'I’m making it different to the book’:
Transmediation in young children’s multimodal and digital texts

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YOUNG CHILDREN SHIFT MEANINGS across multiple modes long before they have mastered formal writing skills. In a digital age, children are socialised into a wide range of new digital media conventions in the home, at school, and in community-based settings. This article draws on longitudinal classroom research with a culturally diverse cohort of eight-year-old children, to advance new understandings about children’s engagement in transmediation in the context of digital media creation. The author illuminates three key principles of transmediation, using multimodal snapshots of storyboard images, digital movie frames, and online comics. Insights about transmediation are developed through dialogue with the children about their thought processes and intentions for their multimedia creations.

Introduction

Melissa, a reluctant eight-year-old writer, created this single storyboard frame in response to an oral reading of a chapter in Roald Dahl’s popular novel, The BFG—Big Friendly Giant (Figure 1).

Figure 1. ‘There at the window ... was ... the Giant Person, staring in, The flashing black eyes were fixed on Sophie’s bed’ (Dahl, 1982, p. 8).

This close-up image of the giant’s flashing eye, made salient by its proportions and framing within Sophie’s open dormitory window, translates Roald Dahl’s original text with generative creativity. This process required inventing connections between two sign-systems or modes—written words and images.

Transmediation

Melissa’s translation of semiotic content across sign-making systems constitutes a process of transformation called transmediation—a central process of knowledge generation in young children’s text creation (Siegel, 2006). Transmediation denotes the translation of content from one sign system into another. Suhor (1984, p. 250) coined the term to describe the structure of sign-systems and their conventions—written word, drawing, dance, music, web design, video production—and the connections between them for making sense of human experience.

Transmediation is fundamental to meaning-making. The term has gradually receded in the literature with the dominance of work by Kress and van Leeuwen (1996), who describes the same process of shifting ‘semiotic material’ across modes, but refers to this principle...
as ‘transduction’ within his social semiotic account of learning. Kress describes transduction as a process in which something that is configured or shaped in one or more modes is reconfigured, or reshaped, according the affordances of a different mode (Kress, 2003, p. 47).

In this paper, I return to the original nomenclature, ‘transmediation’ to acknowledge the genesis of the concept in the literature by Charles Sucho (1984; 1992), extended by Semali (2002), Semali and Fueyo (2001), Siegel (1995; 2006) and others (Short, Kauffman & Khann, 2000; Wright, 2007). Each sign system or mode has unique organisational principles, involving elements and conventions that do not have precisely equivalent meanings (Semali & Fueyo, 2001). The term ‘modes’ and ‘sign-systems’ are used interchangeably here to describe socially and culturally shaped resources or semiotic structures for making meaning. They are organised, regular, socially specific means of representation, such as writing, drawing, dance, image, music or mathematics (Kress & Bezemer, 2008, p. 171; Sucho, 1984). The lack of equivalence between modes is the catalyst for transmediation, which is represented in Figure 2 as a process involving the transformation of knowledge by varying degrees.

Figure 2 represents the continuous process of transmediation as a continuum of meaning transformation. I demonstrate how transmediation in children’s textual practices can range from the simple transfer of semiotic content, such as drawing a picture to match the words in a story, to a substantial transformation of semiotic content, such as drawing a picture that depicts a newly invented narrative. Given that modes or sign-systems have different materiality, shaped by histories of cultural work, there can never be a perfect translation from one mode to another (Kress & Bezemer, 2008).

