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“It becomes like a source, just like reading the textbook”: towards an expanded GenAI-informed multiliteracies model

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ABSTRACT

This paper examines how the meanings of GenAI are socially constructed in classroom practice. Using two illustrative cases of the use of ChatGPT in Norwegian classrooms, the paper analyses the dominant construction of GenAI as “resource” or “text” and relates this textual construction to technology being routinely authorized for schoolwork. Student departures from the traditional model, such as constructing GenAI as a tutor or editor, are examined in tension with traditional practices and for how they are constrained or domesticated by the resource model. Next, drawing from these illustrations, the paper critically reconsiders the early multiliteracies model, which itself is resource-focused, and calls for expansions that permit us to conceive how GenAI is both agent and (generated) resource. The first type of expansion involves understanding how large language models, or LLMs, are active in composing, in addition to the metalanguage of semiotic resources. The second type of expansion calls for new understandings of critical framing to include not only semiotic metalanguage but also modelling language and critical meta-platform consciousness. Together, these considerations lead us to not only expand pedagogies, but also to rethink how social futures may be actively designed towards sustainability, human flourishing, and social justice.

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Society has, during the last decade, been marked by socio-technical developments like digitalization on all levels, datafication and the attention economy, digital “platformization” of infrastructures and institutions (Plantin et al., 2018; van Dijck et al., 2018), and “hyperconnectivity” in ways of interacting with technologies in everyday life (Brubaker, 2022; van Dijck, 2013), as well as the increasing flow of disinformation, fake news, echo chambers and polarized communication. These developments have created cultural environments which challenge many taken for granted conceptions of education, schooling and literacies.

The most recent addition to these developments is of course the impact of Generative AI tools, such as ChatGPT, that have had a massive impact on educational institutions. Artificial intelligence, and its implications for education, has been

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debated for many years (Cope et al., 2021; Dreyfus, 1974). Still, the ways we use and conceive of artificial intelligence and its impact on educational practices today have raised both concerns and challenges, especially on the impact of global edtech companies in public schools (Kerssens & van Dijck, 2022) and for assessment and cheating, as well as prospects in ways of creating texts of all modalities and prompts for stimulating learning processes among students (Holmes & Tuomi, 2022; Sharples, 2023).

To what extent these technological processes of datafication, platformization and the impact of Generative AI represent something fundamentally new compared to the initial “pedagogy of multiliteracies” (New London Group; Cazden et al., 1996), or just a continuation of cultural processes, is not clear. We focus more on studies of educational practices and how they are affected by these new digital environments. *Harvard Educational Review*, where the New London Group published their framework, has also launched thematic issues on “platform studies” (Napier & Orrick, 2022) and “datafication and platformization in teaching and learning” (Pangrazio et al., 2022). Our perspective in this article builds on these broad developments of digitalization in education but focus on educational practices where the interaction between agency and text production using Generative AI tools among students and teachers, and how they negotiate meaning making in ways of taking up and using these new resources in educational practices.

Using ChatGPT as an illustrative case, we wonder about how Generative AI is socio-technically constructed in situated practice, and especially in schooling. We see this question as related to emerging research and theorization regarding the status of technologies relative to human relations (Burriss & Leander, 2024; Pettersen et al., 2025; Robinson & Leander, *in press*). The issue of whether or not ChatGPT is a “text,” in practice, is of interest to us not only as a participant’s problem in the flow of interaction, but also as a conceptual problem of understanding the status of ChatGPT in relationship to a multiliteracies framework. If ChatGPT is a text, then we could assume it could be taken up like other resources, and in this sense, readily fitting into the multiliteracies framework. In the original formulation of the multiliteracies framework (New London, 1996), a grammatical calculation of the organization and evolving systems of meanings structured the vision concerning the movement from print texts to multimodal texts. Text was conceptualized to include any artefact of production broadly conceived. The representational underpinning of the framework is fundamental to the multiliteracies concept of design where youth actively use the “available resources” of multiple representational materials and tools for “designing” and then critically “redesigning” texts, their identities, opportunities, and futures as global citizens of an increasingly connected yet diverse world. While we will later discuss the implications for a theory of design in relation to Generative AI-in-practice, presently we summarize two key questions for analysis:

- What kind of “thing” do teachers and students make ChatGPT out to be, through their uses and talk about it, in the context of classroom practice? and
- To what degree do teachers and students construct ChatGPT as a text or resource in practice? What (else) is it constructed to be?

These questions, which we analyse in relation to data, provide us an occasion to ask a conceptual question for multiliteracies research:

- How might researchers use a socially situated understanding of Generative AI, which also considers its affordances, to challenge and/or expand the multiliteracies model of design?

In the following, we will first outline our approach and then engage in a detailed analysis of interactional episodes of how teachers and students make sense of Generative AI tools in students' schoolwork in the classroom. The episodes derive from a research project on interdisciplinary learning and teaching in Norway, where the students work on producing text for different assignments where the Generative AI tool ChatGPT becomes relevant as a resource in the students' design of text.

