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Emergent Digital Authoring: Playful Tinkering with Mode, Media, and Technology

Abstract

This article utilises the term 'digital authoring' in order to explore the ways in which children create multi-modal, digital media texts. Drawing on the notion of 'emergent literacy' we share vignettes from different pedagogical and research contexts where children use media to tell stories in different forms with different technologies. These accounts demonstrate the value to children of opportunities to make volitional choices about the mode, media and form of their own texts. We reflect on moments of authoring in our vignettes which provide insights into the intrinsic pedagogic affordances of cultural practices such as vlogging and video diaries situated as they are, in wider socio-cultural practices. In doing so, we draw on the notion of 'playful tinkering' as a key pedagogical approach which recognises the value of children's volitional engagements with digital media, to their emerging skills and dispositions as authors of digital media texts.

Generations of children have grown up reading film, television and videogame texts and in recent years we have come to know more about how young children learn to read complex moving image media (Bazalgette, 2018). For example, to understand a film, children have to develop an awareness of continuity editing, so that they recognise that time has passed or a journey has been taken. They learn to read the cues for this, such as a cut or a fade, through repeated watching of favourite media, just as they learn how language can shift us forwards and back in time and how images can use perspective to indicate a pathway. Children engage simultaneously with multiple modes (Burn, 2017) such as sound and image in order to make meaning from the media they engage with. However, the means by which children learn to use their knowledge of the signification systems of the different modes in the texts they make, is less well understood, particularly outside formal learning contexts. Until recently the possibility for young children to create film or even still images as an everyday literacy practice has been limited. However, due to the increased capabilities of

mobile devices there has been a growth in some forms of media production by children (OFCOM, 2019) at home. Understanding more about these production practices is key to further understanding the learning involved when children creatively engage with digital media. In this article we use the notion of 'playful tinkering' to engage with and examine the emergent digital authoring practices of children working with a range of media. In doing so we are informed by a multiliteracies theoretical framework and position literacy, in the sense of text creation, as situated practice that occurs in multiple forms. After presenting a contextual review of key ideas in the existing literature, we discuss 6 vignettes of children's authoring practices to exemplify our approach.

In recent research focused on early childhood, mobile devices such as phones and tablets have been found to support literacy learning (Marsh et al., 2017: Edwards, 2013). This body of research acknowledges the changing and significant role of digital technologies in young children's lives and also the anxieties some professionals have about where this might fit in relation to more traditional forms of play (Plowman and Stephen, 2005) For example, Harrison and McTavish (2018 p.183) examine 2 very young children's engagements with tablets and phones finding that these engagements help 'develop their emerging literacy'. The paper provides valuable detail about what the 2 children choose to do and their interactions with different types of content on the phone or tablet. The 2 young children demonstrate a considerable fascination with videos and images, especially those focused on themselves. The authors highlight the ways these mobile devices become semiotic tools which are socially situated and support children in developing language and meaning making through independent and social interactions. They also demonstrate the need for an expanded view of literacy, where tablets and mobile devices are recognised as offering more than simply phonics focused letter learning.

Harrison and McTavish highlight a call for further research which would ensure that teachers were more aware of the digital literacies children bring with them into schools, such

as the ability to read images or interact with design features of a videogame. Mackey (2019, p.295) points out that the "difficulty [of doing so] lies in the fact that young children's emerging literate understanding is rooted in the exigencies of their home life." That is to say that literacies emerge in the fulfillment of needs or requirements that are implicit to everyday cultural practices. These practices such as the making of a video on TikTok or the posting of a meme on Instagram may be less a part of school practices. When a child wants to create a dance video they may through this process also learn about how to frame an image or record sound, both of which are meaning making practices which arise in order to fulfil the requirements of making a video. In this article we suggest that research into children's digital authoring is urgently required, whenever children take up new forms of digital authoring of their own volition. We argue that just as children's early mark making can help us understand how children learn to write, so too can emergent digital text production reveal much about how children learn to make media texts. Of course, new digital devices have the potential to encourage an array of new literacy practices, but they are more fundamentally also tools which enable emergent film, image and sound production in ways that are only recently possible. These literacy practices emerge from the socio-cultural context and the pedagogies embedded in everyday engagements with the moving image where, for example, reading (watching, listening to, talking about and playing) films can lead to digital authoring and this authoring shapes the way films are read.