**Figure 2. Transmediation: Transformation of knowledge by degrees**

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**Semiotics and multimodality in children’s digital composing**

It has been well-established that children combine multimodal symbolic systems, such as talking, drawing, singing and role-playing, long before their communicative interests can be served by the written linguistic forms of their culture (Kress, 1997; Kress & Bezemer, 2008; Siegel, 2006). Multimodality is defined here as the interrelationship of two or more modes (Mills, 2010c). Print-based reading and writing has always been multimodal, since these practices require the interpretation or design of images, words, spatial layout, and other modes of representation (Jewitt, 2005; Jewitt, 2006). However, in the new media-based environment, there is heightened interest in the role that multimodal ensembles of images, sounds, animations and other modes play in meaning-making (Mills, 2009). Rather than regarding written language as the sole channel for learning and generating knowledge, it is argued here that young children learn and communicate through multiple sign-systems or modes—each of which offers a distinctive way of making meaning (Kress & Bezemer, 2008). The increasing ease of producing multimodal and digital texts, such as web pages and podcasts, provides impetus for understanding the semiotic process of transmediation.

Research into children’s composing processes within social semiotic frameworks has begun to focus on digital media, extending semiotic principles established in studies of print-based writing to the incorporation of multiple media in compositions (Ranker, 2009). These have included exploring sign-making in video-interaction (Adami, 2009), young filmmakers’ deployments of semiotic tools (Gijle, 2010), young writers’ incorporation of multimedia to their writing as compositional elements (Dyson, 2001; Ranker, 2007), and the semiotic potentials of combining modes in digital storytelling (Hull & Nelson, 2005). These studies have contributed to understanding how children combine, shift or transform meanings in multimodal contexts of digital composition.

The multiplicity of communications channels and media tied to the expansion of mass media, multimedia and the internet has transformed the way children are socialised in textual practices (Mills, 2010a; New London Group, 2000). In a digital age it is evident that speech and print-based writing are necessary, but not sufficient for young children’s communication interests. Many young children are becoming socialised into digital forms of communication before they begin formal schooling, such as using drawing software and interactive websites. These social practices frequently require users to transmediate meanings flexibly across different modes and media (Mills, 2010b; Jewitt, 2008).
**Purpose and theoretical framework**

In this study I ask, ‘What are the principles that govern the semiotic process of transmediation when children compose digital and multimodal texts?’ I aim to show how children as meaning-makers of digital texts—storyboard frames, documentary films, and online comics—shift semiotic content from one mode or sign-system to another through transmediation. I analyse the epistemological significance of transmediation as a form of knowledge reproduction or transformation in children’s digital composing.

Social semiotics provides a conceptual framework in this study because explanations of textual forms must attend to their social origins (Bezemer, 2008). I attend to the potentials and constraints of sign-making systems—storyboards, moving images, written words, dramatic performance, online comic creation, and digital editing. I equally attention to the potentials and constraints of media—both printed media, such as children’s storyboard drawings and writing, and electronic media, such as online comics and digitally edited documentary films. I demonstrate three key principles of transmediation that are fundamental in understanding children’s multimodal and digital meaning-making.

1. **Transmediation is more than the simple reproduction of knowledge, and involves a process of knowledge transformation by degrees.**

2. **Transmediation involves a process of continual adaptation of intentions for representing knowledge in response to the possibilities and limitations of sign-making systems, including the affordances of digital systems.**

3. **Transmediation is central to digital text production because it involves translating semiotic content via the discrete sign-making systems inherent in software interfaces.**

**Research description—Design-based research**

The findings reported here were observed in the context of a four-year, design-based research project. Design-based research is interventionist—it investigates the possibility for educational improvement rather than merely examining what already exists (Brown & Campione, 1994; Cobb, Confrey, d’Sessee, Lehrer & Schauble, 2003). A variety of print and digital media collaborative projects were generated with interested teachers across the school. The aim of the research reported here was to theorise the students’ shifting of meanings—transmediation—across sign-systems in the context of media-based textual design.

Three teachers and their students (Year 3, average eight years old) received training and support from the university researchers, including six hours per week (two hours per class) of teaching and in-class support by a specialist media arts teacher and literacy researcher. The students were introduced to a range of digital media design projects during the literacy block within the timetable each week, and the researcher visited the school three times per week as a participant-observer and support person for teaching and assessment within the English curriculum. The outcomes were also matched to Media Essential Learnings that form part of the Queensland Art Curriculum (Queensland Studies Authority, 2007).