Literacy technologies and their meanings in practice

Social practice theories of literacy (e.g. Gee, 1991; Street, 1984) have significantly shaped the ways in which literacy is understood as defined and carried out in social and ideological practices rather than in isolated, individual cognitive skills and abilities. Such theories have also asserted that literacy must be understood as associated with a range of social functions and meanings. Within the socio-technical assemblage of literacy practice, we can and should ask also how technologies are conceived through social and ideological practices and not autonomously. That is, when we consider them as resources for meaning-making rather than as having fixed, inherent meanings, technologies can be understood as meaningful in particular ways in practice. In literacy and technology studies, researchers have been arguing for nearly thirty years that the meanings and functions of literacy are deictic with respect to how new technologies transform literacy practices and permit us to envision new potentials for literacy (Leu, 1997). From a social practice perspective, we need to ask not merely what affordances technologies have towards a future orientation, but also in what ways technologies are being socially constituted in everyday practice. Such an orientation towards GenAI helps us ask, for instance, What is ChatGPT becoming in moments of use in classroom interactions?

In addition to social practice theory, we are informed by two other disturbances cautioning against naming the meanings of technologies, such as AI, outside of practice and human/technology entanglements. From media studies, the concept of domestication (Silverstone & Hirsch, 1992) remains useful, allowing us to consider how technologies are "tamed" through processes of appropriation, objectification, incorporation, and conversion in settings such as home (Silverstone & Hirsch, 1992) and school (Martinez & Olsson, 2021). More recently, some research on literacy and technology has become informed by a posthumanist turn that de-centres the human as controlling meaning-making relations (e.g. Burriss & Leander, 2024, McKnight, 2021). Ecologist and posthuman theorist Timothy Morton (2013) asserts that "nonhuman beings are responsible for the next moment of human history and thinking" (p. 201). Our continued human existence – including literacy practices – are deeply intertwined with non-humans, and in increasingly complex ways with Generative AI. Drawing on ideas from posthumanist thinkers to conceive of how "human" literacies are fundamentally intertwined with machine processes, a posthumanist literacy approach to prompt us not only to reconceive of "meanings" made in the social construction of technologies, but also ontology, agency, ethics, and pedagogy (Burriss & Leander, 2024).

In our work on artificial intelligence and educational practices it has been difficult to define and review a clearly defined field of research. This is due to the rapid increase in publications in this field during the last couple of years, and also that the field cover many different issues ranging from broader issues of AI platforms and the role of EdTech in driving these developments, on challenges for assessment and ways of providing feedback to students, to issues of AI literacies (e.g. Albadarin et al., 2024; Kalantzis & Cope, 2024; Kerssens & van Dijck, 2022). New journals have emerged, such as the “International Journal of Artificial Intelligence in Education,” and well-established journals in the field like “Computers & Education” have had several key publications in this field during 2024 and 2025. And larger compilations trying to define the field have been published, including the “World Yearbook of Education 2024” (Williamson et al., 2024).

One systematic review we find of specific relevance to our discussion in this article is one written by Stornaiuolo et al. (2023) based on a review of 187 research studies published between 2006 and 2022 on the use of AI platforms in writing instruction. Their findings suggested three functional categories of AI platforms in writing instruction; assistive as functions that support writing instruction, learning, or practice via AI platforms; assessment as those concerned primarily with how AI evaluates writing, and authentication as those in which an AI platform certified writing, combined with a focus on the technical dimensions of platforms and their intersections with the cognitive dimensions of writing. (Stornaiuolo et al., 2023, p. 311) This review provides some basic elements on writing instruction using AI platforms leading up to the present situation. These three functions are embedded in the discussion part of this article with reflections on ChatGPT as a text and as an agent. In addition, we introduce the concept of design to reflect on who, or what, is doing the designing, to whom and with which resources in creating meaning making with ChatGPT. Our approach also goes beyond such functional approaches by exploring how composing with GenAI generates emerging co-construction of knowledge processes. We expand this more towards a discussion of multiliteracies and design using generative AI tools in school practices.

Multiliteracies and design

While we affirm that multiliteracies conceptual and empirical work has greatly expanded in the nearly three decades since the New London Group’s original work, given the transformation of text production, authorship, agency and other issues through AI, we find it important to return to a small set of basic concepts concerning “design” in this work. Our purpose in this return is to evaluate these concepts in relation to emerging changes in AI-engaged literacy practices. To what extent do these earliest multiliteracies concepts continue to hold and/or need to be expanded to continue to build multiliteracies work that is dynamic and robust? We are especially invested in concepts that inform the practices of writing on the one hand, and critical framing of literacy on the other hand. These practices are reflected in our data illustrations and are also central to literacy learning in school settings.

With respect to writing, or to multimodal composition more broadly, a first key concept in the early multiliteracies work is the centrality of “design.” Design functions as a central metaphor of literacy practice as well as a very broad signifier (a breadth New London considers productive and felicitous). Understood as “design,” writing or composition is

conceptualized as a social semiotic process that is tied closely to the use of a grammar, or multiple grammars, in the process of meaning-making, a framing that situates early multiliteracies work as building on and contributing to the “discursive turn” of the 1990s. Beyond texts, “design” can also be applied to identities and futures, suggesting freedom, creativity, and movements towards a more equitable and just world. Thus, and a second concept, humans and human agency are foregrounded in the multiliteracies framing; design is a human-centred project, in which people not only design texts, but concurrently, design themselves discursively. The meanings and values of present and future identities, like texts, can be read off of their expansions across new modalities and ways of being in the world. Human-centeredness, and human self-construction, seems a particularly important concept in considering present literacy transformations with AI.

