



Toward an Understanding of Writing Development across the Lifespan

Writing is an integral part of schooling, work, and social life (National Commission on Writing, 2003, 2004, 2005, 2006). Full participation in contemporary society calls for learning to communicate in writing for work, personal life, and citizenship. Through writing, people gain voice, express their interests, and act within the literate world and its institutions. Being able to write in ways expected in different disciplinary contexts is now recognized as an integral part of subject-matter learning for children in schools (Common Core State Standards Initiative, 2010). In addition, as writing continues to evolve as a technology and resource in our society, students need to learn to participate in new writing practices and new social situations made possible by emerging technologies (Brandt, 2015; Selfe & Hawisher, 2004). However, children come to school with varied life experiences that position them in different ways as they learn to engage in disciplinary literacies and use new technologies. For these reasons, we need a better understanding of how to support writing development. This calls for a description of writing development that is realistic and rich, based on broad principles, and useful to researchers, teachers, and policymakers. In developing such a description, we need to recognize the roles of both early and continuing life experiences and of individual variation.

Despite extensive research in recent decades on many aspects of writing and writing instruction at different ages and in different situations, now aggregated in several handbooks (e.g., Bazerman, 2008; MacArthur, Graham, & Fitzgerald, 2006; Smagorinsky, 2006; Beard, Myhill, Riley, & Nystrand, 2009; Leki, 2010), we

still lack a coherent framework for understanding the complexities of writing development, curriculum design, and assessment over the lifespan. Because we lack an integrated framework, high-stakes decisions about curriculum, instruction, and assessment are often made in unsystematic ways that may fail to support the development they are intended to facilitate. Current expectations and practices may also limit conceptions about what learners can accomplish in writing at different ages, whether writing is done in school settings or out. While attempts to make writing development appear regular and predictable may reflect a desire to make assessment easier and instruction better regulated, the cost is a mismeasure of student writing skill and instruction that stunts rather than supports writing growth.

The statement presented here was collaboratively written by a group of scholars who came together to address the need for a vision of writing development that incorporates its complexities and many dimensions, and that accounts for the individuality of trajectories that can lead to distinctive voices and expressions. We, as the participants in this panel, treat writing as a form of inscribed meaning making that expands the potential for verbal communication and expression across time and distance. Writing develops as an ongoing struggle to control and integrate meanings that are socially relevant and individually generated through the technologies of writing and its practices in the context of one's lifeworld. Development entails change across time, as part of growing up and growing older biologically, cognitively, linguistically, and socially. Change occurs with experience with writing, within evolving technologies, language, genres, social uses, and educational expectations. Development will register as a growing potential to use writing in a broadening array of significant situations and to reap its benefits and rewards.

Articulating a model of development requires us to become more explicit about all the dimensions of writing development, and therefore all the areas in which experience, knowledge, and motivation for writing must develop. Below we articulate eight principles that we agree on and that can inform a model of development.

1. Writing can develop across the lifespan as part of changing contexts.

Each individual's lived history influences writing development from earliest childhood through adulthood in the context of accumulating yet changing forms of engagement in families, communities, schools, and workplaces (Brandt, 2001), in different language communities and in multiple languages (Leki, Cumming, & Silva, 2008). The writing children encounter in their early years occurs within the communicative cultures of family and community. As young writers develop, their social worlds expand and so do the worlds in which their writing occurs. The earliest observations of others' writing from which the child may develop concepts of writing as a desirable and purposive activity often occur at home or in other intimate settings, through media made available in those local settings, or through adult-supervised forays into local social worlds. Early writing activities are likely to be in play settings, and early audiences are likely to be family, teachers, friends, or other community members who are predisposed to attribute meaning and intent to texts (Dyson, 1997, 2013; Heath, 1983; Moll, Amanti, Neff, & Gonzalez, 1992; Valdés, 1996).

At the most basic level, beginning writers learn that marks on the page can be intentional, and can represent meanings they or others wish to record. They learn how print can mediate their own activities and those of others in the current time and place as well as in future times and distant places. With experience, writers form understandings about the processes used to record written messages, including the ways writing is linked to their spoken language(s). Writers also form understandings of the purposes for which writing is used in different social situations, learning that social purposes shape writing forms and content and are expressed in an evolving set of written genres.

For those children who enter formal schooling, the institutional atmosphere, the teacher as primary audience, and the expectations for performance often become a primary context for writing development. As schooling continues, depending on the writing curriculum, socially diminished environments of examination by distant examiners may become influential social

contexts for writing development, constraining more local and more engaging writing activities. At the same time, the young writer may develop expanding writing experiences within the family, special interests, or the community. Each of these experiences provides specialized pathways for engaging with and practicing new genres, for confronting different kinds of cognitive, linguistic, motivational, and social demands, and for developing new forms of communicative relationships. For some writers, as their adolescent and adult social worlds expand into new professional, commercial, civic, and other affiliational contexts, so do the possibilities and exigencies for their writing development.