To frame this another way we draw on the example of learning to make films. We cannot travel back in time to observe early filmmakers such as the Lumiere brothers place a static camera outside the factory gates in Lyon and record the workers walking towards the

camera[1]. However, we can deduce from the 'Sunday best' hats that the workers wear that both they are the Lumieres were making decisions based on their previous experiences of studio photography. In the twentieth century, filmmaking evolved dramatically and practices changed to the extent that today, reading a contemporary film is a complex act of decoding and interpretation. However, in our observations of children making films for the first time, they, too, often place the camera in front of a subject and press record without necessarily contemplating the composition of the shot. They also often film scenes continuously, without making use of the way that cuts can be made or the camera moved (Parry, 2013). These are techniques which developed over time, as the possibilities of the medium became visible to filmmakers. Similarly, in their early and everyday engagements with digital media such as mobile phones or tablets (used as both screens and cameras) children undergo a rich process of learning about how the medium works, the rules, conventions and possibilities. This process of making is also inextricably linked to their experiences of viewing and interacting with digital media content in their daily lives and can therefore be seen as an aspect of emergent literacy.

The notion of emergent literacy (Hall, 1987) links to the turn to ethnographic perspectives of literacy, not as a set of defined and static skills to be learnt, but as socio-cultural and situated practices. The ethnographic studies of Heath (1983), Street (1984), and Barton and Hamilton (2000) highlighted the need to better understand and value children's home literacy practices in schools. Advocates of emergent literacy (Roberts et al., 2005; Inoue et al., 2018) recognise that learning to read, for example, is not the preserve of school and formal teaching but something which children were already doing from the earliest age at home. This acknowledgement established an important disruption to deficit models of children's literacy which continue to be identified in contemporary research (Jones, 2019; Schmidt, 2020). Early childhood settings where emergent literacy was recognised might

[1] Workers Leaving The Lumière Factory in Lyon: https://www.youtube.com/watch?v=JrQxvUcg4q4&list=PLBy0QPRqxzHaaonfs19ov63tRfAcz-2XS&index=25&t=0s

feature environmental print such as shopping lists, street signs, or menus, making connections with children's literacies as situated in everyday life experiences. Pedagogies might include a play space based on a restaurant or train station with writing practices, emerging from the need to make an order or buy a ticket.

The notion of emergent literacy has perhaps now been subsumed by the plethora of new ways of theorizing literacies and related pedagogies (media, critical, multi, digital, dynamic literacies) which attempt to acknowledge the impact of changes in society (Chaka, 2019). Despite the ways literacy has been reframed, it must be acknowledged that in national curriculum often very traditional notions of literacy learning prevail (Burnett et al.' 2014). In this contradictory context especially, we suggest that the notion of literacy as emergent continues to have an important role recognising as it does that children learn literacies at home, as well as at school. These literacies now often involve the production of texts that might be digital and multi-modal and shared online rather than only with families and friends. As our first vignette demonstrates, online, digital, and multimodal text making opens up new creative and communicative practices to children but also raises concerns about the role of the adult (in this case, a parent) in appropriating and monetising these. We begin with this example however, because in the public domain the exceptional child, as represented here, is often conflated with what the wider population of children are doing in ways that are important to scrutinise.

The young vlogger: professional playing

Our first vignette focuses on an early edition of a games vlog by Ethan Gamer[2] which provides an example of the way in which children's digital authoring is inextricably linked to their identities as readers or players of texts. When he was 6 years old Ethan decided to start a vlog about videogame play. This is a highly popular new practice which accounts for much of the increase in video production in children in the UK (OFCOM, 2019). His dad describes in a local press interview how the process started: *"He started watching other kids*

[2] This is Ethan's Vlogger Identity

online and started watching people playing video game." According to his father's recollection, Ethan drew on the media he was engaging with as a videogame player and game vlog viewer in his own productions. This is a feature of emergent literacy, the practice that Kress (2010) described as designing, redesigning, and eventually transforming your existing cultural resources to create a new text. In the earliest version of these Vlogs, the influence of other Vlogs is also clear in terms of presentation style, tone and structure.

