Waves of Literacy: Research Frames and Methods

The history of reading/literacy research (in terms of theoretical frames and methodology) is tantamount to a tour of epistemological developments over the last 150 years. The research has involved various groups, including anthropologists and historians interested in the role of literacy over time; sociologists interested in literacy's roles in societies; psycholinguists and sociolinguists interested in language and social development; psychologists delving into meaning making processes; critical theorists using a range of lenses to pursue socio-political analyses and change; and educators committed to meeting learners' needs and advancing their reading abilities.

Tracing these traditions entails sifting through studies involving positivism, post-positivism, post-structural, and various interpretive as well as critical frames (e.g., physiological, psychological, political, cultural, economic, and linguistic). It is a journey across disciplines, across the different faculties within universities, and across the diverse areas of study associated with the rise of not only education as a discipline, but also reading—and now literacy—as a major preoccupation of teaching and learning.

While modern incarnations of reading research have drawn from various traditions and movements, reading research was surely until the 1990s dominated by psychology, especially those branches of psychology with leanings toward behavioristic and positivist perspectives tied to observable and measurable tools. We would argue that, on the whole, it still leans in that direction, especially when including work published in psychology, child development, and medical fields as well as education. Since its origins at the turn of the last century (1900) and continuing into the present day, there has been a strong emphasis upon experimental and quasi-experimental work grounded in psychological frames. Granted, reading/literacy research has increasingly been challenged by successive waves of post-positivist/constructivist research and even more recently by sociocultural and sociopolitical frames. Indeed, in concert with the shifts in the nature of literacy demands and the politics of knowledge, the history of literacy research has experienced significant, revolutionary shifts. Research has changed as our literacies have expanded and become increasingly digital. Additionally, as researchers and theorists have responded to the challenges proffered by positivism and behaviorism—and to the shifts emanating from cognitive orientations, sociocultural and sociopolitical perspectives, our understandings of literacy have advanced.

Historical Snapshots

Snapshots of the history of literacy research over time can be found across a myriad of sources and scholarly analyses rooted in different traditions. In terms of reading and literacy,

overviews of this field of research are apparent in occasional historical analyses of key works and some of their antecedents. In the last century, these include historical markers of developments in psychological and pedagogical studies of reading, such as Edmund Burke Huey's 1908 book, *The Psychology and Pedagogy of Reading*, which many deem the first attempt at an account of reading research. Yet there also exists an array of other important syntheses, such as William S. Gray's 1956 review for UNESCO, *The Teaching of Reading and Writing*: *An International Survey*; the annual reviews that accompanied the *Reading Research Quarterly* which first appeared in the 1960s; and various research syntheses, such as edited handbooks and government-sponsored initiatives, focusing on theoretic models, theories of reading, and the gleaning of recommendations for practice.

Most recently, snapshots of the field have also included a number of bibliometric analyses of the journal articles found across key research journals in the field, which are now quite extensive. For example, a 2016 study by Parsons, Gallagher, and colleagues at George Mason University pursued analyses of the articles published between 2009 and 2014 in the nine leading reading research journals. The research team found that there were over 1,200 articles published during this period. Yet what does this mean in terms of overall research activity? If we factor in data on acceptance rates and other journals, the number of reading/literacy research studies is estimated to be over 1,000 studies every year. In terms of theoretical frames and methodologies, the dominant psychological orientation appears to persist, albeit mixed with social constructivism. In terms of methodology, experimentation tied to quantitative student assessments likewise dominates.

It is also interesting to note that the leading journals under review were all Western (mostly from the United States), drawing from Western theorists. In a follow-up examination of scholarship in literacy, Parsons et al. (2020) expanded the number and scope of the journals that were reviewed and the nature of the analyses itself—in part to afford comparisons between journals predominately intended for a researcher versus practitioner audience. Their findings reinforced some of what they had discerned earlier in terms of both the wide of range of topics and the enlistment of predominately socio-constructivist perspectives (where the frame could be identified). The journals intended for the research audience remained dominated by quantitative studies—although some journals did seem more eclectic—and focused upon topics such as decoding, phonemics and spelling. Practitioner and more hybrid journals were not so dominated by any one approach or limited set of issues. Their analyses suggested instead that there was some movement in the field away from the traditional comparative quantitative studies (i.e., those derived from the "simple view of reading" with its emphasis on decoding and assessing the effects of selected instructional approaches) to a more socio-cultural and critical literacies frame, using a mix of paradigms to highlight comprehension, multiple literacies, multilingualism, and writing.

