scripted curriculum approaches may not (e.g., Luke, Woods, & Dooley, 2011).

The school in which we work is located in a satellite city, which forms part of the urban sprawl of the capital city of Queensland. It is in an area where poverty and disadvantage impact upon the lives of children. The lives of many families have

been further complicated by recent government 'reforms' in social welfare which have made school attendance a condition for receipt of family welfare payments. The majority of the 600 students enrolled at the school live nearby. The school has a significant population of Indigenous students, with somewhere between 11 and 15 % of the overall student body identifying as Aboriginal and/or Torres Strait Islander. A further 14 % of the student cohort is from varied Pacific Island cultures. In all, children from 31 cultural backgrounds attend the school. Approximately 6 % of the school population are identified as requiring specific English as a Second or Additional Language support, however, as is the case in many schools in Australia the actual number of students who could benefit from such instruction is likely to be much higher than that.

Here we call on data collected as part of the year four component of the URLearning project. Over 3 years, the year four students and their teachers were involved in media arts lessons and instruction. Early in the project the focus of the year four work was often on developing skills capacity, and often the researchers, and in particular the media arts researcher, were involved in driving the media arts program within the classrooms. However, as the project developed, we took a much more participatory approach. We have called this approach elsewhere a *collegial relations model of reform*, where by teachers and researchers worked together to plan and implement the media arts curriculum across the classroom curriculum. The focus was always about using media arts as a means and an ends – a means to shift pedagogy and assessment in the classrooms as a way to improve literacy outcomes across a broad spectrum of modes including print, and an ends whereby students developed skills and produced knowledge in media arts as a way to communicate and articulate ideas using media. The data used in this chapter is drawn from the final year of this project.

Media Arts and the Production of Digital Materials

The great majority of media arts work undertaken in classrooms in the second decade of the twenty-first century is digital. That is, students produce media art works using digital communications technologies. Indeed, a distinctive feature of media arts curriculum is that even where non-digital materials are used in the initial production of media, for instance, where images are drawn using pens and paper, these materials are digitised before being worked on using a variety of software. The first location of materiality considered in this chapter, therefore, exists within 'digital materials', which include digital text, still images, moving images, recorded voice, music, sound effects and generated media. Students work with these materials through the operation of software interfaces such as operating systems and editing and mixing applications as materials are captured, stored, uploaded, accessed, dropped and dragged, manipulated, edited, mixed and shared. Digital materials are the tangible 'things' with which people work in media production contexts. Different types of digital materials are created using a range of operational skills

and according to specific codes and conventions of communication. These digital materials represent different modes of communication in the manner outlined by Burn and Parker in their discussion of social semiotics and multimodality theory as it applies to media education (2003).

In the various projects undertaken by the year four media arts classes during the URLearning project, we have seen this range of digital materials being used. The media arts program was organised around different units or modules each term, with each unit aiming to both mesh and support the classroom curriculum. The units were planned collaboratively between teachers and the researchers. At times these units also linked across individual units. Thus, skills learnt in one unit were used again in later units of work. At the beginning of each year of the project the media arts researcher spent a great deal of time helping students to become familiar with the process of creating digital text, still and moving images and recorded sound. This was completed in the context of a specific objective to communicate ideas associated with class work, but the aim was not to produce media products as such. For instance, students used the laptop computers and blogging software to organise learning across the curriculum, particularly for their English and geography work. In one instance, they created a profile of themselves for English and in another example they mapped a virtual journey around Australia, adding text, images and sound to record information about the types of attractions they would see in major towns and centres around the country.

For this work, completed early in the year, students used the software available on the laptops to choose particular template themes, which allowed them to manipulate digital text, making the text smaller and larger, choosing particular fonts, and changing the colour of the text. They then added images taken with the camera built into the laptop and they recorded their voices on the laptops and added these sound files to their blog entries. From a literacy perspective, the year four students were very much involved in communicating using multimodal texts in sophisticated ways (Jewitt, 2009). The point we want to emphasise here is that a fundamental aspect of the media arts work was also for students to become familiar with the production of digital materials for a range of purposes. The work the students were undertaking was not immediately obvious as media production work, in which many would expect to see specific genres of popular culture and media produced, and yet we believe it was fundamental to the students having the knowledge and skills to produce other forms of media later in the year. The students were allowed the time to achieve some level of incorporation on the computer keyboard and track pad; they spent time working out how to frame their images using the camera on the laptop; and they experimented with recording their sound, making first estimates and eventually judgements about elements such as how close to the laptop microphone they needed to be. The objective was for students to learn the process of working with digital materials – which is as much a material media arts-based practice as it is a literacy practice.