Through participating in varied social activities through writing, writers may develop multiple voices and identities that enable further participation in more specialized contexts (Compton-Lilly, 2014). Writing makes the writer visible within a group attentive to his or her texts, giving the writer an identity as part of the group, but also as an individual within the group, making a particular contribution from a particular standpoint (Royster, 2000). Effective writing makes what one wants to communicate visible, meaningful, and consequential to audiences, potentially affecting what happens within social groups and organizations and the actions they may take. In this way effective writing influences social processes. But social processes also influence writing development (Herrington & Curtis, 2000). As social groups change through the lifespan, the roles and identities the writer takes on through writing develop, along with the accompanying skills and stances. Writing to be perceived as a good student or as a budding intellectual or as a popular peer-group member in high school may be superseded by roles as creative writer, emerging professional, or political activist.

While schooling often highlights individual authorship and responsibility as part of the monitoring of each student's growth, even if collaborative projects are part of the pedagogy, once graduates enter professional or corporate worlds, writers' identity can become subsumed or even made anonymous within the groups' work. But even without specific authorial attribution, writers can reflexively come to understand their identities and roles by looking at what they have written, what they have contributed to group

goals, and how others have responded to or been influenced by their contribution. Writers can then use that knowledge to guide their further participation in the group, to build even stronger and more influential identities. Even in corporate settings where texts are not necessarily identified as coming from a particular author or group, still the perception of the contribution of each participant by co-workers and supervisors is important for the writer's future opportunities (Beaufort, 1999, 2007; Spinuzzi, 2008).

The growing body of texts that becomes part of each social grouping's resources and understandings forms the context of each new piece of writing, whether these are sacred texts and commentaries within religious communities, the research literature in an academic discipline, the regulations of a government agency, or the records of a school (Bazerman, 1999, 2013). These texts become part of an ongoing discussion, establishing an immediate rhetorical situation that any new piece of writing must address in order to influence the group's attitudes and actions. As writing develops within higher education and then career, the skills of intertextual representation and position become more intricate and more specialized by domain (Haas & Flower, 1988).

2. Writing development is complex because writing is complex.

When we appreciate all the "moving parts" that must be activated and orchestrated during acts of writing, we can understand why writing development is such a complex and multidimensional process. These moving parts include brains, muscles, intentions, language, and a range of intersubjective understandings, social coordinations, and cultural practices that must be integrated into an ongoing, meaning-making whole. Written texts embody the writer's goals and meanings in choices of language and other representational modalities. Readers, in turn, experience and make sense of a piece of writing through their own interpretive processes, filtered through their own knowledge, skills, dispositions, and purposes. Developing writers learn to anticipate and speak to the readers' interpretive processes in order to evoke the meanings they wish to communicate and the effects they wish to

have. Over time developing writers build up a repertoire of language knowledge and resources as well as other representational tools, and use those resources intentionally to achieve personal, social, or institutional ends, within specific situations and in response to circumstances. Each act of writing, whether individual or collaborative, is a unique performance, creating locally relevant meanings fitting the situation to achieve the writer's needs and purposes at an intersection of all these dimensions. This means that writing and learning to write are no simple things.

Writing is a complex achievement that involves brains interacting with social and physical environments (Berninger & Chanquoy, 2012). Writing develops as a result of nature-nurture interactions; brains do not cause writing development independent of environmental input, which in turn changes brain processing during writing. Multiple brain systems support writing development. These include (a) cognition and memory (short-term, working, and long-term); (b) multileveled language (subword, word, syntax, and text); (c) sensory and motor (eye, ear, hand, and mouth) capacities; (d) social, emotional, and motivational factors; and (f) attention and executive functions. These systems are engaged in different ways depending on the task at hand and the writer's individual and developmental differences; writing develops easily when the systems work together in concert, but when they do not writers may benefit from individually tailored, developmentally appropriate instruction (Berninger, 2015). Brain research is beginning to generate findings that are educationally relevant to writing instruction across development. For a recent review of brain research in early childhood, middle childhood, and adolescence, and instructionally relevant lessons from brain research, see James, Jao, and Berninger (2016).

Writing occurs in relation to experiences writers may think about and report on, whether they are part of daily life or the result of specialized investigations. Much of this work occurs in the mind of the writer, drawing on prior experiences with texts and meaning making, social relations, and communicative interaction, as well as on knowledge of the world, the topic, the purposes for writing, the different ways text can be structured, strategies and processes for regulating the writing process (including planning, monitoring, evaluating, and revising), and various motivational

dispositions and skills for translating and transcribing ideas into text. Often this mental work occurs in interaction with other people, with technologies used in composition, and with other texts seen as relevant to the current situation.