Waves of Research and Methodological Developments in the Modern Period

As the research lenses enlisted by researchers and theorists have shifted, so our understandings of literacy have changed. For instance, the rise of constructivism coincided with the perceived failure of positivism to address complex issues in education—challenging the long-held behaviorist aversion to hypothesizing about unobservable mental structures (concepts and schemas) or delving into meanings that were neither fixed nor measurable (e.g., the layers of meaning making that shape and define the cultures of learning, and how learning develops). Social constructivism acknowledged subjectivities, perspectival and situated descriptions of interactions, and the importance of participatory research. This emerged alongside a growing recognition of the power of qualitative studies to address complexities and capture the interactions between language, culture and thought, within and across time and spaces, in multi-layered and a multi-perspectival fashion.

At the same time, there continues to be considerable debate about the merits of one paradigm over another, or the possibility of their complementarity (see Shavelson & Towne, 2002; Pearson, 2007, for example). At times, positivist researchers have characterized constructivist research as flawed due to its acknowledged subjectivity, selectivity, and approach. Indeed, some have vehemently opposed the use of findings from constructivist research to guide policy or practices. Other scholars, mostly in a post-positivist fashion (e.g., Phillips & Burbules, 2000; Popper, 1963), have accepted the clear differences in views of knowledge and science, as well as methodologies and findings—acknowledging the possibilities of the different contributions that might arise from a dialogue across approaches. Mostly, these scholars have appeared to do so by enlisting either a mix of methodologies or a kind of hybridization of approaches, while acknowledging the merits of findings from both paradigms and being restrained about their claims especially beyond the situation and nature of their studies. For these reasons, it should be stressed that the contrast in these approaches is rooted in epistemological differences—in positivism versus postpositivism (see https;//conjointly.com/kb/positivism-and-post-positivism/). It is not quantitative versus qualitative— nor does it entail empirical versus non-empirical or interventionist versus non-interventionist methodologies. Rather, this debate stems from how researchers position themselves and their research pursuits, in terms of reasoning and knowledge claims.

Frames of Inquiry

The waves of development in literacy education research represent shifts in the frames of reference that govern inquiry. While these frames do not have a one-to-one relationship with any

single wave, there has been a tendency to equate certain frames with certain waves (or a combination thereof). These different frames of reference befit what some might consider theoretical constructs, paradigms, or shared orientations—acting like cross currents with the various waves. At times, they align with some of the subdisciplines that exist within and across academic communities, such as cognition, sociolinguistics, sociology, socio-cultural studies, or critical theory—or with combinations, fusions, or subsets of these groups. In essence, these frames have an orientating function.

Foundational Period and Search for Best Method. The foundational period and the focused search for the best method that dominated reading research throughout the 1970s were aligned with a behavioristic orientation, emphasizing observable and measurable behavior. Accordingly, inquiry was tied to a form of hypothesis formation and testing, befitting a view that research should add to knowledge but in a manner that could be aggregated and generalized (i.e., without as much regard for contextual or situational differences). Research inquiries were based upon reviews of relevant studies en route to formulating hypotheses that might incrementally add or fill a gap. They enlisted carefully imposed selection procedures for subjects and often employed scripted and tightly-controlled interventions and outcome measures that were pre-set or tied to published tests.

Cognitive Wave. With the cognitive revolution, researchers shifted to investigations of reading processes and outcomes that were more discovery-oriented, involving real-world texts and situations rather than tightly constrained and engineered texts. For example, studies of reading comprehension often compared retellings of a few paragraphs with their own text analysis to judge reading performance, and enlisted probes (such as think-alouds and debriefings) to delve into meaning making processes. Rather than to simply account for an overall number of ideas recalled, category systems were developed to examine retellings more differentially. At times, efforts were made to assess background knowledge prior to reading in an effort to examine gains from reading. Other elements of the reading process were also examined—including predictions, perspectives, and how meanings are progressively refined—befitting cognitive views of meaning making. And, in an attempt to address developmental considerations, comparisons were often made between students of different ages or between those considered good readers and poorer readers.