As the year progressed, the production of digital materials became more sophisticated and the students' activities began to resemble conventional media production more closely. They were increasingly required to produce still and moving

Fig. 9.2 Year four students shooting a 'piece to camera' using Flipcam cameras for their science procedural video (Courtesy of the participants)

images and soundtracks for moving image media productions. In term 3, the students produced a procedural video in which they captured video footage of a science experiment and then edited this to craft it into a segment inspired by after-school science education television shows. To produce the science procedural video, the students were required to capture video footage of the procedure being conducted – in this case a simple science experiment. This required each student to capture a range of different shot types, particularly medium shots, close ups and extreme close ups, and included a 'piece to camera' in which a host introduced the procedure (Fig. 9.2). Recording these images required a great deal of planning and choreography of the camera in relation to the host and science equipment as the procedure took place. Different students took on the role of directing these media processes. This process differed significantly to work conducted earlier in the year, as it required the students to manipulate a hand-held camera and to consider distance between the camera and the items being recorded. It also required more focus on the manipulation of space through framing and composition of the image. The students had to consider how each shot they recorded would work as part of a sequence of shots and in a production in which voiceovers and titles would also be used to communicate. In other words, they had to think about the overall effect of combining different types of digital materials into a moving image media production – and they had to be aware of this as they shot their footage. We believe this is a key aspect of educating students for digital media literacy in the sense that there is nothing natural or inherent about students knowing how to gather and combine digital materials. Furthermore, despite their familiarity with popular culture such as they gained, in this case, through the after-school science programs, they were not familiar with how these programs are actually produced. Producing digital materials requires the use of technology – a camera, computer and editing software – to effectively produce digital materials, and this requires capacity in specific material practices.

The production of the science procedural video, which is clearly focused on science curriculum content, and which was used with these students to develop new ways of being literate and communicating ideas, can be defined as a media arts activity

because it required students to produce digital materials using media production procedures for the creation of a moving image media text. The 'materiality' of digital materials is evident from the students' ability to weave them together to create a meaningful message about the science procedure. Once the students recorded their video footage, they were able to upload it to the laptop computers and then shape it according to convention. They dragged footage to the 'timeline', altered the length of shots, added these shots to a sequence of images and added text as titles and subtitles. Then they created digital audio and worked to weave that into the production using the editing software. The overall effect of this digital 'weaving' process is the creation of a new text that is as much 'art' as it is communication. It is art because its production involves a series of creative choices by the students about how to undertake each instance of the creation or weaving of digital material. The choices they made about text size, colour and shape, shot size and composition, duration, pitch and volume, while informed by available designs, also required personal and group decisions. The shape and sound of the final product is ultimately the result of a process of digital crafting that is similar to the artistic processes required to produce any media arts text.

The Body and Incorporation Practices

The second location of materiality considered in this chapter is the material relationship between students and hardware in which students use tactile and physical processes to handle media production tools. These practices include operational skills that students must acquire to successfully operate this equipment. Burn and Parker (2003, p. 7) argue that media production is always realised through modes that require choices about material tools that are "part of what makes the text mean what it does, and can affect the process of textual production significantly". In this sense, media production profoundly relies on the development of operational skills and practices within material relations.

A range of operational skills and bodily practices are required to undertake material practice to produce digital materials. Operational skills include the ability to use different technological tools, which are material objects that require physical interaction using motor and manual dexterity skills. There are also choices about which tools to use that ultimately affect the final product. They also require knowledge about how to incorporate the tool as an extension of the human body in a physical space. For instance, it requires knowledge of how to hold and place a camera in proximity to the self as operator; where to place the camera in proximity to the group of people or other object(s) being photographed or recorded; and how to place people and objects in proximity to each other.