**Site description**

The primary school has a student population drawn from suburbs in an economically and socially disadvantaged region of Southeast Queensland, including the school’s adjacent State Housing Authority area. The mean Year 3 writing scores of the student cohort were 30 per cent below the national mean for all Year 3 students in Australia. Approximately 10 per cent of the students were Aboriginal or Torres Strait Islanders, Pacific Islanders, and English as a Second Language (ESL) learners.

**Description of intervention**

The data in this study was collected in the second year of a digital media intervention, which was preceded by 18 months of building rapport with school staff and teachers—providing regular media workshops, professional development, curriculum planning, and in-class learning support for students in writing. A series of digital media-based lessons was taught by a specialist media arts teacher-researcher, in collaboration with a literacy educator from the university and three classroom teachers. The teachers came to the study with varied levels of teaching experience, from two years to senior, with little previous experience of the digital software introduced in the research. The program included introducing students to the features of new digital text types—blog pages, podcasts, micro-documentaries, web profiles, digital stories and online comics. They were also introduced to new metalanguages to describe media texts (e.g. shot types, cutaways, transitions), and technical proficienties with a suite of Apple™ media software.

In the first six months of the media-based program, the media arts teacher-researcher had the primary responsibility for implementing the digital lessons, which were planned in collaboration with teachers and researchers. In the second six months, the responsibility for implementing media-based literacy was gradually released to the classroom teachers, who each took the program in unique directions.
By the fourth quarter, the teachers were planning and implementing media-based writing lessons without assistance, revisiting and extending the media-based practices introduced in first semester.

**Data collection and analysis**

The data sets for this component of the project included: a) More than 200 print and digital artefacts produced by the Year 3 students—drawings, storyboards, scripts, digital movies and comics; b) Audio-recorded focus groups and dialogue with individuals about transmediation; and c) Sixty focused lesson observations. Screen shots of work samples reproduced in this article were selected from the total corpus of data, which repeatedly demonstrated the processes of transmediation. Multimodal semiotic analysis was used to compare similarly intended meanings across multiple corresponding texts, such as students’ movie storyboard frames, script segments, movie frames, and comments about the design process.

**Findings**

**Transmediation: Degrees of transformation**

Described below is a task in which students were required to draw a single image adapted from *The BFG*, by Roald Dahl. Over several weeks, the children had listened to the reading of the first half of the novel, in which a giant captured Sophie, an orphan. The giant’s arms had extended through the window to snatch her from the bed in the dead of night, to take her to his cave in the Giant Country. The teacher of this lesson explained that they would ‘picture things’ from *The BFG* and ‘show it as a storyboard’. She explained that the purpose of storyboards is to plan ‘frames’ for their movie to ‘get our idea across’. To prepare the students for this task, the children participated in an oral retelling of the main events in the narrative. After a discussion of different shot types (e.g. long shot, medium shot, close-up), students were given a blank frame in which to draw their storyboard image, requiring them to recall a key event in *The BFG*. Lauren produced the drawing shown in Figure 3 below.

Figure 3. BFG arm coming to get Sophie

Lauren’s storyboard frame matches the words of the narrative: ‘The next moment, a huge hand came sneaking in through the window. This was followed by an arm, an arm as thick as a tree trunk, and the arm, the hand, the fingers were reaching out across the room towards Sophie’s bed’ (Dahl, 1982, p. 8).

Lauren’s text demonstrates how the content of one sign system—words—was mapped onto the ‘expression plane’ of image via drawing (Wright, 2007). This cross-channel of communication involved inventing connections and weaving between two very different symbolic forms. The meanings contained in Dahl’s sentences and words were shifted fluidly to recognisable iconic images that reinterpreted the text through a transformative process. Lauren described her drawing as a ‘long shot’ of Sophie in her room at the orphanage. If translated into a scene within a film, she anticipated that it would be accompanied by sound effects of ‘heavy breathing’.