Given that design is understood as a social semiotic process, a third important concept in early multiliteracies work concerns “critical framing,” formulated as a process of helping students develop a “flexible tool kit for working on semiotic activities” (New London Group, p. 77). Informed by Halliday’s (1978) macrofunctions of language, which provide a framework for the discursive construction of reality, critical framing is based on developing a “metalanguage for teacher and student use that describes meaning in various realms” (p. 77). Through such critical framing, students develop abilities to understand how various texts draw on available discourses and point to preferred meanings. The notion of critical framing is fundamentally tied to discursive or meta-discursive training and tool kit that can flexibly move across domains, uncover meanings, investments, discourses and their consequences. An imaginary successful student of critical framing, from the early multiliteracies work, is the student with multiple semiotic repertoires, critical discourse knowledge, and grammar knowledge of various modalities who can traverse, critique, and re-design social domains, which are primarily conceived as discursive domains. Critical framing opens towards “Transformed Practice in which students transfer and re-create Designs of meaning from one context to another” (p. 83), with the goal of affording students greater access to symbolic capital (p. 72).

Against this backdrop, our analytical interest is to scrutinize how the situated use of Generative AI might challenge some of these key issues in the multiliteracies model of design. We will now move on to an analysis of episodes of classroom interactions around perhaps one of the most current used Generative AI tools in the classroom, ChatGPT.

Methods, research setting and analytical procedures

To analyse and develop an understanding of how students and teachers make meaning of Generative AI tools in educational settings, we will draw on video data of classroom interaction where students use ChatGPT for text productions in different assignments. The video data stems from a large national evaluation project on the implementation of the new national curriculum (2020) in Norway, called The Evaluation of the New National Curriculum: Intentions, Processes, and Practices (EVA2020). In this project, the second and the third author were part of a research team that carried out several case studies investigating how teachers teach, and students learn, about so-called interdisciplinary topics (Furberg et al., 2024).

In this article, we will draw on video data from two of the cases; one case targeting the interdisciplinary topic of *Health and life skills* and the other the interdisciplinary topic

Sustainable development. The first case involves part of a lesson in upper secondary education, and the participants are a class of carpentry students and their teachers. The second case involves part of a lesson in lower secondary education, and the participants are a class of 9th Grade students and their teacher.

In our analysis we draw on video data of carefully selected episodes of classroom interaction around ChatGPT. The data were not necessarily representative, but they were particularly illustrative of important features of naturally occurring AI-use in the classroom. Video data enables us to study in detail how participants orient to each other and resources in the teaching and learning environment (Erickson, 2011; Hall & Stevens, 2016; Silseth & Arnseth, 2022). We carried out detailed turn-by-turn interaction analysis of two episodes that illustrate some important dimensions and aspects of how the meanings and functions of ChatGPT are constituted in and through student's text production. The first episode involves a dialogue between a teacher and a student group about proper ways of using ChatGPT. The second episode involves a dialogue between three members of a student group who also discuss proper ways of using ChatGPT.

What is ChatGPT being made to be in classroom practice and interaction?

Episode 1: Re-affirming ChatGPT as (mostly) a source

The first episode derives from the case study where students in a vocational class on upper secondary level work on a school project targeting different topics related to preparations to become carpenters. The students are working in groups of three on an assignment where they are tasked to create a digital presentation about different central aspects of the carpentry profession, such as formal/informal language, installing doors and health, safety and environment (HSE). Since ChatGPT was a fairly new tool, at the time when the field work was carried out, there were no clear guidelines for using ChatGPT in this classroom, and the students themselves were the ones introducing it in the work on their assignments. Furthermore, the teachers had not established any practices for supporting or policing any forms of AI use at the time of the data collection. The students are placed around a table, using personal computers. The teacher Solveig is making rounds, and as one of the students (Kasper) is using ChatGPT to create content for their presentation, the teacher stops at the table and starts a conversation about the role of ChatGPT in their text production practices.

The selected episode concludes with Solveig's comment: "It [ChatGPT] becomes like a source, just like reading a textbook" (27). We find this remark pivotal, and we continue to circle it back as an analytic framing in the following. To preview our thinking, we note how Solveig uses the term "become" rather than "is" or some other variant, which flags for us the ways in which much of the episode is concerned with what ChatGPT is "becoming" in the context.