Written interactions communicate information, coordinate actions, share experiences and feelings, and form and enact relationships, though often at a temporal and spatial distance that makes it difficult to envision the people one is communicating with. The writer must understand, address, and align the reader to a common communicative situation. Because the social circumstances and social exigencies are less immediately visible in writing, the developing writer must understand them more fully in order to communicate appropriately and effectively. Using socially recognizable forms associated with particular social relationships and actions (that is, genres) helps orient both reader and writer to shared understandings and helps them make sense of the communication. Thus a developing writer needs not only to be familiar with a range of genres, but also must understand the associated social situations and goals; even more, the writer needs to make the genre relevantly meet specific needs in specific circumstances in a unique individual communication. Through this process writers are constantly changing genres, even calling on multiple genres to bring understandings of the interaction and communication to bear. These complex uses of genres require even greater understanding of them and their social structuring of events and purposes.

Writing is a complex semiotic achievement. While discussions of writing sometimes focus narrowly on print processes, writing almost always involves other modes of meaning making as well. Young writers often transgress boundaries between writing and other sign systems in unconventional ways, creating written texts that weave together print, talk, drama, gesture, art, and handling of objects. While in the past, the movement to print-only products was typically seen as a sign of increasing sophistication in writing (despite many examples of works that effectively mixed words and art), digital texts make more evident the potential of multimodality.

Writing is a culturally mediated achievement (Vygotsky, 1978, 1989), reflecting the interwoven effects of history, people, linguistic resources, and material contexts. Writing skill is often treated as adhering solely (and stably) in the individual and the performance of writing is often treated as emanating solely from the individual. But such a view obscures the vital and lively constitutive power that contexts play in conditioning, stabilizing, amplifying, or interfering with individual writing efforts. In actuality, writing is dynamic, a synergistic process engaging self and world.

To acknowledge writing as dynamic and distributed is to remember that it is a relational and cooperative achievement, constituted and sustained through inner and outer resources that depend on one another for success. The writing developments of the people born before us circulate in the form of tools, practices, artifacts, conventions, and dissemination systems—as what Cole (1998, p. 129) might call “partial solutions to frequently encountered problems,” there for appropriation, exploration, and innovation by new generations. As a cultural production, writing is a shared need and responsibility carried by a society and its members. Individual writing development will always bear the marks of larger arrangements by which the powers of writing are being harnessed as economic, political, and cultural assets (Duffy, 2007; Lorimer Leonard, 2013; Pritchard, 2016). Especially now, as writing is being pulled into economic productivity and global competition and as writing has become a predominant form of labor, many people’s writing development takes shape as an aspect of work, as a byproduct of the development of goods and services (Brandt, 2001, 2015).

Writing and writing development emerge, then, within the material, political, and social worlds that nurture, actualize, and exploit them. This dependency is what can make writing development fragile and contingent, linking it to patterns of educational, economic, and political inequality. Where a society is not cooperative with and generous toward a learner, development will be made more difficult.

3. Writing development is variable; there is no single path and no single endpoint.

Writing development is variable within all age cohorts, children through adults. Rather than following a lockstep series of stages in which one writing accomplishment gives way to the next, more sophisticated one, writers simultaneously use more and less sophisticated writing strategies as they respond to the needs of the task of the moment. This is due to the variability people experience in the social worlds they engage with, their different experiences of language development, the unequal distribution of power and status in society, and individual differences (Sternglass, 1997).

Variability in writing development arises in part from variability in our social worlds. People write in order to participate in socially organized activities in which they use literacy to assert their presence, needs, desires, or interests. Writers communicate with intimates at a distance, share stories, create aesthetic texts for their own pleasure, keep business records of production and sales, enter into contractual agreements, fulfill accountability obligations for government bureaucracies, argue for political ideals and actions, or engage in scientific inquiry (Dias, Freedman, Medway, & Paré, 1999; Dias & Paré, 2000). Even writing directed toward oneself, whether a shopping list or personal journal, uses social tools of communication. While in contemporary society there are some professions or social roles, such as creative writers or journalists, that are associated more prominently with writing, demands and opportunities for writing are both varied and widely distributed. Developmental trajectories for learning writing purposes, forms, and strategies are shaped by locally valued forms of writing and the variety of occasions for their use in the writer's social worlds. People are socially positioned in different ways to engage in these varied practices, contributing to varied trajectories of writing development (Beaufort, 1999).

The languages and language varieties used in social life across and within communities also vary. Some children grow up in households where they speak the same language and dialect used in schooling in the region, and their home language and literacy practices may enable them to move seamlessly into the literacy

practices of the school. However, many children speak dialects or languages that are not used for writing in school contexts, requiring that they learn a new language or language variety as they learn to write. In addition, they may engage in home and community literacy practices that are not made relevant by the school.

Because of the complex linguistic situations in many regions, the mobility of learners across linguistic borders, and the globalization of professional communication, learning to write at all levels through higher education and professional practice may be infused with the complexities, challenges, and advantages of multilingualism and multiliteracy. Bilingual, bidialectal, and multilingual learners bring a wider range of linguistic resources to the development of writing ability, and these resources can be recruited to support their writing development in a new language or variety. Experiences in multiple languages engender a more self-conscious awareness of language that can support a reflective attitude toward language and foster thoughtful writing choices. School systems may also foster the advantages of bidialectalism and bilingualism in the development of writing.