Lauren explained that she had included a lamp and a torch beside the bed ‘in case Sophie got scared in the dark’. When I inquired about her representations of a cupboard, bedside table, and the arrangement of furniture in the drawing, Lauren explained that these were features of her own bedroom—’I’m making it different to the book’. Thus Lauren drew upon her own experiences, and the material texts of her own life-world, to generate a visual text that interacts with Dahl’s text in a way that had never occurred in precisely the same way before. This representation involved more than a simple reproduction or transfer of semiotic content from word to image, since the process of crossing modes involved imagining what was not made explicit by words alone.

Figure 4. Sophie getting snatched.

Rachel’s image in Figure 4 exemplifies the transmedial process of meaning-making as she adapted the text: ‘She flew across the dormitory and jumped into her bed and hid under the blanket ... still as a mouse ...
The fingers were reaching out across the room towards Sophie’s bed’ (Dahl, 1982, p. 8).

Rachel wrote that the accompanying music would be ‘scary and shaking’. Her image drew upon her knowledge of a ‘dormitory’ as a shared sleeping space in the orphanage, making text-world-text connections. This act of translating meaning from one sign-system to another allowed Rachel to engage in generative and reflective thinking as she projected her visualisation of the room using a one-point perspective drawing.

A line dividing the wall from the floor created a single vanishing point. Rachel visualised beds aligned along the wall, diminishing in size according to distance. While other characters were not mentioned in this section of the novel, Rachel inferred the presence of other orphans also preparing for bed, envisaging the ordering of time and activity in orphanages. She invented these connections between word and image, making new meanings. It illustrates the generative potential of transmediation, even in a limiting case in which students were required to produce a seemingly literal translation of events in a novel.

Figure 5. Hand and bed

Jack’s drawing provides an example of how the process of transmediating words to images can involve incremental changes in understanding for the learner (Figure 5). When we first approached Jack he said, ‘Mine is just a hand and the bed. I don’t know what else to draw’. We encouraged Jack to add background objects to contextualise the scene. He proceeded to add cracks in the wall, a patch on the giant’s elbow, and a spider’s web to communicate the passage of time. By translating his understanding of The BFG into another sign-system, experimenting with image enabled Jack to find an entry into the text. The movement across modes played an important role in deepening his understanding of possible meanings, resulting in the augmentation of knowledge. Drawing serves an important meaning-making resource for young students who are learning to write (Harste, Woodward & Burke, 1984; Moore & Caldwell, 1993; Norris, 2004).

Even when children reproduce content using a different sign-system, there is potential for generative and reflective thinking. This is because text users create new connections between multiple modes. Reinterpreting semiotic content from its original representation as a novel requires more from the students than the simple transfer or reproduction of meaning. It involves interpreting meaning between symbol systems, with varying degrees of transformation.

Transmediation: A continual process of adaptation to affordances

In this section, I illustrate the centrality of adaptation in transmediation using filmic conventions. I draw from the students’ collaborative production of digital micro-documents, also based on The BFG. The micro-documents were to include an introduction by a narrator, an observation, re-enactment of events, and an interview of the main characters. The students were encouraged not to reproduce events in The BFG, but to change the story by imagining different events from those in the plot.

Students spent several lessons learning the genre and textual features of micro-documents, from storyboard design and script-writing to acting, filming and digital editing. The process of translating semiotic content, expressed as images and words in a storyboard and script, to the realisation of this content on the screen involves multiple acts of transmediation. I have chosen examples of transmediation because storyboards are intended to convey similar meanings as the final film, but through different modes.

Transmediation involves a search for commonality between sign-making systems (Siegel, 2006). In the following example, meanings were shifted from still-image drawings to moving-screen images. Both still and moving images can be classified by shot type (e.g., close-up, medium, long shot). When asked to compare the shot types, the students identified that they had relied on the use of medium shots in the final movie as opposed to the combination of medium and long shots in the storyboard.

Brianna, Ethan and Sarah translated the content of their storyboard to create a final micro-documentary that was very similar to their original intentions. The children were asked to compare their storyboard to the final movie, and to explain any differences they observed.