Metacognition and Learning to Learn. With the advent of metacognition and learning how to learn, studies shifted to address the developmental concerns regarding how to advance comprehension abilities. More tangibly, researchers focused on transfer measures and delayed post-tests to assess whether or not there was evidence of independent strategic learning. Indeed, this wave

was responsible for raising the ante on research focused on comprehension, teaching, and learning—with the goal of addressing whether or not a reader's approach to learning was sustained over time and could be transferred or applied elsewhere. Such an aspiration distinguished this new wave of research from studies of learning adjuncts, which had successfully demonstrated that comprehension could be enhanced by strategies such as visualising, self-questioning, and notetaking, along with adjuncts such as previews, objectives, and teacher questioning. But this previous body of research on learning had not explored the transferability or sustainable impact of such adjuncts with regard to reading.

The metacognitive and learning to learn wave also shifted the venue for research and the researchers themselves. Interest in learning to learn corresponded with a shift from predominately laboratory-based research to classroom-based research, as well as a need for scholars who were comfortable negotiating the complexities of classrooms. It was as if there was an implicit call for scholars who were educators—often teacher educators experienced in the practices of classrooms—who could collaborate with classroom teachers. Increasingly, the learning to learn forms of inquiry required more a form of design research. Alongside formative pursuits that adjusted and customized research for classroom venues, these forms of inquiry also afforded an approach to research modelled after time-series and single-subject research, where the unit might be an individual, a group or class. The studies themselves explored different forms of scaffolds for learning—from reciprocal teaching to the gradual release of responsibility to problem-based learning—as well as ways to track developments, including the acuity of instructional implementation and learning over time. They cast a wider net for capturing learning, including taped sessions, interviews, observations, and discourse analyses. Integral to this research were comprehension strategies that readers might apply—often in the form of heuristics that students would find relevant and were anchored in cognitive theory as well as semantic, pragmatic, and structural studies of discourse processing. Strategies such as KWL (What do you know? What do you want to learn? What did you learn?) and text mapping, as well as numerous other heuristics, were developed for students to learn and apply to their reading.

Social Wave. To some extent, the increased emphasis upon classroom-based research warranted a demand for frames for exploring the social nature of reading. With the social turn, researchers explored the social nature of reading as a complement to cognitive considerations. But they also made the shift to the study of literacy practices. To do so, researchers expanded the range of frames for studying literacy practices and events (e.g., drawing from sociology, sociolinguistics, and anthropology). Such pursuits often involved exploring language samples such as conversations and student interactions with peers, teachers, and parents, or language samples as well as the researcher's notes, videos, and audio recordings. The frames for examining these transactions involved different

lenses by which social dimensions might be illuminated. These frames and studies detailed a range of social aspects, including: 1) Who is initiating what, and for whom, when, and where; 2) How readers engage; 3) The norms and conventions of interactions over time; and 4) The pragmatics of communications, or the ebb and flow of ideas and argumentation from a dialogical perspective. Such explorations were pursued at a macro level, focused on the overall system, as well as on a micro-level, exploring the interactions between students and the engagements of learners in the moment or over time. Research frames informing the scope of study relative to participants and methodologies typically required thick descriptions of the participants and their engagements, alongside transcripts and details of observations (consistent with what might be considered a case study orientation). With the social wave, therefore, researchers enlisted observations that extended beyond reading per se to examinations of the fabric and texture of literacy practices. The social wave laid the foundation for current approaches to the study of literacy (e.g., examining literacy initiatives) that are guided by socio-cultural perspectives and more aligned with situational considerations. As we noted earlier, these are perhaps the most dominant frames in literacy inquiry today.