The episode begins with Solveig making a remark that she notices ("I see you're using") the two boys "trying" ChatGPT as they work on their upcoming presentation:

- 1 Solveig (T): I see you're using uhm trying ChatGPT Kasper
2. Kasper: Yes (.) I asked for help with the text

- 3 Solveig (T): Yes can I see what response you got?
 4 Anwar: Uhm yes (.) you can (smiles)
 5 Kasper: Why?
 6 Solveig (T): I'm curious
 7 Anwar: I can show you (.) you do it like this (.) go to ChatGPT (.) what kind of questions are you curious about? ((asks Solveig))
 8 Solveig (T): Uhm no it was he wrote in "explain carpentry language briefly."
 ((refers to the prompt produced by Kasper))
 9 Anwar: Yeah
 10 Kasper: To get some extra (inaudible) first
 11 Solveig (T): Yeah yeah yeah if you use it appropriately then it's

When Solveig approaches Kasper and Anwar, Kasper immediately responds "Yes, I asked for help with the text" (2), which we might argue situates ChatGPT as a tutor or co-teacher, someone capable of giving help. Solveig, however, focuses on the response received ("Can I see what response you got?") and not on the process of engaging with ChatGPT. The teacher's request to see the response seems to unsettle the two boys, who gaze directly at one another, as if checking in with one another. Anwar smiles and responds affirmatively, turning his monitor slightly to make it more available to Solveig. Simultaneously, Solveig's authority is challenged – Kasper asks "why" the teacher would check ChatGPT's response (5). Solveig's response seems to mitigate this challenge with "I'm curious" (6), yet the issue of authority negotiations underway seems extended by Anwar's "I can show you (.) you do it like this" (7) which positions the teacher as a novice to ChatGPT, who may not yet know how to use the tool. Anwar positions himself, momentarily, as someone who can teach Solveig how to use the tool for his own purposes "what kind of questions are you curious about?" (7). Such a positioning may also function as a bid to refocus Solveig's activity away from inspecting the text that boys are creating with ChatGPT.

The teacher reads Kasper's prompt aloud, which asks ChatGPT to "explain carpentry language briefly." Ostensibly, Kasper's prompt is driven by his need to produce text in relation to professional language in carpentry that is required to be a part of his final presentation. Solveig's reading seems important in this moment in relation to her teaching role as a guide to the student's engagement with professional language. However, Solveig does not comment on Kasper's prompt (as produced text, or knowledge). Kasper's response suggests that he is trying to get "extra" text or information (10), in addition to what he may already "have," which Solveig picks up on with "yeah yeah yeah if you use it appropriately then it's ... " (11). At this moment the teacher is interrupted by a student from another group.

Up to this point, the only "text" in relation to ChatGPT is the text of the students' prompt, which is mostly passed over, yet seems somewhat approved by Solveig as a teacher. The use of ChatGPT in practice is more present in the students' discourse than in that of the teacher. Yet, for the students and the teacher, the question of authorized use of ChatGPT seems ripe across the interaction, where the question of what ChatGPT is being made to be is framed with how it is authorized, or not, for use in school – just what it means to "use it appropriately" (11) appears to be recurrent subtext in the interaction.

In the next segment, the interaction continues with Solveig reading aloud part of the response received from Kasper's prompt of ChatGPT:

- 15 Solveig (T): "According to the building code, we must implement tensile strength in this structure to ensure compliance with safety standard" (reads from ChatGPT)
- 16 Kasper: Just to get a little extra help to know what I should write about (.) and then I usually write (.) read it over (.) and then write for myself
- 17 Solveig (T): Mm

Solveig is reading a small sampling of what appears on the screen (15), as a broader discussion of language in carpentry. Kasper's response to the text, and to the teacher's reading it aloud, describes two possibilities for ChatGPT. The first possibility is that ChatGPT generates ideas "just to get a little extra help to know what I should write about" (16). After a short pause, Kasper seems to redirect his response, continuing to pause intermittently, appearing to measure his words: "and then I usually write (.) read it over (.) and then write for myself" (16). Kasper's "I usually write" suggests that, in shifting to "read it over" for the next segment, he is aware of the importance of treating the ChatGPT text like a resource to be used in design, where he will "write for myself." Kasper appears to be affirming the domestication of ChatGPT into the school context, as ways of "taming" the technology be appropriating and incorporating its functionalities into practice. Like any other resource, it provides text to be "read over" that one can then "write for [one]self" (16).

The segment that follows introduces a new problem concerning ChatGPT's produced text, and also a possibility for what the technology is.

- 18 Kasper: Because they come (points to the screen) with much more (.) if it would finalize
- 19 Solveig: Mm
- 20 Kasper: Then I can (.) I can do it now ((types "write it easier and shorter")
((Kasper types something into ChatGPT))
- 21 Solveig (T): Yeah (.) yeah right you say that "informal language can be more in everyday situations" (reads from ChatGPT)
- 22 Kasper: Yeah (.) but look here now (.) now I got ((points at the screen)) perfect pointers (.) so now I know where to go and what to do (.) instead of having to remember

While ChatGPT is a resource, it is also a wild one that produces much more text than one could use in a school assignment. ChatGPT assembles a long output, using the kinds of things millions of others have said about language in carpentry. Kasper's next prompt to the text produced indicates that the language is both too complex and too long-winded for him: "write it easier and shorter" (20). Again, neither students nor teacher focus on this moment of prompting. Rather, both Solveig (21) and Kasper (22) focus on the resulting text. Kasper names this text "perfect pointers" (22), or perfect tips, as bullet points for his key question posed to ChatGPT. These pointers inform him "where to go and what to do" (22), ostensibly with respect to his ongoing creation of a presentation, and Kasper also suggests another function of ChatGPT as extended personal memory (22). In the final segment, the teacher returns to the nature of the text produced:

- 23 Solveig (T): Yeah (.) the only thing is that it's a bit vague though (.) it's not that (.) you could actually come up with examples from the door assignmenta
- 24 Kasper: Yeah but we're coming up with our own examples and explanations
- 25 Solveig (T): Mm
- 26 Kasper: It's not allowed to use it in any other way than this
- 27 Solveig (T): It becomes like a source just like reading the textbook
- 28 Kasper: Mm
- 29 Solveig (T): Interesting

Solveig points out that the text is a “bit vague though” (23). From the perspective of text produced by ChatGPT, this comment makes sense, in that the model itself is designed as a type of *abstraction machine*, where the model, by definition, abstracts language from specific contexts. Recall that, in this case, the response has been further abstracted through a process of AI simplification and summary. Solveig pushes the students to create a connection between the abstracted text and knowledge examples from their embodied and local “door assignment,” where the boys were learning how to instal a door in construction work. Kasper iterates a plan for their future process on the project that closely matches the expectations for a resource model of designing: “we’re coming up with our own examples and illustrations” (24). Kasper further asserts that this mode is the authorized way of working in school with ChatGPT: “it’s not allowed to use any other way than this” (26). Dialogically, we read Solveig’s comment as a summation of the use (and social construction of) ChatGPT: “It becomes like a source just like reading the textbook” (27), to which Kasper agrees (28). The feeling of the concluding comment is as if the teacher and the boys have engaged in an unsettling interaction around possibilities for ChatGPT, including its authorization in school, and yet have continued to reassert its status as a (re)source, like a textbook.

Episode 2: “We LEARN from ChatGPT” (but it also doesn’t act like a source)

In the second episode, a group of students in a lower secondary school are working on an assignment about sustainable development. The students were working in groups of 3–5 and each group was given a specific subtopic within the overall theme and were tasked to produce a presentation of the subtopic to be presented to the class. Producing the Power Point presentation was one part of a larger project work that lasted for about a week. In addition, they were making a brochure and a poster including drawings, pictures and text addressing their topic. In this work, across the groups in the class we found significant use of ChatGPT along with other more traditional sources of information like newspaper articles, reports or online encyclopaedias. As with the first classroom, there were no clear guidelines or established practices for using or supporting the use of ChatGPT, and the students were trying out ways to use this tool in the work on their assignments. The teachers were aware that students used ChatGPT, but they emphasized that students should be careful with using it, because it was not a trustworthy source of information.

The group that we encounter in this episode is focusing on the issue of sustainable consumption. The two girls Fatima and Linn and the boy Tobias are together finding information about this issue. The students sit together around a table, and they are all using their personal computers. We find the negotiation between the different members

of the group about what ChatGPT is, and how it can be or cannot be used in schoolwork, striking in this regard. One of the students argues that the group is not simply copying from ChatGPT. On the contrary, he argues that they are learning from it. This becomes a position contrasting the other group members who voices the official norms structuring the use of AI in the classroom. More specifically, they provide different arguments for why they should not use ChatGPT. Here the tension between the literacy as design and ChatGPT's more autonomous and agentive model of text production becomes a topic and concern in the students talk.

- 1 Tobias: So now I have written a little about why (.) now I've figured out why the consumption is so high (turns the screen towards Fatima and Linn and shows them the text he has created using ChatGPT))
- 2 Fatima: But we are not going to use ChatGPT

In the first two lines, Tobias is first showing a ChatGPT generated text to Fatima and Linn. As a response to his prompt concerning why consumption is so high ChatGPT has produced a set of five different categories of reasons explaining why consumption is high. The text that ChatGPT produced is displayed in [Figure 1](#) (translated from Norwegian):

Now how Tobias uses the personal pronoun "I" to describe how he has discovered something about consumption using ChatGPT, which might tell us something about how he sees the relative distribution of agency between the AI tool and himself. Together they discover something about the focal theme – a point we also made in the analysis of the first sequence. Instead of engaging with the meanings of the text, Fatima questions the legitimacy of the AI generated text as a source of information, referring to a school rule.

- 3 Tobias: What should we use then there's NOTHING about where where you (.)
- 4 Fatima: Yeah but I don't want to use ChatGPT

1. Advertising and Marketing

Influence from advertising encourage conception creating a need for upgrades.

2. Technological development

Development leads to a need for new tech even though existing tech still works

3. Cultural Norms

Societal values may push consumption as symbols of success and social status.

4. Economic Growth

Economies stimulate consumption to facilitate growth

5. Social Influence

Social norms and pressure may lead to increased consumption to follow trends in society.

Figure 1. ChatGPT response to Tobias' prompt.