However, features of writing that present the writer's linguistic, ethnic, national, gender, and socioeconomic backgrounds can affect the writer's standing in literate communities. For some readers, these differences expressed through writing are recognized as points of connection, while for other readers, the same set of differences is alienating or stigmatizing. Writer identities are constructed in both personal writing genres and in less personal genres, such as manuscripts for academic journals. When features that construe identities are met with negative responses, writers are often pressed into difficult choices in their use of language resources that in turn may affect their standing in the various communities they belong to (Matsuda & Tardy, 2007; Tardy & Matsuda, 2009).

Variation in social processes and linguistic development results in differences in access to statuses and roles, in the authority of one's voice, and in the resources one has to participate, as these are often unequally distributed. Power to present one's interests, views, and knowledge through writing to various social groups depends on one's standing within the group. For example, a writer

must hold an official position or be formally invited to enter into a bureaucracy's policy discussion. Different participants will have different areas of credibility and will have different influences on the outcome. Wealth, credentials, and affiliations also influence the authority and range of one's credible statements, depending on attitudes in the ambient culture and institutions. Opportunities to have written voice in consequential social groups can motivate and provide direction for writing development, and ongoing success at being heard recursively provides further motivation. Inversely, the lack of consequential opportunity to be heard can dampen motivation and developmental processes. Poverty and other marginalizing social factors, although they may be overcome by individuals, may limit resources and developmental opportunities as well as create stigmatizing social attributions that affect writing development.

As any teacher can attest, writers bring different skills, interests, and approaches to writing tasks. While people share many common attributes, no two people are exactly alike. People vary biologically, genetically, and psychologically, and these differences are shaped, and sometimes accentuated, by variability in our social worlds. This variability is clearly reflected among and within writers (Rijlaarsdam et al., 2012). To illustrate, developing writers at a particular age differ in terms of their knowledge about writing, how they approach the task of writing, their views about their writing capabilities, the value they place on writing, and their facility with skills such as spelling, typing, handwriting, and sentence construction (Graham, 2006). Further, children who value writing and view themselves as capable are more likely to seek opportunities to write, whereas children who do not value it or are less positive about their capabilities are more likely to avoid writing. The amount of writing that children engage in affects the quality of what they write (Graham, McKeown, Kiuahara, & Harris, 2012). Individuals' developmental trajectories are also marked by normal variation in pacing and sequence of learning, and by both forward movement and "backward transitions" when writers use less sophisticated strategies in more difficult tasks or unfamiliar social situations (Rowe & Wilson, 2015).

Biological conditions such as congenital blindness or deafness change one's way of approaching language learning and one's

orientation toward written language (Berent, 1996; Albertini, 2008). Genetic and neurological differences, which underlie autism or specific learning disabilities such as dysgraphia (impaired handwriting), dyslexia (impaired word spelling), and oral and written language learning disability (OWL LD, impaired written syntax) (see Berninger, 2015), also affect developmental pathways in learning to write. Nevertheless, students who exhibit biologically based developmental or individual differences do respond to individually tailored instruction, especially if environmental variables due to socioeconomic, language, and cultural diversity are also taken into account.

There is also considerable variation within each writer. Just because a writer is particularly adept at writing within one genre (e.g., story writing) does not mean that he or she is equally adept at writing in another genre (Graham, Hebert, Sandbank, & Harris, 2016). Moreover, writers evidence considerable variability when writing within the same genre (Gearhart, Herman, Novak, & Wolf, 1995).

4. Writers develop in relation to the changing social needs, opportunities, resources, and technologies of their time and place.

Changes in the historical conditions of writing change what a writer needs to understand and make choices about. Writing from the beginning has been located within social practices and has evolved as society and its needs have changed. For example, one of the earlier uses of writing was to distribute laws widely throughout extended kingdoms, on stone-incised columns developed for that purpose. These public postings of the laws facilitated creation of large jurisdictions with common laws, which then in turn supported both the extension of empires and the rise of legal professionals to interpret the laws and argue for clients, leading to the invention of new genres, archives, and socially organized activities based on these documents (Goody, 1986). While writing in its earliest forms served limited social needs through a small number of genres, today writing is part of participating in wide

ranges of social practices and organized social activities from corporations to journalism, from science to social media, from civic participation to private trauma support groups (Bazerman, 2006).

The changing roles of writing in changing social configurations have used and fostered new communicative technologies, which then have made possible new social arrangements. Papyrus and parchment made easier the production of larger and more extended documents than ones incised on stone or clay; they also facilitated the collection and circulation of large numbers of documents. These material and symbolic advances fostered cultures of erudition as well as the rise of bureaucracies. The extended circulation and collection of more complex documents also required new symbolic devices for organizing texts and making them more intelligible, such as spacing between words and punctuation. Print and cheaper paper brought other changes to the social and symbolic aspects of writing (including book, chapter, and subheading titles), and the digital revolution is now creating new social arrangements and symbolic inventions for the writer to make sense of and act with, not only in the prominent emergence of social media with its new symbols of hashtags and emoticons, but in the way business, education, and even government and politics are transacted.