Hayles (1999, pp. 199–200) argues that to understand how bodies interact with technology, it is important to distinguish between inscription and incorporation. She says: "I mean by an incorporating practice an action that is encoded into bodily

memory by repeated performances until it becomes habitual." She continues: "The body's competences and skills are distinct from discourse, although in some contexts they can produce discourse or can be read discursively". She contrasts incorporating practices to inscription practices; defining the latter as "systems of signs operating independently of any particular manifestation" (Hayles, p. 198). She argues that the significance of inscriptions "derives from the concepts they express rather than the medium in which they appear" (Hayles, p. 198). Hayles does not argue that incorporating practices are somehow natural or more universal than inscription. Rather, she suggests incorporation is a distinct aspect of how bodies become social and cultural through technology. From this perspective, when students undertake media production, the inscription practices that occur when they express ideas through producing culturally encoded images with a video camera are in constant interplay with the incorporated practices of holding and operating the camera.

In this section we discuss two examples of students' bodily incorporations of media technologies to undertake media production in the URLearning project: their use of different types of cameras, and their use of laptop computers. Our argument is that the physical use of these technologies is not natural or inherent but must be learnt and practiced over time for students to become successful media producers and therefore become more 'media literate'. Media technologies have their own affordances that invite human interactions in particular kinds of ways (Fuller, 2005/2007, p. 55). Furthermore, the context in which a media technology is used potentially changes the ways in which it might be used. There is a difference, for instance, between using a digital video camera to record a casual social event at home and using a camera to shoot footage for a documentary, with the latter demanding greater formality and control over the technology (Buckingham, Willett, & Pini, 2011, pp. 53–54).

Many of the media arts projects undertaken by students in the URLearning project involved students using cameras to create still and moving images, but this involved the use of different types of cameras for different projects and, therefore, different incorporation practices were required. Early in their media arts work the students used the cameras on the laptop computers, located at the top of the laptop screen, to take images and video of themselves to include in their English blogs (Fig. 9.3). These cameras are intended for video conferencing or recording images of a person's face as they sit in front of the computer, for such communication techniques as video blogging. The inbuilt camera is not intended to be mobile, or used for shooting images or video 'in the field' or on location even though this is what they are often used for. The only way to see what will be recorded with these cameras is by looking at the laptop screen – there is no viewfinder to enable the user to point the laptop away from themselves to take images on the other side of the laptop. This limits what can be achieved with the laptop cameras. The students used these cameras as they sat at their desks in a conventional classroom setup. The cameras were stable because the laptop computer acted as a 'tripod' and there was no unwanted camera movement as the students recorded their images. The students had little control, though, over the composition and lighting of these images because

Fig. 9.3 Students using cameras on laptop computers to take images of themselves (Courtesy of the participants)

they were unable to control the space behind themselves. In terms of bodily incorporation, the students were fixed into their standard classroom seats sitting at desks in an upright manner. They had little to no choice about the physical placement of the camera and, we would argue, little opportunity to develop skill and control over the camera. The primary incorporation practices at work here were the students' control over their bodies to sit up in their seats and use of the laptop track pad and space bar. In this instance, the creation of digital images required minimal specific incorporation practices related to the camera.

The science procedural video completed in term three of this final year of the year four component of the URLearning project provided students with an opportunity to use cameras in more creative ways as they choreographed the placement of Flipcam video cameras in relation to their desktop science procedures. This included the 'piece to camera' component of these science procedures (Fig. 9.2). In contrast to the laptop cameras, the Flipcams were totally mobile, lightweight and very easily manoeuvrable. These cameras became, in essence, an extension of the students' bodies as they held the cameras in position to record images. The challenge for the students was to hold the cameras still to ensure their images did not suffer from camera shake. The students were not able to use tripods, so had to rely on holding the camera in position as best they could. The teachers demonstrated some techniques for holding the cameras still, such as resting upper arms against upper bodies and holding the camera with two hands, to form a 'tripod'. Also suggested was the process of leaning on a still object such as the back of a chair. However, we saw

few students using these techniques. Rather, because of the small size of the cameras, the students seemed to feel most comfortable using the cameras by holding them with one hand – similar to how they might hold a mobile phone with a camera function.