Researcher: Did the shot types end up looking like these ones when you filmed it in your movie?

Children: No. I don’t think so.
Ethan: Because all of them are medium shots in the movie.

Researcher: So you said that you were going to do medium shots, and you said that you'd do a long shot there—the Queen with Sophie?

Let’s go and pack your stuff Do you want me to help pack your stuff?

Figure 6. Queen adopts Sophie

Children: Yes.

Researcher: You wrote, ‘Go and pack your stuff!’ Did you actually use a long shot there?

Children: Not really. No.

Researcher: So why did you decide at the time of filming the movie that the long shot wasn’t going to be what you needed? ‘Let’s go and pack your stuff.’ ‘Do you want me to help pack your stuff?’

Ethan: ... Because you couldn’t see from that far away. You couldn’t see their body or their face—all you could see was a black shadow.

Researcher: Right. So the lighting made it a bit difficult to see their face?

Ethan: But when you went close you could see it more.

When transmediating semiotic content—from words and drawings in the storyboard, to moving images on the screen—the students adapted to the affordances and constraints of the filmic medium. Ethan revealed that his decision to use a medium shot instead of the intended long shot was a conscious decision to adapt to the unanticipated lighting conditions and constraints of the filmic medium. This example illustrates that generative possibilities in transmediation arise out of the heterogeneity of modes.

When transmediating semiotic content from the storyboard script to spoken word children frequently modified the dialogue. For example, in the illustration above, the group had scripted the Queen’s words: ‘Let’s go and pack your stuff.’ When Brianna played the role of the Queen in this scene, she changed the mood of the sentence from imperative to interrogative, formulating it as a question. She modified the vocabulary choice, and used an imitation of a thick Scottish accent. The shifting of meanings from written to the spoken word was instantiated with originality rather than reproduction. Similarly, Lauren explained that they changed their script when they acted to ‘get it more in character’. Realising the affordances of speech for projecting the personality of a character, they adapted the script to better communicate their intended meanings.

These examples highlight the tension between similarity and difference when transmediating semiotic content from one form to another. Transmediation establishes an anomaly for the learner in the absence of one-to-one correspondence between sign-making conventions (Siegel, 2006). This tension invites learners to invent a way to cross this gap by engaging in both evaluative and generative thinking.

Researcher: And what about shot types—were you thinking much about shot types?

Rachel: We were thinking about, like, doing medium shots and stuff, but some of it, it just didn’t look right (on the screen) so we changed it a bit.

Researcher: Right. So when you saw it on film it looked different to what you expected?

Rachel: Yeah, like the marriage—it was supposed to be a long shot but it didn’t look right so we did a close-up.
Transmediation involves a process of continually anticipating, evaluating, and revising their intentions as they shifted meanings across modes. In the example above, the girls modified the use of shot type to better realise their intended message in a screen-based format. They later reasoned that the close-up shot overcame the absence of costumes to portray their respective roles in the marriage ceremony. The girls used the framing of the screen composition to conceal their school uniforms, requiring the viewers to imagine the wedding costumes. This example clearly illustrates how drawing still images and filming the moving image with a digital camera have different potentials for meaning. Moving image combines the affordances of image, which is spatially organised, with a temporal organisation—it unfolds in time (Bezemer & Kress, 2008). These modes offer distinct resources, so that in the process of transmediating meanings from drawings to film, there are ‘gains’ (e.g. close-up shots can be used for selectivity) and ‘losses’ (e.g. imagined actors and props in drawings must be materialised in film) (Bezemer & Kress, 2008).

Having utilised filmic media and conventions for the first time, the children reflected that there were affordances of filmmaking that were unanticipated. They were familiar with communicating through drama, but the use of digital editing techniques, such as inserting cutaways, titles, transitions and credits were remote from their world of experience. The children had to learn ‘how to put it together’—an apt way of describing movement across and between modes as they forged new connections.