Reading-Writing Relationships. The wave involving reading-writing relationships helped define the shift to literacy as involving an amalgamation, or interweaving, of reading, writing, and other modes of expression or representation. While some pursuits within this wave enlisted frames tied to traditional research approaches (e.g., correlational studies of the relationship between reading and writing achievement and their components), there was certainly a cross-fertilization of frames. In particular, reading researchers drew from frames in writing research, using process-oriented writing studies and rhetorical studies to inform reading studies. It was as if the advent of reading-writing relationships signalled a shift to multimodal, multilayered studies of literacy. Researchers unpacked think-alouds, debriefings, and various forms of analyses as they shifted to tracing the inner workings of the minds of literacy learners over time. Introspective pursuits of thought processes, readers' and writers' intents, and a range of forms of engagement (e.g., verbal, imageful and vicarious) began to be explored. Changes in understandings and perspectives shifted to case study-like, multilayered forms of inquiry. The frames for doing so often drew upon lenses that unpacked literacy practices as ongoing learning engagements, amalgamating theoretical orientations (such as studies of pragmatics, rhetoric, positionality and identity, complex knowledge acquisition, semiotics and notions of transmediation) to explore possible convergences that might arise.

The Critical Wave. The critical wave signalled a shift to political considerations, befitting a socio-cultural-political lens. This move aligned with frames that were oriented to transformative change, activism, and participatory pursuits, and concerned with matters of hegemony and inequities,

marginalization and discrimination. The frames for critical inquiry emanated from sociological examinations of education informed by socialist tenets (elucidated by South American scholars such as Freire; European scholars such as Bernstein, Karl Marx, Hegel, Gadamer, Gramsci, Foucault and Bourdieu; and disciples of their work in the United States and Australia such as Michael Apple, Elizabeth Ellsworth, Henry Giroux, bell hooks, Patti Lather, Allan Luke, Bromwyn Davies, Barbara Comber, Joel Spring and Peter McLaren). They examined the power systems inherent within and across institutions, particularly in terms of how these systems control the flow of ideas, capital and privilege. They had key links to and became intertwined with the socio-cultural developments of the time. They fueled interrogations and illuminations of how systemic racism, sexism, classism and ethnocentrism are embedded within and fueled by certain literacy practices in schooling and in research pursuits. While critical theorists were quite eclectic in their research approaches—pursuing a range of studies that might be deemed quantitative and qualitative—they also seeded approaches to literacy research that had emancipatory goals, conducted within a code of ethics aligned with collaborative and democratic participatory tenets as well as those of advocacy. Reflective practice and teacher-researcher collaborations also aligned with and emerged from critical theoretic developments, along with studies exploring agency and empowerment, resistance, and transformational change. Indeed, key to this shift in frame was a shift in the role of the researcher— from objective detached investigator to critically-reflexive advocate, ally, agent, and activist.

Assessment Shifts. Interest in empowerment and agency also spurred interrogations and developments in the area of evaluation. These included a focus upon the literacy assessment regimen, prompting extensive critiques of assessments in terms of their perpetuation of inequity, racism, and privilege, and their regressive effects upon classroom literacy practices. At the same time, this shift in focus prompted the advancement of assessment alternatives befitting constructivist research tenets— especially assessments that were more situated and diverse rather than standardized and uniform. Authenticity became the hallmark for alternatives that included various forms of classroom-based assessment practices (e.g., portfolios and rubrics, observational records, and performance assessments). These assessment alternatives were seen as prompting changes in validity and reliability considerations as well as significant changes in the engagement of learners and teachers as partners in the assessment process. The carry-over to scholarship was not insignificant, as the rash of new assessments afforded scholars new possibilities for observing, tracking, and evaluating literacy processes and outcomes in tandem with or instead of past standardized measures (which often failed to capture the foci or possibilities being explored). The reform era intervened and to some extent subdued these developments, but certainly not entirely—especially as mixed methods, activist

research, and other approaches were pursued in ways that called for a range of assessments that could track a broad array of change.

The Era of Reform. The era of reform contributed to two developments that arguably reflected a regression to a behavioristic orientation to assessment, increasing the value of traditional positivist research and forms of accountability tied to more top-down, uniform high-stakes testing. National and international tests were viewed as providing indicators of educational progress and accountability, thereby stipulating "best practices." Accordingly, the imposition of national standards was seen as both essential and necessary to ensure reading improvements. Standards became the backbone of the regulatory systems of government for education and served as the basis for dictums for research. Predictably, these developments fostered an orientation to research that represented a return to hypothesis testing and quantitative pursuits—at least, in terms of what was officially sanctioned and often funded. While such frames maintain significant leverage, they are now more often supplemented with analyses involving socio-cultural considerations. A compromise or escape from standardization has oftentimes been achieved by research incorporating various forms of mixed methods—especially studies that combine large-scale quantitative analyses with case studies involving a mix of different perspectives.