Flipcam cameras were designed for the consumer video production market for home use for shooting family events and social activities rather than for shooting digital footage to be used in more formal productions. The students therefore had to work hard to use the cameras as an extension of their bodies to replicate more formal production processes to shoot steady and well-framed shots. This was particularly important for the science procedural videos that included close ups of the science procedure in process. Indeed, many of the students' productions included numerous unsteady shots and most of the students did not reach a stage where the use of the cameras became incorporated into bodily remembrance in a manner that would mobilise successful replication of the science infotainment genre. What is interesting about this is that even if the students understood the genre conventions and planned their shots appropriately, it was difficult for them to visually replicate the genre in a manner that would result in a 'successful' science infotainment text. The digital materials were not created in a way that would meet audience expectations. In this sense, bodily training to use technology in an appropriate way can be seen as essential to the development of digital media literacy, if we accept that digital media literacy includes the ability to communicate in effective ways across a variety of genres.

As the year progressed, many of the year four students did seem to gain greater control over the Flipcam cameras. To complete the year's media arts activities, in term four, the students created a digital time capsule in which they recorded video of themselves talking about their favourite pastimes, activities and people. The purpose of the task was to tell an audience, in 20 years' time, what it was like to be a child in the early 2010s (Dezuanni & Woods, 2013). The students used the Flipcam cameras to record video footage of items that represented their favourite pastimes and they also directed other students to record footage of themselves talking about these items and what they meant to them. Our observations of students shooting this footage, as well as the student productions, indicate that the students gained greater bodily control over the Flipcam cameras the more they used them.

Perhaps the most obvious example of successful bodily incorporation in the time capsule project was that the majority of students were proficient at using the laptop computers to edit their time capsule videos. Observations of the project in progress made it clear that most of the students had quite successfully incorporated the practices of using the laptop trackpad and keyboard (see Fig. 9.4). While the students were not able to 'touch type' the majority did not have difficulty locating the appropriate letters on the keyboard and producing text. Furthermore, most of the students successfully used the trackpad to 'drag and drop' images onto the editing timeline. This is notable because at the beginning of the school year, most of the students had not previously used a computer without a mouse. This level of proficiency and incorporation of laptop use is perhaps not surprising given that the students used the laptop computers on a regular basis. Indeed, the students used the 'media arts' laptops across the curriculum for a range of tasks on a regular basis.

Fig. 9.4 A student using the laptop trackpad to 'drag and drop' footage to edit her digital time capsule video (Courtesy of the participants)

Our argument is that for students to experience similar success with media technologies such as video cameras, students need also to use them on a regular basis, and for a variety of purposes.

The Material Nature of Classroom Spaces

The final location of materiality experienced by students involved in digital media production relates to their experiences when they work within institutionally and culturally constructed places and spaces, each invested with socio-material discourses. School classrooms include a range of expectations that may work to support, or work against, digital media technologies becoming an everyday part of students' learning experiences and vernacular communication. These classroom expectations exist within broader social, cultural and community expectations about schooling and education. Digital media production is always located in specific places and within interpersonal and cultural relations that rely on practices and processes that aim to moderate behaviour and invite compliance, or potentially allow for variation and resistance (Butler, 1990; Foucault, 1984, 1991). In this sense, the material nature of students' work in digital media production is an ongoing process of negotiation between compliance and potentially playful experimentation within socio-material institutional constraints. These material factors are important to

the development of media literacy because they potentially limit the types of activities that can and do take place in classrooms and how learning occurs for particular students.

The first thing to note about the material space of the year four classrooms accessed for the URLearning project is that media technologies were not a constant presence in the classroom because they had to be shared with other classes and were rolled from class to class on laptop trolleys. Particularly at the beginning of the year, the use of these technologies was a special occasion within the classroom routine and a significant amount of time was spent establishing routines around the use of the laptops and cameras. For instance, the students learnt to follow procedures for leaving their desks to collect 'their' laptop from the trolley, to open it and turn it on and to log into their account. This could have been complicated by the fact that each student was assigned a specific laptop because the machines were not networked and the students could only access their projects on a specific computer. At the end of the session, they returned the laptop to the trolley and plugged in the correct power lead. The movement of bodies and technologies around the classroom space was a challenge for the teachers. All this took time and was, at least initially, a barrier to the laptops being used in the class-room on a more regular basis. By the middle of the year, though, this routine was very well established and the teachers allowed the students to use the laptops more regularly. The use of the cameras, particularly the Flipcam cameras, was less regular and routinised. The presence of the cameras on an irregular basis had implications for them becoming an everyday, incorporated aspect of classroom communication practices.