From observing the video, we can see that Tobias is emotionally engaged by this account, and he provides an argument for why it is crucial for them to use ChatGPT to be able to solve their tasks (3). He argues that there is not a good alternative to using ChatGPT arguing that they would never be able to find this out for themselves without the aid of ChatGPT. Thus, here he seems to be invoking the cognitive capacities of ChatGPT as an argument for why they should use it. In this sense he is constituting it as a tutor or as a cognitive mechanism for generating task relevant knowledge. As a response Fatima reiterates her argument (4), displaying a clear alignment with the institutional norms regulating their use of information resources. Her use of the personal pronoun also demonstrates a clear alignment with the norm.

- 5 Tobias: We're not copying from ChatGPT we're just learn we LEARN from
 6 Linn: Yeah but we also need to include sources (.) and ChatGPT can't provide you
 7 Fatima: Yeah (.) this one is a good source (.) UN ((points at the screen where she has

In line 5, Tobias interprets Fatima's previous utterance as being about the problem of copying, or to put it differently, that the teacher should be able to check whether they have copied by consulting the original source. He says that this interpretive frame is not relevant because they are not copying from ChatGPT, they are learning from ChatGPT – it is a tutor and not a source. Linn then enters the conversation, perhaps providing a solution to the disagreement between Fatima and Tobias. She says that they are obliged to use sources, and she clarifies that ChatGPT is not a source of information (6). Fatima then refers to a UN site and says this is a reliable and good source of information (7).

- 8 Tobias: Yeah but we need (.) we can use (.) the source is ChatGPT (.) that's
 9 Linn: Yeah but like (.) if you ask ChatGPT something (.) so what (.) if if Fatima
 10 Tobias: No I know that but it's just like
 11 Fatima: It's okay I think we're done with the text (.) it wasn't supposed to be a lot of
 12 Tobias: But a source is (.) ChatGPT (.) what's (.) you're not going to find (.)

Tobias then claims in line 8 that ChatGPT is in fact a source. In line 9, Linn provides a very interesting account arguing that ChatGPT, even though it might be seen as a source of information, since it individualizes texts, the AI generated text cannot be validated by readers. The issue is not so much about checking whether students simply copy information, but rather the validity of information. This is because text produced by ChatGPT is radically individualized and unstable as a digital object. Thus, the text does not have a stable digital identity that can be accessed and read by others.

This episode shows how students struggle to make sense of generative AI tools as resources for learning and text production. ChatGPT is provided with a certain

agency as a cognitive tool that automatically summarizes, condenses, organizes and analyses information. There is tension in the students talk between seeing ChatGPT as a source or a tutor. Tobias restates the analytic capacities of ChatGPT in the final utterance (12), claiming that to use ChatGPT is crucial for their ability to solve their tasks. This is clearly a dilemma for the students, and it also demonstrates that there are no commonly agreed practices for interpreting ChatGPT, using it in learning activities and sanctioning the use. Thus, we might argue that ChatGPT in education is a technology in the making.

Discussion

Constructing ChatGPT as a text

Across the two episodes, most of the talk that serves to establish an identity for ChatGPT treats it as a resource – a type of text. This kind of talk occurs between the students and teacher in Episode 1, and between the students in Episode 2. Much of the consideration of whether ChatGPT is authorized for schoolwork or not is expressed in relation to assessing it as a resource and considering how to use it as a resource. Constructing ChatGPT as a source, in text-like ways, is important for the ways in which the social construction of ChatGPT in a school context is entangled with concerns and arguments surrounding its authorization for schoolwork. That is, while we are concerned with issues of student plagiarism, the appropriate citation of texts, and the like, in this instance we are more invested in the ways in which “authorization talk” is entangled with, and perhaps amplifies, the social construction of ChatGPT in text-like ways. Said otherwise, the text or representational model serves as a type of “terministic screen” (Burke, 1965) through which the teacher and students perceive their world in school – how they rule this interpretation of ChatGPT and rule other possible interpretations.

Constructing ChatGPT as an agent

At the same time, students across the two episodes offer alternate constructions of ChatGPT and its capacities, including that it is a teacher or tutor that one learns from, that it is a simplifier and condenser of its own texts and information, that it is an extended memory, and that it is an idea generator. With respect to the generation of ideas, students make remarks in both episodes concerning the high value and uniqueness of ChatGPT.

These alternate constructions of ChatGPT as an agent index a relatively broad range of ways of conceiving of ChatGPT, and they function as important departures from representational conceptions. In Episode 2, Linn offers two critiques of ChatGPT as an agent, including that it can't name its own resources (line 6) and that it is unstable, or provides different texts across iterations (line 9). This kind of talk is interesting, if exceptional across the two episodes, and even while it illustrates that an agent-like conception of ChatGPT, in these cases, is still somewhat entangled with school authorization issues.

These data are suggestive of current realities of the relationships of schooled literacy practices and Generative AI in school settings. Research on the use of Generative AI in literacy classrooms may be well-served to consider how constructions of these tools as texts have deep histories in school literacy work. That is, moral arguments concerning student use (e.g. involving plagiarism, student laziness, etc.) do not merely exist by themselves, but are deeply embedded in, and expressive of, beliefs about the nature of schoolwork and the meanings of that reality, or an onto-epistemology of schoolwork. What this work is, what it means, and who does it are ethical concerns, to be sure, but also definitional concerns for schooling that provide lenses for understanding how Gen AI is adopted or resisted, and what it becomes in use.