Digital Wave. The digital wave represents a major shift in the frames researchers enlist in literacy—more akin to a tsunami than a wave. The digital turn has and continues to redefine our forms of literacy as well as our engagements in literacy practices, whether they be for social, political, economic or other purposes. Our digital engagements are occurring in ways that are more formative that pre-set and more mangled and complex than neat and straightforward. To date, the frames for inquiry into digital literacy represent a conglomeration of lenses that draw upon (either separately or in combination) cognitive and social frames, semiotics, mobility studies, materialism, studies of cultural practices, critical literacy, media studies, and historical and political analyses. Digital inquiries also provide tools that are "built-in" to examine (either broadly or at the micro-level) interactions, networks, and formations over time and space, including their residual effects and traction. They can provide platforms that support criticality and ethics. While our research world now enlists the changing digital nature of our literacies as artifacts or potential sources for examination, the digital world at the same time is increasingly becoming our research world.

Global Developments. Global developments represent a shift to global frames, including comparative studies across places; benchmarking initiatives; judgments of oneself among others; and global studies that consider literacies as tied to a host of planetary perspectives. The essential nature

of global research is multiperspectival (across time, place, societies, communities and persons) and entwined with matters of mobility, migration, trade, imperialism, assimilation, appropriation, and forms of nationalism. It is an area of study with vexing issues, especially with regard to postcolonial critiques that confront ethnocentrism and advocate for decolonization. It shifts the focus of literacy to reading in ways that interrupt traditional considerations of ways of knowing, advocacies, and allyships, and forces researchers to unpack, reorient, and redefine their reflexivity. It is a space for which there is no single map, and in which paradoxes abound. As researchers address societal imbalances, they must simultaneously acknowledge the importance of diversities, engendering respect for differences in ways that are multivocal and not monolithic or appropriating.

Some of the Methodological Waves

Across time, certain methodologies have predominated—beginning with an emphasis upon correlational studies that later merged somewhat with quasi-experimental investigations and multiple correlational approaches. While these persist, in the late 1900s a wave of socio-cultural-political perspectives surged, in tandem with qualitative, formative, and design-based research as well as studies seeking transformative change.

Correlational Studies. Dating back to the advent of psychology in the 1850s, the 1950s and 1960s saw a preoccupation with measurement, which gained momentum with a proliferation of tests designed to measure reading and other abilities. In turn, these tests spurred a large number of correlational studies examining the interrelationships among variables, such as comparing measures of student or teacher variables with measures of achievement to emphasize their relationship and interdependency. While some studies focused on predictors of early reading development, others focused on reading comprehension and predictors (e.g., intelligence and vocabulary). Still others focused on broader teacher and student variables, such as years of experience, teacher knowledge, or the relationship between classroom engagements and achievement. Take, if you will, some of the analyses tied to the report of the Coordinating Center of the Cooperative Research Program in First-Grade Reading Instruction in the 1960s. Though coordinated by Guy Bond and Robert Dykstra, these analyses involved a number of the world's leading researchers—all in search of the best method of teaching beginning reading. As shown in Table IV.1a.1, Bond and Dykstra (1967) reported a number of correlations to achievement between different measures across different beginning reading approaches. In turn, befitting this finding and findings from other correlational studies, the strength of the interrelationship between letter names and reading words propelled emphases on teaching letter names and phonemes for a phonics-based approach.

Table IV.1a.1.

The Cooperative First Grade Studies:
Summary of Correlations between Key Pre-Measures and the Stanford Paragraph Meaning
Test for Each of the Six Treatments

Measures	Basal	Initial teaching alphabet	Basal + phonics	Language Experience	Linguistic	Phonic / Linguistic
Murphy Durrell phonemes	.46	.53	.52	.41	.50	.57
Murphy Durrell Letters	.52	.58	.55	.51	.55	.59
Metropolitan Word meaning	.30	.38	.44	.19	.27	.32
Metropolitan listening	.23	.29	.38	.18	.27	.33
Pitner-Cunningham Intelligence Test	.42	.52	.56	.43	.48	.52

(Source: Bond and Dykstra, 1967)