Writing tools also affect writers' composing processes. While in the past inscription most often involved writing by hand, today writers have access to a variety of text-entry tools. Writers type their texts using keyboards, swipe and pinch text on touchscreens, or orally dictate messages using voice-recognition software. Revision occurs differently using digital word-processing tools versus paper, pencil, and eraser (MacArthur & Graham, 1987; Hawisher, 1987). Technologies also facilitate interactive collaborative processes in composing, feedback, revision, and audience response, as well as change to temporalities of interaction and response. Technologies also are changing access to information in and around composing. Because technologies also facilitate new social arrangements and activities, mediated by new genres and use of multimedia, these provide new possibilities for meaningful and engaging composition.

5. The development of writing depends on the development, redirection, and specialized reconfiguring of general functions, processes, and tools.

Since writing systems were developed late in human history, writing makes use of cognitive, linguistic, social, and cultural capacities and conventions that evolved independently of writing. One implication of this is that many of the functions, processes, and tools relevant to writing are not specific to writing, but call for development, redirection, and specialized reconfiguration to be put into the service of writing.

To illustrate, writing development depends on the application of a broad array of cognitive capacities and processes that are applied to writing (Graham & Harris, 2011). These include attention, perception (vision, hearing), motoric systems, memory systems, learning, language, thinking, and executive functioning. Writing depends on learning how to apply and reshape these more basic systems so that they can be used to create text. For instance, writers learn how to transcribe ideas onto the page by developing and reconfiguring motoric skills into handwriting and keyboarding. Likewise, writers must learn to apply and redirect the process of executive functioning, so that they are able to deftly coordinate and regulate their goals and intentions and the constraints imposed by the writing topic, as well as the processes, knowledge, and skills involved in composing.

Similarly, language is reconfigured to facilitate writing and its development. Oral language is the foundation on which writing developed historically over time and on which writing develops in the individual, but the language of writing draws on different structures than speech to accomplish the purposes of writing across genres as learners engage with increasingly abstract knowledge. A simple example illustrates how oral language is reconfigured in the service of writing. While every speaker of a language uses nouns to talk about the world, as writers develop they learn to construct new kinds of noun structures, packing more information into nominal groups with embedded clauses and phrases (e.g., *he* → *the character in the story* → *the character*

who best represents the theme of friendship that the author develops throughout the novel). They also learn to repackage whole clauses as nominalizations that distill what has been written into a nominal group that enables the discourse to move forward. For example:

The researchers observed that students who had not participated in the intervention were less able to accomplish the task. This observation neglects to account for . . .

By distilling the prior clause into *this observation*, the writer is then able to evaluate the point. Writers also develop in their control of abstract nouns and expressions that enable them to represent experience as less contextualized and more general or universal, supporting the presentation of theoretical knowledge.

Growth in writing also calls for developing specialized cognitive skills, processes, and knowledge. Writers must master basic foundational skills such as spelling, punctuation/capitalization, and sentence construction, if their writing is to proceed fluidly and be fully accessible to their audiences. Additionally, they must refine general thinking skills so that these skills can be used for planning, monitoring, evaluating, and revising when writing (Graham, 2006), as well as developing specialized knowledge about different genres of writing (Donovan & Smolkin, 2006).

Writing is further influenced by the development, redirection, and reconfiguration of a variety of motivational dispositions (e.g., efficacy, values, and attributions). As writers develop, for example, they establish specific attitudes about their efficacy as writers, the value of writing in their own lives, and the reasons for their perceived writing successes and missteps. These writing-specific dispositions influence how they view themselves as writers, their effort and persistence when writing, and the quality of what they compose (Graham 2006).

It is notable that redirection and specialization pertain not only to syntax and cognition but to the social practices of writing as well. Just as an infant's hand gestures and coos will eventually differentiate into verbal greetings and adieus, a child's social engagements with family, friends, teachers, and others will be redirected and refined upon entry to written communication. Dyson

(1997) has demonstrated, for instance, how early grade school children can latch on to narrative writing as a “ticket to play” with classmates, as writing extends and refines their social drive for expression, aesthetic pleasure, recognition, and communion. Similarly, a young child’s one-word text or one-word label on a piece of artwork will later emerge as more elaborated forms of description and exposition (Chapman, 1994). In other words, the general human urges to express, to seek response, to mark and label—all basic functions of social life—will be reorganized and refined as children gain participatory experience in particular domains where writing serves a meaningful function. In fact, socialization models have been widely used to explain the growth of writing in the young adult college student, as he or she gains a deepening understanding of particular writing practices associated with disciplines or professions. In this research, attention is paid to how general strategies or approaches to argument or analysis become more rhetorically refined and specialized as experience builds on experience (e.g., Carroll, 2002). Others have observed how general academic writing practices learned in the classroom can be retooled and elaborated for more particularized projects of personal growth (e.g., Herrington & Curtis, 2000).