Figure 1: Image from episode linked to here: https://www.youtube.com/watch?v=sA5v9lUWNZc

During his video Ethan can be seen enacting 3 different roles. He engages directly with the viewer by welcoming them to his vlog, and during a moment of inaction whilst waiting for the game to load, looks directly at the camera and asks "How was your weekend?" This demonstrates explicit knowledge of the presence of an imagined viewer with whom he seeks to interact, and shows an engagement with the form and style of the text he is creating, by drawing on his own experiences as a viewer of similar texts. In these interactive statements he is effectively facing outwards towards his viewer and creating a

relationship which is not necessarily linked to the specifics of the game he will be demonstrating. The second role he enacts is that of narrator of the game, in which he partly explains how the game works and partly gives a direct description of what he is doing.

The first person narrator 'I' is Ethan in his role as the character in the game; he has placed himself within the world of the text (the game in this example) and is telling the viewers about the game from the perspective of the character within the game. This role is more content focussed and engages with aspects of narration such as plot (what is going to happen to the character next) and the role of other characters (will they push his character off the edge). The third role is one which appears to be Ethan more fully immersed in the experience of playing the game, in which he becomes the voice of the character talking to another one. In these instances, he changes the sound of his voice: it becomes clear that he is no longer the narrator, but is playfully embodying the avatar. This type of behaviour is consistent with the ways that children play with physical toys such as small figures: by moving them around and giving them voices (Parry, 2011). It seems apparent that the digital text Ethan is creating in this example, is one which is rooted in and emergent from his own experiences of play. Haas-Dyson's suggestion that "Children's composing, in varied media, grows on the foundation of intentional play" (2019, p.6) seems particularly pertinent here and connects with what Mackey (2019) describes as heightened agency in children's engagements with interactive content on tablet computers. Ethan's composing is influenced by his experiences with texts as a player/reader/viewer and by his intentional imaginative play with videogames as well as non-digital contexts.

Ethan however, is an example of a high profile, highly visible child author whose texts appear to be professionally finished, with high technical values. This phenomenon has been the subject of research (Ghani and Cambre, 2020), and there is a broader issue at stake in research focused on children's media use which has history in terms of highlighting a small number of children's exceptional practices. For example, Jenkins et al. (2006) cite a

series of examples of children whose media practices have brought them to the attention of a wider public. Although these examples can provide useful insights into the way some children engage with digital media, there is also the possibility that they distort the way in which broader trends about children's media production are viewed. This is borne out by a closer look at national data about children's media production. At first glance recent annual data collected by OFCOM (2019) in the UK, suggests a significant rise in children's media making. However, the practices that account for this rise are videogame vlogging and moving image meme creations, rather than say short films or television news making. It is with caution therefore that we make assertions about contemporary practices based on either the exceptional practices of children in the public domain, who tend to be relatively affluent, or headline figures from quantitative surveys which mask a more nuanced picture.

Playful experimentation with a digital camera

We therefore now shift focus to share a very different example of a child at home this time, in a project[3] focused on children's play, technology and creativity[4] with a diverse range of families in the UK and South Africa. This study included multiple filmed observations of children's play at home and at school. In one of the families, Chloe, aged 4, picked up a pink digital device shaped like a camera (but with other functions such as games available) to take a photo of her Dad and then looked carefully at the resulting picture. Without taking her eyes off the camera screen she walked back into the front room to show the researcher the image. She had used a zoom lens and a colour filter which she said, "makes it scary." In doing so, she was practising her photography techniques and using the affordances of the device to reflect on and alter meaning through her use of the zoom and the scary filter. She was acting on her ideas based on a recent celebration of Halloween to explore how an image can be created to make meaning in particular ways, rather than following directions. As the person who was holding and controlling the camera she was also playing socially,

[3] CTAP Project Report: https://www.legofoundation.com/en/learn-how/knowledge-base/children-tech-play/
[4] Funded by the Lego Foundation

sharing the images when she chose to, with mastery of her environment. In the broader data set, there were multiple times when Chloe picked up this device to either play games or take photos; this was not an exceptional moment but it again emerges from what Haas Dyson (in press) describes as intentional play which becomes a prompt for learning craft (Cannon, 2018). This connects to Mackey's (2019 p.302) analysis of digital books where she draws on pedagogies associated with makerspaces (Marsh et al., 2019). Mackey suggests "emergent encounters between interpreter and text" take place when children make decisions whilst tinkering with interactive moving image texts. In this case the affordances of the device and the home practices relating to taking, tinkering, and sharing photos all provide cultural resources which help determine Chloe's intentional play. From this play, digital authoring emerges which is intentional and not formally taught; the pedagogic moment arises as a creative process of possibility thinking (Craft, 2013) rather than from a predetermined or curriculum orientated learning objective.