Composing with Generative AI and (re)composing multiliteracy theory

Our question concerning how ChatGPT is constructed in schooling is relevant also for conceptualizing the development of (multi)literacy theory. As described previously, key concepts in the multiliteracy paradigm involve centring the human in the process of design. Drawing on multimodal resources and tools, the human has the potential to design the self and future in the process of textual design. Yet, in the case of Gen AI, the design situation becomes complicated in many ways – our assumptions are transformed concerning who (or what) is doing the designing, to whom they/it are addressing their design, and what resources they/it are drawing on during design. We have summarized a few of these shifts in Figure 2. Our intention in the chart is to suggest possible directions for expanding design types; the discussion is in no way intended as comprehensive.

As an illustration, let’s return to the situation of Kasper and Anwar, creating their digital presentation about different central aspects of the carpentry profession. Their process of design involves not merely selecting from Available Designs, but rather actively creating a text that will generate other text. This miniature “generating text,” or prompt, has important consequences, yet the manner of how to compose a prompt is not immediately available in their environment. Perhaps they will use trial and error, or they will draw on knowledge from previous experience or training. Kasper’s prompt in this case seems broad and unwieldy: “explain carpentry language briefly.” Prompt writing is specialized knowledge; in fact, entire career paths are opening for those trained in prompt engineering, doing a kind of programming with AI through natural language. Although prompts

Design Type	Language or Knowledge Domain	Interactants and Audience
Multimodal Design (First Generation Multiliteracies)	Semiotic Metalanguage	Human-Human
Prompt Design	Large Language Model	Human-Machine
Machine Edit Design	Large Language Model	Human-Machine
Undesign	Semiotic Metalanguage, using pieces of GenAI output.	Human-Machine Human-Human
Codesign	Semiotic Metalanguage, sharing composing task with GenAI.	Human-Machine Human-Human
Personalized Design	Semiotic Metalanguage, modifying GenAI output.	Human-Machine Human-Human

Figure 2. Expanding types of design in multiliteracies with GenAI.

may draw on natural language, their design is not addressed to a human, but rather to a language model in a machine, giving that model instructions. This special communication for a machine to act in a certain way involves understanding how the machine engages in a specific kind of operation that we label as “artificial intelligence” and how it uses language in this process.

Along with Prompt Design, we might describe Machine Edit Design, where some initially produced text is transformed by a command, such as Kasper’s “write it easier and shorter.” The range of commands in this case could be vast, and once again, involves not an understanding in the initial phase of how to address a human audience, but rather, how to address a machine using a language model. Prompt Design and Machine Edit Design are carried out with particular modes of human-machine interaction that are learned and carried out in addition to (human-human) social-semiotic practices. In this manner, an array of human and machine interactants are marshalled in relation to broader composition projects (Figure 2).

Once a text is produced, such as the “perfect pointers” that Kasper seems pleased with, then we could imagine a text design process that may seem more fitting to the multiliteracies model (e.g. using their perfect pointers, in Bakhtinian fashion, and blending them with other texts). However, it’s critical to consider the material reality with which the GenAI text often arrives to the writer. The often complete, finished document arrives as a pre-designed whole, in which the relations between linguistic (or other) resources have been already well-established; the GenAI text draws on genre and convention, even hyper-conventionalizing text by generating from patterns across the model. In sum, the concept of the “Available Design” might appear more like the concept “AI saturated design,” in which the text’s genre, style, conventions, and linguistic elements are infused with decisions and selections by the language model; the text arrives not as a “bit” but as a system, an assemblage.

What happens next, then, in the writing/design process involves new questions for literacy pedagogy and for multiliteracies theory. It may be that Kasper and Anwar will decide to break apart the perfect pointers, in a kind of “Undesign,” making the elements of the text more available to combination and hybridization with other elements of their choosing. Such a process might seem more acceptable in school and be noted as evidence of dialogic literacy learning. Alternatively, the boys might juxtapose the entire segment of perfect pointers in their presentation to other text segments they have assembled, thus treating the ChatGPT text as a piece of their finished document. Since the text may appear as authoritative discourse in its wholeness, unable to be divided up in parts (Bakhtin, 1981), this approach may feel ready-to-hand. Another alternative is that the boys might decide to “personalize” the text with their own experiences, leaving it mostly intact but connecting its generalized and abstract form to their own lives. Such “AI Design Personalization” is, in fact, a method recommended by some AI tools used for writing, such as Magic School AI. For instance, in the tasks of generating emails to send to parents, Magic School AI encourages teachers to “use AI for the initial work” and then “add your final touch, review for bias and accuracy, and contextualize appropriately for the last 20%” (MagicSchool). This 80–20 division recalls the Pareto principle, a well-known efficiency heuristic from business and marketing claiming that 80% of outcomes often come from 20% of causes (Robinson & Leander, *in press*). How often AI Design Personalization is taken up as a method, how “personalization” is understood, and what it means to adopt

the genre, voice and structure of a GenAI text and modify it for identity and voice are looming questions for literacy research and practice.