6. Writing and other forms of development have a reciprocal relation and mutual supporting relationships.

Writing development does not occur in a vacuum. It influences and is influenced by development in a variety of dimensions including speech, reading, learning, emotions, identity, politics, sense of efficacy, and collective actions, to provide a few examples.

Take for instance writing’s influence on learning and learning’s influence on writing. Writing about content material enhances learning (see meta-analyses by Bangert-Drowns, Hurley, & Wilkinson, 2004; Graham & Perin, 2007), and can do so in multiple ways (Klein, 1999). First, writers produce new knowledge and learning as they generate content by converting ideas to written texts and through that process develop new meanings and understandings. Second, as writers record ideas in text, they revisit

and review them, building on their ideas, making new connections, and constructing new inferences. Third, writing prompts students to recall genre schemata as they search for relevant knowledge and make new connections between ideas. Fourth, writers create new knowledge by setting rhetorical goals for their texts. As writers address those goals, they retrieve and organize their knowledge, leading to more elaborated understandings and ideas. Reciprocally, as students acquire more knowledge, this can be applied as they write. For example, writers generally produce better text when they know more about the topics they are writing about (Langer, 1986; Olinghouse, Graham, & Gillespie, 2015).

Similarly, writing and instruction in writing can improve how well one reads. To illustrate, when developing writers are taught about how texts are structured, how to write more complicated sentences, or how to spell words, there are corresponding improvements in their word reading, reading fluency, and reading-comprehension skills (Graham & Hebert, 2011). Similar kinds of gains have been observed in writing when reading is taught. This is not surprising, as reading and writing rely on common knowledge, skills, and processes. While writing facilitates reading development and reading facilitates writing development, the transfer is not strong enough to ensure that developing writers and readers learn all they need to know to become skilled writers and readers (Shanahan, 2016).

7. To understand how writing develops across the lifespan, educators need to recognize the different ways language resources can be used to present meaning in written text.

Language is the primary meaning-making resource we draw on to construe our experiences, enact social relationships, and structure texts, often with the assistance of other multimodal resources. Writing development calls for learning to use new language resources and to draw on familiar resources from spoken language in new and more conscious ways.

Oral language is the foundation on which writing developed historically and is also the foundation on which writing develops

in the individual. Children learn the language(s) of their communities in interaction with others in the contexts of living everyday life. The particular languages and facilities with language that a child develops are dependent on the experiences and social relations that the child has opportunities to engage in. Development of facility with spoken language is highly consequential for participation in social activities throughout our lives, including through writing. But because people are socially positioned in different ways, and have different life experiences, not all members of every speech community develop the same facility with all forms of spoken discourse. This is also true of written discourse.

Writing development is seldom unconscious and embedded in engaging in the activities of everyday life in the ways spoken language is. Instead, in learning to write, it is necessary for the learner to develop a more self-conscious perspective on language and new ways of drawing on language as a resource for meaning making. This is obvious in the learning of letter-sound correspondences and the formation of letters, but it is also true in other aspects of writing. Writing has a more limited set of modalities to draw on than does spoken language. It has no phonological realization, for example, with the rich set of intonational and rhythmic resources that speech offers, and a written text typically has no shared context of understanding, with the potential for gestures and joint attention to contribute to meaning. Instead, in the evolution of writing over time, other resources of language have been developed and elaborated to enable the functions that written text performs in a culture (Halliday & Martin, 1993).

The grammar of the written texts children encounter and need to learn to write in school differs in significant ways from the grammar of informal spoken interaction (Chafe, 1985; Halliday, 1987; Schleppegrell, 2001). We described above how the noun, as a linguistic resource, develops in its structure and potential for meaning as it is used in written language to construe more elaborated and abstract expression. Other language resources that developing writers learn to draw on in new ways include conjunctions that are uncommon in everyday speech (e.g., concessive *although*; consequential *therefore*) (Schleppegrell, 1996). Writers also need to develop ever-more-nuanced language resources for making judgments in authoritative ways. In responding to

literature in the later grades and through college writing, for example, students need to do more than present the affective responses of early childhood, learning to draw on language that enables them to evaluate the themes of a story or the craft of an author (Christie, 2012; MacDonald, 1994). Writing about the statements of others also requires new linguistic skills to represent their words and ideas efficiently, ethically, and purposefully to express nuanced evaluation and stance, and to synthesize and build on prior statements.

It is engagement in new practices that supports the development and use of new language resources in writing. For that reason, apprenticing students to new ways of writing and new genres requires that they become part of new communities where their participation has the potential to further contribute to shaping the ways language is used and new knowledge is developed. But research is also increasingly suggesting that explicit attention to language itself, drawing on a metalanguage for talking about language and meaning, can support writing development (Macken-Horarik & Morgan, 2011).