Video Diaries in an Imaginary Community

The next example we share is from a previous project in a primary school where Burnett, et al., (2019a; 2019b) explored the integration of iPads into an existing pedagogic approach developed by a participatory theatre company. Rather than plan specific uses of iPads, they were introduced into the project as just one of many possible resources in the year 4 (age 8-9) classroom, to be used when any of the participants identified a possible use. A wide variety of uses were made, including using the iPads to lean on for writing. However, one of the uses that emerged that is relevant to this article was a video diary where the children took the iPads to the cloakroom and talked in-character to the camera in the style of a reality television programme such as Big Brother. This proved to be a rich opportunity which enabled the children and the research team to see the ways in which many of the children were pursuing multiple narrative threads, relating to their own character which were less visible in the whole group process.

In one moment, one girl, Catherine, was recording herself revealing secret plans for overcoming the forces of evil. Her presentation was entirely situated in the diegetic world of the story and this was reflected in facial expressions and tone of voice. Although much of the visual style of the character was imagined, (costumes were simple pieces of fabric for example), it was clear that Catherine like many of the other children had a fully developed "imaginary community" the process articulated by Theatre Company Chol[5], and that in this process she was able to step in and out of the diegetic world to orchestrate developments. In terms of filmmaking, there was a moment when Catherine decided she needed a fade to black to signal the passage of time. For a moment she paused and considered her next steps then she, slightly clumsily at first and in 'tinkering mode' held her finger over the lens of the iPad to create the effect of a fade to black transition. Once she had established this technique, she used it again several times to give the audience updated and behind the scenes accounts of the fictional events. To return to the Lumiere brothers for a moment, this was a process where Catherine was learning the possibilities of the medium simply by trying it out. However, unlike the Lumieres, she had extensive knowledge of film from her own viewing so that, despite having never been taught about editing and use of transitions formally, she was able to take her intuitive knowledge and apply it in this ephemeral moment of self-expression.

This pedagogic moment emerged from an exigency of playfulness; pursuing the narrative in video-diary form created textual demands which Catherine had to be resourceful to address. Integrating technologies into existing creative practices was important in enabling this more emergent approach of learning to digitally author (Burnett et al., 2019b). It is important too to acknowledge that the creative practice associated with Chol's 'Imaginary Communities' was underpinned by a commitment to all participants working as 'equal playmakers' and therefore Catherine's video-diaries were like Ethan's vlogging and Chloe's

[5] Link to Chol's Imaginary Community Project: https://wearechol.co.uk/imaginary-communities/imaginary-communities-projects/

photography, rooted in and emergent from her experiences of play as an older child. This example is important because of the way in the equal playmaker ethos and playful tinkering with digital tools created an opportunity for emergent digital authoring within a formal school setting.

The young writers: blurred boundaries and collaborations

Our previous examples involved children in using new digital tools to create texts based on previous experience of similar texts. However, in digital authoring, the edges blur between types of text so that children are caught up in a process where texts are remixed or mashed up. In this section we use examples from 2 further research projects: one in which children experimented with the software Twine and the other where free choice writing using pencil and paper was the focus. In both examples, the children's cultural resources are key to the texts they create, again promoting moments of playful 'tinkering' which lead to productive learning.

The first vignette is from a project funded by the United Kingdom Literacy Association (UKLA), focused on establishing pedagogic principles of digital literacies through small-scale action research activity. In this instance we worked with teachers and children in year 5 (age 9-10) at a primary school in the North of England to create stories using Twine. Twine is an open-source programme[6], where children can create stories which are game-like in the sense that another player makes choices about what happens, and story-like with clear narrative structures. If you have never used Twine before, it is perhaps easiest to imagine it as an online, digital version of "choose your own adventure stories.[7]" In Twine the author has to create multiple story pathways which creates a necessity to playfully experiment with familiar narratives. The need to provide choices within the open-ended design of Twine means that child authors are able to draw on stories they know from popular culture, from

[6] Link to the open source site for downloading Twine: https://twinery.org/
[7] Example of a Twine Game/ Story: https://acgodliman.itch.io/a-bucket-filled-with-sand

their reading, and from everyday life in their game/stories. The participants in this study were novices in the use of this particular form, and were engaged with both finding out how the software worked in a practical sense, and how it could be used to tell stories in new ways.