The materiality of classroom practises with the media technologies also had consequences in terms of the types of media production that could occur and the types of media products that could be produced, with direct implications for media literacy. For the first half of the year, the media arts work was mostly performed by students sitting behind their desks (see Fig. 9.3). There were immediate consequences for where students could shoot footage, how they could choreograph shots to change shot size and camera angles and how they could compose shots in terms of mise-en-scene (what's in the shot), lighting and sound. It wasn't until the second half of the year with the science and time capsule projects that students had more flexible opportunities to move around to undertake their media arts work (see Fig. 9.5). The teachers had by this time come to be more comfortable with students being in the classroom in ways other than the traditional rows of desk configurations. Even when this was possible, though, there were compromises that impacted on the types of digital materials the students could create. For instance, shooting video footage for the science procedural videos required the rearrangement of desks to create an open space in which about eight different groups of students shot their footage in different parts of the room – and this required the groups being careful not to get other groups of students in the background of their shots. There was no space for students to create an authentic looking 'science' set on which to shoot their video to make it look more believable. It was obvious that the science infotainment videos were shot in a school classroom, rather than in a science laboratory (or a makeshift science laboratory set).

Fig. 9.5 Undertaking media arts in different places and spaces around the school (Courtesy of the participants)

During the final production of the year in which students created the video time capsule, the students were able to shoot footage outside the classroom in the schoolyard (Fig. 9.5, top left). This was partly in response to the teachers being concerned about noise levels for the next-door class. Shooting the footage for this project outside was not ideal as the background locations available (trees, gardens and the sides of school buildings) were not always appropriate locations for the content of the students' videos. Furthermore, background wind noise often interfered with the sound quality on the videos. Unless the students projected their voices very well, it was often difficult to hear what they were saying in the recordings. Finally, it was more difficult to control lighting in these outdoor spaces as students could only rely on the sun as a natural light source and had to be mindful of shooting in shaded areas, to avoid creating silhouettes of their subjects.

Our point in drawing attention to these difficulties is not to be overly negative about the potential for media production in school spaces. Despite the difficulties outlined above, many of the students' videos were well produced and the projects provided a range of students with opportunities to learn and to develop digital media literacies (Dezuanni & Woods, 2013). In making these observations about the material hurdles evident in classroom media production, though, we want to show how media literacy is dependent on the materiality of space. When we ask students

to recreate particular genres such as the science procedural video or time capsule video, we should be aware of the material difficulties students and teachers will encounter because school classrooms have material limitations. We noted this during the URLearning project when students were trying to assemble their videos using the video editing and sound mixing software. For instance, the need for quiet was obvious when students were trying to record voice-overs for their productions. We often observed students leaning into the microphones on their laptop computers to try to record their voices with as little background noise as possible, but having difficulty with this because of the amount of general classroom noise in the background. There were few opportunities for students to get away from the classroom noise and still be under the care of their classroom teachers. We observed some students sitting just outside the classroom space to try to achieve this, literally sitting outside the classroom door (see Fig. 9.5, top right).

There were some other spaces and places in which media arts work took place in the school throughout the URLearning project. For instance, at times the media arts specialist teacher was able to take small groups of students to covered areas adjacent to classrooms to conduct editing workshops (Fig. 9.5, bottom left). This space provided the opportunity for less background noise than in the general environment, but its use was contingent on the availability of the media arts teacher and the ability to use laptop computers that could be easily moved into this space. In the final year of the URLearning project, iPads were trialled in year four classrooms for media arts work with some distinct advantages over the use of laptop and separate cameras. The iPads were highly mobile making it easy to undertake floor work (see Fig. 9.5, bottom right) and to use them to shoot footage, record sound and edit in a variety of outdoor and indoor spaces. However, despite their utility, the iPads did not solve the problems outlined above regarding the suitability of classroom spaces for recording, editing and mixing media productions. It is notable that a purpose-built media production space – a sound-proof room with an expensive blue screen and in the school's new library – was not available for media production because it was being used for storage. This final point is indicative of how school politics and decisions beyond teachers' control can effect opportunities for the development of media literacy.