For most children learning to write in their mother tongues, writing can be a frustrating experience, as for many years their spoken language fluency runs far ahead of what they are able to do in writing. For people learning to write in a language that is learned later in life—as an adolescent or even as an adult—the new spoken language may be developing concurrently with writing. Developing a new language as adolescent or adult is not always spontaneous and effortless, and learning to write in an unfamiliar language presents additional challenges. Those who are literate in their first language can often transfer aspects of writing knowledge to writing in additional languages, but they also need to cope with differences in vocabulary and word usage, sentence structures, idiomatic phrases, and communicative norms and expectations. They also have to contend with different audience expectations regarding how ideas are organized, what counts as viable evidence, and how much information needs to be provided (Schleppegrell, 2002). Adults learning to write in a new language may also be under pressure to develop a high level of writing knowledge in academic and professional contexts while also coping with the challenge of learning and using the language

in less formal interaction. While writing in new languages can be stimulating and exciting for some, many second language writers also experience a sense of frustration because they are not always able to express their ideas as easily and as expertly as they can in the language repertoire they developed earlier in life.

8. Curriculum plays a significant formative role in writing development.

The technological, social, cognitive, and linguistic dimensions we have presented suggest that writing development is very much a function of the situations, practices, and communities one is exposed to and engages within, with very different trajectories of development depending on experiences. Since schooling forms such an important part of the literacy experiences within which one develops writing skills, it is important to understand the role of curriculum in writing development. Students will learn those genres, skills, and strategies with which they are given experience through their school, and are much less likely to learn those that the schools ignore, reject, or simply postpone for attention in later years. When differences in curriculum are large, it may even be impossible to map writing development in a uniform way that is valid across contexts: At least that was the conclusion that Alan Purves (1992) reached after ten years of involvement in the IEA cross-national study of writing achievement. Finding wide differences in topics, instructional emphases, time devoted to otherwise seemingly comparable tasks, and “taste” in evaluating final products, the IEA assessment was unable to make cross-national comparisons of writing achievement, as even the concept of achievement varied.

Within the United States, curriculum variations influence the writing skills that students develop. States differ, for example, in the specific writing genres included on high-stakes assessments (e.g., “critical lens” essay for English in New York State, “transactional” writing across subjects in Kentucky), in their emphasis on writing that requires analysis and synthesis across multiple texts, in their emphasis on writing about literature as opposed to writing about other subjects, and finally in whether they require

extended writing at all or rely instead on multiple-choice assessments (Applebee & Langer, 2013). What is assessed on state tests is likely to reflect what is taught and how, especially when high stakes are attached to assessment results, as they are in the present accountability environment (Hillocks, 2002; Jones, Jones, & Hargrove, 2003; Murphy, 2003; O'Neill, Murphy, Huot, & Williamson, 2006).

While curricula may vary widely, it is clear that writing in school subjects plays a central and critical role in students' writing development. Participating in the genres and discourses of disciplinary areas of schooling socializes students into a more formal, planned, authoritative, and technical "written mode" of language. In the Australian context, research on the writing children do in schools has led to contextualized linguistic descriptions of the ways children's spoken and written language develops over the years of schooling as they move from commonsense, everyday knowledge and familiar topics to less familiar and more abstract knowledge and topics in the disciplines they study in school. Christie (2012) has described this development in relation to age and the curriculum contexts in which children participate, and Christie and Derewianka (2008) have elaborated this understanding to describe writing development in different subject areas across the years of schooling. Such descriptions of writing development can usefully inform curriculum and assessment, as they provide trajectories of linguistic growth that are related to the genres with which students are expected to engage in school.

This statement has developed a view of writing as involving socially constituted tools, cognitive resources, motivational dispositions, and sets of language practices necessary to participate effectively in communities of practice, including those of the school. This enables us to see writing development as the ability to participate more effectively in the written genres of a wider range of communities of practice. Growth in writing, then, means access to more genres and more effective participation in a range of genres. This view of development calls for operationalizing writing development in new ways and developing new kinds of assessments.

If writing development is dependent on the curriculum that students encounter, the writing curriculum needs to support

learning in specific disciplines and for specific purposes. The best starting points for writing instruction, then, are in the communities of practice that children engage with as they learn school subjects across the grades. These communities of practice involve content knowledge as well as knowledge about audience and purpose. Even very young children need to learn to write through activities that support their learning more generally. Authentic curricular activities that build knowledge toward learning give substance and meaning to what students are writing, providing both a focus to write about and the contextual frames (textual, interpersonal, and ideational) that are necessary for successful writing in these contexts.