Filming an innovation of The BFG as a micro-documentary provided the opportunity for the children to represent ideas through multiple modes, supporting more complex and creative thinking, because each sign-system has different potentials for meaning. The transmedial work from novel to storyboard to film allowed different modes to become tools for thinking, imagining and publicising their ideas (Short et al., 2000).

Transmediation: Fundamental to digital text creation

The role of digital technologies in understanding transmediation has been little explored in the literature—the dominant emphasis has been on writing, drawing and telling (Cox, 2005; Siegel, 1995; Wright, 2007). I argue here that transmediation is central to digital text production because it involves translating semiotic content via the discrete sign-making systems inherent in software interfaces.

In the context of observing students engaged in digital media production, it was recognised that each digital interface is more than a simple tool for sign-making, akin to a pencil or paintbrush. Theorists of semiotics have conceptualised digital technologies as mediating tools. Yet what has not been acknowledged is that each digital interface requires users to understand a discrete sign-making system (e.g. icons, navigational tools, drop-down menus) with an inherent logic that must be understood in order to mediate meaning.

I also argue that crossing from print to digital modes adds an important layer of complexity to text and knowledge creation. The machinery of the computer is indeed a tool, but each of the ever-expanding array of media software systems draws upon independent iconic systems of meaning. Arguably, while software systems possess some common features, icons and meanings, they also contain meanings that are unique.

To illustrate how transmediation functions in the context of digital text production, I will use another case in which the direct reproduction of semiotic content was all that was seemingly required. The children were required to handwrite a comic that contained only three frames, and then present it digitally via a popular online comic creator (makebeliefscomix.com). The teacher provided the children with 50 minutes of direct instruction in the classroom, using an online projection of the comic creator website on her electronic whiteboard (Figure 8). To prepare students for the short time in the library, she required them to initially draft their comics on blank paper.

A transcript of the second lesson, recorded immediately prior to the students translating their handwritten drafts to the screen, is shown here. It demonstrates how the teacher, Margaret, focused the students’ attention on the unique sign-making system of this digital interface:
Margaret: What would I click on if I wanted to change the size of the characters—Barbara?

Barbara: Scale.

Margaret: That’s right. If you click on scale, and then on the object, you can make it bigger or you can make it smaller (demonstrates object increasing and diminishing).

Margaret: Ok. I want to … flip him around and face him the other way. What do I need to click on Jack?

Jack: Flip.

Margaret: Click on ‘flip’ and click on him (the object to apply the action). What if I want to get rid of him? Tristan—ah, Ethan?

Ethan: Um, just delete.

Margaret: Click on delete. He’s still there.

Ethan: Then click on him.

Margaret: Click on him. OK, I’m going to put him back up there. All right. I want to … move him around. Tristan—how do I make him move?

Tristan: Move.

Margaret: And you can click on him to make him move. OK. Now I want a speech bubble. What do I want to do—Abigail?

Abigail: Go to that talk balloon.

Margaret: Click on ‘talk’ and I can come over here (menu window) and choose different sizes of speech bubbles to fit my words. And it’s important … to take note of which way that arrow is facing to change the size.

The comic creator interface required users to become familiar with a digital sign-making system that contains unique icons and functions for mediating textual production. The teacher quickly reviewed the students’ new knowledge of a digital symbolic system that was both similar to, and different from, other sign-making systems. A digital interface contains an original system of meaning-making which must be acquired or learned through instruction and use. Students became familiar with this interface in a similar way to learning other modes, such as written English, musical notation or perspective drawing.

The transmedial work involved in translating a print-based comic to a digital presentation of similar content via an online comic creator is illustrated here. While the teacher anticipated that the children would reproduce their draft in an equivalent form via the digital software, less than a quarter of the children identified their final digital comic as the same or similar to their original draft. For most children, it was easier to create a different comic than to work within the constraints of the iconic user options for creating digital symbols of characters and objects.

Rachel chose to persist with her original comic design and work within the constraints of the online comic creator. Rachel’s print-based comic centred on a character she had observed in the menu during the teacher’s online comic example who had bees in her ‘sixties beehive’ hairstyle (Figure 9).