Conclusion: Implications for Media Arts and Literacy

All of these constraints on creativity, including those related to digital materials, production tools and production spaces, limited what could be achieved for media literacy by these students. Consequently, because media arts was being used in this project as a tool for improving literacy and other disciplines, these same limits were placed on the students' development of literacy practices and new disciplinary knowledge. Despite this, we do not suggest that media arts is not a viable medium for learning to communicate ideas in the primary school years. Instead, our findings from this project and from working with the year four teachers and students over 3 years

suggest that media arts is an important component of the curriculum – a means to improved outcomes and an end product in itself.

The early focus on teaching the operational skills of digital materials enabled the students and their teachers to work in more complex ways as they developed projects throughout the school year. What seemed like simple tasks that might just be learnt along the way – using the trackpads, naming and saving files so that they can be found as examples – were novel to the students and had the potential to derail the students' engagement with digital production. Perhaps more importantly, they had the potential to derail the teachers' engagement with media arts as a medium to teach other content. Teachers told us that feeling inadequate in their own skills had previously meant that they had avoided the use of digital technologies in their classrooms. Ensuring that students could trouble shoot with each other if they had some difficulty was an important tool in helping to alleviate this concern for teachers. Understanding these operational basics of digital materials was important in enabling more complex learning and the articulation of ideas, and for the classroom activities to flow and have some routine.

Enabling the incorporation of an automatic and fluent use of digital hardware remained a difficulty in this project – even though the teachers and students did engage with media arts several times a week and had access to both simple hardware and a media arts researcher when issues arose. While by the latter parts of the year the teachers did begin to use the materials more regularly and without our support, the students might not have had the same access to the digital hardware as they did without the routine of media arts lessons timetabled with the media arts researcher. Again, however, the time invested in training students to use hardware in orderly ways – for example, removing the laptops from the trolleys and returning them to be charged – did pay dividends. By the end of the year the students used the laptops for a whole range of tasks across their curriculum. Those hardware items seen as less functional, however – such as the video cameras – were used only at scheduled media arts times. And the students' use of these items continued to require focused attention, never really becoming an automated process for them. Our claim is that if the hardware of digital production is to take on a utility beyond use of itself, regular use for a variety of purposes must necessarily be scaffolded, and ample opportunities to practice must be provided across the classroom activities.

The materiality of space and place matters to media literacy because space and place result in constraints on the types of media production work students can undertake, and the quality of those productions. Modern classrooms, while often set up with interesting desk configurations and a variety of work spaces, do not afford the space or privacy required for high-quality digital production. And while, as was the case at this school, teachers and students might have access to special recording rooms or laboratories, the constraints of 30 young bodies under the supervision of one or two adults usually results in these spaces being deemed inappropriate for 'normal' classroom use. In the case of the year four classes detailed here the classrooms were always in close proximity, with inadequate noise barriers between classrooms. The open spaces of the rooms provided limited opportunities for

quiet recording, and while outside spaces were often used as alternatives these were also less than ideal.

Our claim in this chapter is that there is a relationship between technical and operational skills, material relations and the development of conceptual knowledge and literacy in media arts learning. Through the examples we have provided, we have demonstrated that it is just as important to address the material as it is the discursive and conceptual when considering how students develop media literacy in classroom spaces. Students' ability to communicate stories, expressions and ideas using media technologies across the curriculum is, in part, reliant on their ability to use hardware to produce suitable digital materials, and this is impacted by the extent to which students incorporate the use of the technology into their everyday bodily practice and the control they have over spaces available for creating digital materials. This will remain an ongoing challenge in classrooms in which technology is infrequently accessed for multimodal communication and where media production space is rare. We believe the more that schools and teachers can do to overcome these challenges, the more successful media arts and media literacy projects will benefit students.

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