Lily and Laura, who both said they liked writing at home and at school, created a Twine story about Disney princesses. Drawing on genre conventions of stories about boarding schools, but possibly also their own experiences of school, the 2 girls focused on their characters as nervous "new girls'" who were embarrassed at having to present to the class. Although their story was about Disney princesses, the lives and friendships of the 2 girls were inscribed into the story. For example, the name "Disney Diamonds" links to a diving group Lily was a member of. Shared activities out of school were important to their friendship which they brought into being in their story. Lily and Laura described writing themselves into their Twine story: *'I wanted to do it about us… but we also wanted to do it about Disney. So we put us in the story'.* They had initially decided not to include narrative options on every page to make it "more story like" but later they devised a means of "Teleportation" so that they could offer multiple storylines. This was an interesting decision which demonstrated the 2 girls being challenged by the new format to create possible new storylines.

Twine is designed with ludic and interactive feature where the reader/player must be given multiple possible options to decide on. This provided a pedagogic challenge which led the 2 girls create a narrative device (teleportation) to enable them / their characters to have a wider range of adventures in different settings and story types. As with earlier examples, the children were playfully authoring, tinkering with their texts so that pedagogic moments arose because of the way they placed themselves in the story, but also because of the ludic affordances of Twine, and the limitations of the existing narrative chosen and a desire or even requirement to go beyond.

Kucirkova et al. (2019) argued that research into children's writing on screen should pay more specific attention to the tools and applications that children were using, because all writing on screen does not have the same purpose and function. The affordances of different tools, such as the ease with which multimodal elements can be included, or the 'game' structure of the narrative organisation in Twine will necessarily have an impact on the types of texts that are written. The digital medium, therefore, is significant in the impact it has on children as emergent writers, and the extent to which playful tinkering with narratives enable pedagogic moments to arise.

When thinking about children as writers it is also useful to consider writing that emerges from the digital, not just writing that occurs in digital forms. Kucirkova at al (2019 p.223) stated that "Future research could benefit by exploring the relationship between children's writing on screen and literacy practices related to children's sign making." The following vignette provides an example of some of these relationships. Children's literacy experiences take many forms, in and out of school, formal and informal, traditional and digital. It seems inevitable that transaction occurs between and across these forms and contexts. This example (Figure 2) is taken from a project exploring children's free choice writing (Taylor, 2016.

Figure 2 A child's free, multimodal writing

Participants freely chose the form and content of what they wrote over a period of 6 weeks. Xavier produced several comics relating to Pokémon. He made intertextual and cross-media references in many of his texts, and in this piece presented "Pokémon Hunger Games," imagining a hybrid between the popular book and film series (Collins 2008; Ross and Lawrence 2012-15) with the Pokémon video game, and representing them both in the form of a pencil and paper text. Interestingly Xavier's comic strip was a representation of his real-world experiences of playing the video game, rather than a Pokémon narrative told in comic strip form. He chose to represent aspects of the digital experience, and the text can very clearly be said to have emerged from his experiences playing online in digital spaces. One panel in the comic contained the face of a character shouting "Yeeesss" in celebration. The

character in the box was labelled by Xavier, outside the panel, as a “You-tube face-cam.” This provided a very clear example of the way Xavier moved between modes and created a comic which showed features of digital texts, redefining the boundaries of the type of text he was creating. In a comic strip, even one which is multi-diegetic and has more than one narrator, story, and mode of communication, it is unusual to see a real-world figure presented as a participant. The panel appears to represent the experience Xavier might have when playing the game online, or more specifically, watching someone else play it online. It is as if Xavier has taken one of Ethan’s game-play vlogs and represented it on the page. The You-tuber presented in Xavier’s comic represents the narrator/gamer that Ethan enacts in his videos. Xavier’s text relied upon and emerged from his experiences with digital texts, but it also relied on shared understanding with a reader about the nature of the kinds of texts created by you-tube writers such as Ethan. Perhaps the most important point here is that this role, one of being a reader-writer working playfully within an expanded understanding of literacy which include videogames and comics, could only arise in a free writing context.