Figure 9  Bad hair day—draft comic

<table>
<thead>
<tr>
<th>Speaker 1:</th>
<th>Speaker 1:</th>
<th>Speaker 1:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why won’t these bees leave me alone?</td>
<td>Hey Therese, can you help me get these bees away?</td>
<td>Thank you, Theresa. That helped.</td>
</tr>
<tr>
<td>Speaker 2:</td>
<td>Speaker 2:</td>
<td>That’s OK!</td>
</tr>
<tr>
<td>Stop using that honey shampoo?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 10  The shampoo problem

Rachel said she needed to adapt her original comic because ‘I couldn’t get her, like, the bees out of her hair’ (Figure 10). The central problem in Rachel’s comic was resolved by following the cartoon friend’s suggestion to ‘stop using that honey shampoo’. In the final frame of the draft, Rachel had drawn the character without the bees in her hair, but the digital comic creator did not have an image of the same character without bees. Rachel explained that, to solve this problem, she used a different cartoon character that looked similar. To ensure that readers understood that this new icon was the same character, she explained in the accompanying dialogue that the character had changed her ‘whole look’.
Here, Rachel used substitution to replace intended objects that were unavailable in the menu, with the available digital images generating new ideas. The absence of a ready-made link between the content and expression plane created an anomaly that set generative thinking in motion (Siegel, 1996). In this way, Rachel strategically worked within the constraints and possibilities of the mediating technology to transmediate semiotic content from print to a digital format.

A second example is the ‘talk bubble’ that Rachel included to conceal unwanted cat-like ears on the cartoon. She wanted the personified cartoon animal to be fully human. She overcame the lack of equivalence between modes by strategically covering symbols that did not communicate her intended meanings.

These examples of online comic creation demonstrate that transmediation involved a process of continual adaptation of intentions for representing knowledge in response to the possibilities and limitations of the sign-making systems, including those embedded in digital software. Children engage in a continual process of problem solving as they seek ways to work within the constraints and possibilities of the digital conventions to communicate meaning.

**Conclusion**

Transmediation is fundamental to digital text production, requiring the recasting of meaning through the context and expression plane of multiple semiotic structures. The multimodality of meaning-making by young children, and in society, necessitates that students learn to transmediate flexibly between modes.

Transmediation involves transformation by degrees. Even when retelling scenes from a novel through drawing, or translating a print-based comic to a digital format, a degree of transformation is discernable. This is because each sign system has unique organisational principles, involving elements and conventions that do not have precisely equivalent meanings. The potential for generative thinking is heightened as children made connections between multiple modes (Siegel, 1996, p. 458).

Transmediation is a process of continual adaptation of intentions for representing knowledge, demonstrated in filmmaking. It involves discovering the possibilities and limitations of sign-making systems and their meaning potentials. The search for commonalities across different modes, which do not have one-to-one correspondence, creates anomalies for the learners. This process of transmediation involves generative thinking and problem solving as new connections are made between expression planes.

Transmediation is central to digital text production, observed in the context of online comic creation. This is because it involves translating semiotic content via discrete sign-making systems inherent in the digital interface. Children need to learn the sign-system in the digital interface (e.g. flip, move, delete) to mediate their intended meanings. The digital interface contains a set of iconic meanings, with an internal logic that needs to be learned before its mediating potential for encoding texts can be realised.

The increasing availability of digital technologies for textual production generates new possibilities for transmediation in young children’s compositions. Teachers are providing children with rich opportunities for shifting meanings across multiple modes, rather than relying exclusively on the written word. Young children make sense of their world through multiple sign-making systems, long before they have developed sophisticated control of written text (Kress, 1997). As linguist Michael Halliday (1975) argues, rather than asking what a student knows, consider how many ways are available for this child to know. Encouraging children to engage in digital media creation allows them to go beyond the simple reproduction of literary content to the transformation of meaning and knowledge; as Lauren proudly declared: ‘I’m making it different to the book’.

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