Expanding critical framing in relation to multiliteracies with GenAI

Moments when the youth across the two episodes construct ChatGPT as something other than a text especially highlight the degree to which a new kind of knowledge is emerging and significant for composing with GenAI. They recognize that the language model can serve, among other functions, as a tutor, as an abstraction and simplification machine, and as an extended memory. In Episode 2, Linn raises a critically important point – can ChatGPT be counted on as a source if it generates different responses for every iteration of a prompt? These emerging understandings of GenAI, whether formally taken up in schooling or not, suggest the limits of a text-centred and human-centred “metalanguage” for critical framing, proposed in the multiliteracies agenda – qualitatively distinct enough to require new framings of critique.

We have summarized some expansions of critical framing in Figure 3. Alongside “metalanguage” for (social-semiotic) critical framing we suggest “modeling language,” indicative of a critical range of knowledge and ways of communicating with GenAI. “Modeling language” would inform engagements such as Prompt Design and Machine Edit Design and embedded within it would be a broad range of knowledge of the origins, possibilities, limits, and biases of large language models such as ChatGPT. “Modeling language” would also unpack terms that are used in relationship to GenAI that can muddle the differences between human and non-human modes of “thinking,” “intelligence,” and response.

Additionally, a broad array of new work is opening up in platform studies and literacy that is centrally relevant to an expanded understanding of critical framing in multiliteracies. This work argues, for instance, that research overly focused on immediate and relatively visible interactions of students and teachers can miss the powerful ways in which the platforms being used take part in social, technical, and social-economic networks, forces, and interests (Nichols & Garcia, 2022). Moreover, literacies are not simply situated in complex networks of corporate and state interests, for example, but fundamental to these relations is the tacit agreement of the extraction of personal data for participation. In this relation, individuals are not

Critical Framing Type	Language and/or Knowledge Domains
Semiotic Metalanguage (First Generation Multiliteracies)	Semiotics, discourse study, meta-linguistic knowledge and meta-modal knowledge.
Modeling Language	LLM functioning, GenAI capacities, training data and biases, transformer architecture, machine learning, natural language processing.
Meta-Platform Consciousness	Economic, political, material, and technical dimensions of platforms. Platforms as interested. Data extraction and surveillance. User-platform relationships and (tacit) agreements.

Figure 3. Expanding critical framing in relation to multiliteracies with GenAI.

merely “designing” within platforms but rather are concurrently designed by platforms. For these reasons, we add “meta-platform consciousness” as a construct to critical framing, to accompany “modeling language” and “metalanguage.” Through this construct we intend a critical understanding of the platform(s) with which one is engaging, including understanding their interests and networked relations, understanding the data extracted and used by specific platforms, and understanding of the (tacit) agreement of the user-platform relationship. A meta-platform consciousness also affirms the need to critically understand and ethically engage with the material realities of platforms, including but not limited to under-ocean cables, vast amounts of energy and water, and massive data centres. As an expansion of critical framing that accounts for human-machine interaction as well as for expansive socio-technical networks, the constructs of metalanguage, modelling language, and meta-platform consciousness together provide a provisional means of productively expanding critical framing.

Concluding thoughts: designers of social futures

The vision towards preparing our students to be “designers of social futures” (Cazden et al., 1996, p. 89) has necessitated a paradigm shift in our conceptualization of literacy and multi-literacies as a construct and a pedagogy, influencing and reshaping literacy curricula and assessments around the world (e.g. Mills, 2016; Zapata, 2025). As formulated in the twin goals for literacy learning by the New London Group (1996, p. 60); “creating access to the evolving language of work, power, and community, and fostering the critical engagement necessary for them to design their social futures and achieve success through fulfilling employment.” With the recent developments of generative AI tools both these goals are being challenged in contemporary school practices. Also, we ask how would the tenets of multi-literacies guide us in the challenges confronting education and educational systems ahead?

Our interest is towards developing a pedagogic metalanguage for thinking and talking about multimodal meaning-making (Lim, Cope & Kalantzis, 2022; Lim & Tan-Chia, 2022) as well as for AI Literacy (Kalantzis & Cope, 2024) that support teachers and students to engage with the digital nature of texts, interactions and tools across educational contexts. Based on our analysis and discussion, we would argue that it becomes important for teachers and educators, when supporting their students’ use of AI tools, to reflect on the nature of schoolwork and how AI tools become an agent, or partner, in students’ writing and literacy practices. Furthermore, it becomes crucial for educators and teachers to reflect upon, and engage in dialogues with their students about, who (or what) is doing the designing of meaning, to whom they/it are addressing their design of meaning, and what becomes resources for making meaning in these new types of literacy practices. Teachers might engage in facilitating processes of “Undesign”, where students are supported in ways of reasoning about how elements of AI-generated text can be combined and hybridized with other types of texts of relevance and interests.

Text-generative technologies are rapidly disrupting classroom practices, and new AI platforms in education mark a turning point for understanding how writing will be supported and practiced in K–12 classrooms (Stornaiuolo et al., 2023, p. 336). In looking ahead, it is important to define an ecological perspective that both manage to grasp the

social, technological, and political-economic dynamics of these evolving digital infrastructures, and the situated practices of a multi-literacies model of design, addressing educational equality for all.

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