Conclusion

We suggest that children are enculturated into digital literacy practices through their experiences at home and school, on and off line, and given the opportunity they draw on all their social and cultural resources to playfully explore meaning. What is more, children’s playful tinkering with digital media and new technologies, is an important and multifaceted literacy practice which enables meaningful pedagogic moments to arise. As demonstrated in our vignettes these moments are prompted by the combination of the material affordances of digital tools, the modes, and conventions of media content but also the extent to which authoring narratives is volitional and this arises in the context of playful tinkering (Burnett et al., 2019 b). A pedagogy of playful tinkering appears to enable digital authoring to emerge from the intersection of context, material, tool, or cultural practice. The digital devices and

media content we make available to children at home and at school shape how they author texts and so too does our pedagogic approach. Playful pedagogies where children are able to draw on cultural resources and tinker with the possibilities of new technologies is key to enabling emergent digital authoring. Craft (2011) argued that there are 4 emerging characteristics of childhood and youth in the digital age "pluralities, playfulness, possibilities and participation" (xviii). The examples we have discussed speak to these characteristics; in particular the significance of playfulness as an opportunity to engage in new possibilities and emergent authoring practises. Further research is required which addresses the range of different pedagogical approaches which might support an emergent approach to digital authoring. In these more emergent approaches the pedagogic moment arises as a part of a creative process rather than from a predetermined or curriculum orientated learning objective and it is therefore imperative that we continue to highlight the short-comings of anachronistic policy and curriculum which limit children's literacy learning to the written word and fail to value children's existing understandings of texts as readers, players and authors.

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Taylor, L. E. (2018). *We read, we write: Investigating the relationship between children's reading and their writing in upper primary school* (Doctoral dissertation, University of Leeds).

Additional Resources for Classroom Use

Burnett, C., & Merchant, G. (2018). New media in the classroom: rethinking primary literacy. Sage.

The rise of new media technologies has changed the ways in which children engage with texts and this has implications for literacy provision in schools. Drawing on research exploring new media practices within and outside school, this book explains and encourages classroom activity that makes purposeful and appropriate use of these literacies and is underpinned by a set of guiding pedagogical principles for teaching literacy in contemporary times.

Mackey, M. (2019). The role of moving images in young children's literacy practices. In (ed) Erstad, O; Flewitt, R. Kümmerling-Meibauer, B. Pires Pereira, I. S., The Routledge Handbook of Digital Literacies in Early Childhood (pp. 295-307). Routledge.

Mackey points out that in a world of moving images, children need to learn to make sense of cuts and edits and other elements of moving image composition. To investigate how children

might grapple with this challenge in the context of their early engagements with early apps and games, Mackey uses a pedagogical concept arising from the new universe of Makerspaces - the idea of tinkering. The full chapter uses this concept in a way which pushes the field to recognise the different processes of meaning making and the different questions that arise in low-risk, open- ended activities that do not begin from the idea of a fixed destination. In her analysis of a range of digital texts, Mackey draws on Atkins (2006) demonstrating the value of making the distinction between the old narrative question, “What happens next?” with the gamer’s newer question: “What happens next if I . . .?”

Rebecca Parry, Frances Howard & Louisa Penfold (2020) Negotiated, contested and political: the disruptive Third Spaces of youth media production, *Learning, Media and Technology*, DOI: 10.1080/17439884.2020.1754238

Traditionally media production with young people has been characterised by an aspiration to ‘give voice’ or ‘empower youth’, but this core value is identified in the paper as being under threat from a new focus on enabling young people to acquire digital skills to serve the needs of rapidly changing creative industries. In this paper, qualitative data is shared from a young people’s media production project run in libraries in a city in the United Kingdom where participants were invited to create videogames/stories using Twine. Potter and McDougall’s notion of Third Spaces as negotiated, contested and political is adopted in order to identify the ways in which pedagogical choices of setting, software and style of facilitation combined to support young people’s critical and creative engagement with digital media and society. The notion of a third space is reframed as productively disruptive and a new set of pedagogical principles are presented which also propose pedagogies which primarily build on existing meaning making practices.