But if writing development is at least to some extent dependent on the curriculum that students encounter, it is also dependent on the students a curriculum encounters. A curriculum ignorant of the students it is encountering will be counterdevelopmental. As discussed above, students come to school with different experiences of the social interaction, strategic practices, and language forms relevant to the writing they are expected to do. Students who have been educated in different educational systems may bring different views of writing and of ways to develop writing knowledge. Each child brings experiences that can contribute to and shape new learning, and a writing curriculum needs to enable the participation of all voices and sharing of all experiences to contribute to the learning context.

Since writers develop in relation to the changing social needs, opportunities, resources, and technologies of their time and place, effective curricula will also require close attention to the changing cultural, social, and technological environments in which students live. Rapidly changing information and communication technologies and the new discourses and social practices they generate demand their own appropriate space in the curriculum. Curriculum for the development of new skills and strategies (new literacies or multiliteracies) is needed if students are to live engaged lives in today's online age of information and communication and take full advantage of the information resources and opportunities available (Leu, Kinzer, Coiro, Castek, & Henry, 2013).

Final Comments

The picture of lifespan development of writing abilities presented here is closely tied to the situations, technologies, opportunities, and experiences each person has. As individuals, from their own perspectives, goals, experiences, repertoires of practices, and skills, actively engage with new situations, they repurpose their cognitive resources, expand their processes of composing and revision, engage their prior histories of literate interactions, and develop task-specific language skills. Their relations with others grow and change along with their identities and thinking, as writing experiences develop along person-specific trajectories within socially organized activities. Because school is the place young people often engage writing most extensively and intensively, from early childhood through late adolescence and even early adulthood, the school curriculum will be influential on their texts, attitudes toward writing, language skills, social roles, and conceptions of writing. Beyond the regularities (and different patterns) in schooling, constraints on experience and development that might bring some similarity or regularity may come from neurological and motor development. Common social experiences, relations, and roles (including relations with caregivers) that people have an opportunity to engage in at different points in their lives may also bring some degree of regularity. The complexity of writing tasks, such that some accomplishments rest on other more basic ones, which once automatized allow the writer to engage larger issues and to exercise more complex executive control over more extensive and strategic processes, may also suggest some developmental sequences. But atypicality (whether neurological, psychological, social, or linguistic) can foster different patterns of development, amplified by different kinds of engagement with the other factors that might otherwise predict regularity.

The complex, multidimensional portrait of writing development presented here strongly suggests that writing education needs to be built on meaning making and effective communication, while addressing social, linguistic, cognitive, motivational, and technological dimensions of writing development. Each dimension requires time to mature and develop sophistication across many

experiences, but each writing experience brings all the dimensions together in a unified communicative event. This means that while teaching moments may direct focus to some specific aspect of one of the dimensions, all dimensions are always present, and students may find challenges coming from any of them at any time. Thus, for example, a difficulty in meeting a linguistic demand in a class activity may have its source in working memory or social understanding of the communication. A difficulty in developing a meaning may arise from lack of relevant linguistic resources, a lack of subject knowledge, anxieties about audience response, a difficulty in manipulating a new technology, or something else. Further, overall growth in writing abilities relies on development in each of the dimensions that are brought together in writing.

Because each of the dimensions takes time to develop, and then must be brought together in complex writing performances, learning to write takes many years. Every level of schooling makes new demands and requires new learning, so we should expect that students will not always immediately perform to the expectations within the new situation of each school level. We should not be too quick to blame prior teaching and learning, when the real issue is time to develop and unfamiliarity with new expectations. On the other hand, repeated negative educational experience with writing may preclude students' engagement in necessary developmental experiences and may create dispositions that interfere with later developmental opportunities. This makes good instruction and good understanding about writing development on the part of teachers of great importance.

Because of the complexity of writing and its long learning over many experiences, within the same classroom students may show varying strengths and weaknesses in different aspects of writing, varying control of different genres, different repertoires of expressive resources from varying language experiences, different motivations and purposes for writing, and unique meanings to express through writing. Because different individuals bring such variety to the task of learning to write, they may have very different trajectories of development across their lifespans.

For curriculum this calls for flexibility in design, so that the needs of individual students can be met. A lock-step, scripted approach in curriculum serves no one well. For assessment this

means there is a need to develop fair and authentic writing assessments that display the full range and variation of student writing development. A single test cannot show the range of a student's work nor his or her development as a writer. For teacher preparation and professional development programs this means there is a need to prepare teachers who know their subjects deeply, who know how to assess the spectrum of their students' abilities, and who know how to tailor appropriate instruction. This calls for specialized linguistic, rhetorical, and writing-process knowledge as well as pedagogical knowledge for apprenticing students into new discursive practices.

While there is research in some dimensions of writing at all the age levels, there is not adequate research in all the dimensions at all the levels. Further, at any age level, it is rare that all the dimensions are studied simultaneously within a writer's performance and development. Even more, there is very little research that moves across age levels. The dimensions of writing we have attempted to synthesize here draw on our current patchwork of research. We hope this statement will serve as a spur to further much-needed understanding and inquiry as well as provide guidance for policy and practice.

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