In accordance with the emerging concern that the teacher variable was key, studies then began to focus on measuring teacher and student behavior. The preoccupation with correlational analyses examining interrelationships between teacher and student behaviors and performance especially increased in the 1970s. Synthesizing a host of studies examining teachers and reading achievement, Rosenshine and Stephens (1984) repeatedly found that some variables seemed positively related to test performance. This included the amount of academic content covered, which correlated between .40 and .70, and a strong relationship between student engagement in academic activities (between .30 and .40). (A simple correlation, if squared, gives the measure of the shared variance. For further discussions of graphing, see http://mste.illinois.edu/courses/ci330ms/youtsey/scatterinfo.html).

Of course, correlational analyses do not confirm causality. But the strength of these relationships has traditionally prompted speculation about the possibility of one variable's influence upon another. Correlational studies went hand in hand, or were often followed by, experimental studies wrestling with causation—setting up comparisons with which one might be able to argue that a difference was due to isolable differences between a treatment and a comparison group. Unfortunately, most comparison groups were not purely one group or the other, and studies enlisting random assignments of individuals to groups for purposes of comparisons were not without their

problems. For example, as the next section discusses, random assignments were often an awkward imposition upon classrooms, and randomness was no assurance that differences did not exist across groups. Nonetheless, the research did offer some insights—simply as a result of pursuing the endeavor or attempting to explain the results.

Quasi-Experimental Comparative Studies of Treatments. Comparisons based on systematic comparisons (via the random assignment of subjects to conditions) were perceived by some as the aspirational gold standard for educational endeavors. The dilemma with such comparisons, however, is that they may not be feasible to set up and, if established, tend to reflect rarified circumstances.

For example, unlike laboratory scientists, educational researchers engage in "real world" contexts that require them to both factor in and contend with a myriad of matters tied to situation-specific issues. Most studies in education therefore demand a careful crafting to local circumstances and depend upon the access researchers are able to negotiate (likely entailing promises of non-obtrusiveness). If you wanted to compare students who received intensive decoding instruction with those who received a meaning-centered orientation, the reality is that it is difficult to have such a random assignment of students or teachers. While students are usually pre-assigned to classes by schools and teachers, teachers normally cannot teach more than one class as well as be expected to employ different preset approaches set up for systematic comparisons. At a minimum, the fidelity to what normally occurs in the classroom in different ways might need to be checked. At the same time, the progress across the range of student learning would need to be monitored—especially with regard to abilities and experiences.

Apart from negotiating arrangements with school personnel, there are other matters to address, such as plans for ongoing data collection. Initially, most researchers conducting comparative studies enlisted standardized tests—until they recognized how insensitive such tests were to measuring changes, especially if developments were subtle. So, they shifted to assessments focused on what was being taught and pursued in the classroom. There are also other measures (e.g., delayed post-tests, transfer measures) researchers have considered as they have become increasingly focused upon whether or not students retain what was taught, sustain strategies and skills, and are able to transfer newfound abilities to other reading or learning situations.

Once the data are collected, further consideration needs to be given to analyses. Assuming the data are in the form of interval data, a researcher might pursue a simple t-test for comparing groups on measures, or an analysis of variance, which can extend the comparison of groups across time and other variables, such as ability. Typically, researchers look for significant differences, usually at the .05 or .01 level, so that they can say that the groups are likely to be different with a level of

confidence of approximately 95 or 99 percent. If the researcher finds that there are *interaction effects* (e.g., significant ability by treatment effects), the story of the differences would include a discussion of how the effects vary by the treatment and the variable (e.g., ability). Researchers may find that the effects are not interactional but rather consistent, regardless of ability.

Shift to More Formative Studies. While quasi-experimental studies, and to a lesser extent randomized experiments, were common in the 1950s and 1960s (and are still pursued today), many researchers have shifted to approaches that are more fluid. Operating under the label of either design experiments (Bannan-Ritland, 2003) or formative experiments a common approach now resembles more of a formative study that proceeds in a fashion not unlike an iterative time series of successive refinements toward the goal of achieving a new approach to teaching something like a strategy for solving a problem or a new approach to dialogical collaborative reasoning. More current studies also enlist an array of measures in the hopes of: 1) Observing concurrent evidence of change (including changes in student strategies as revealed through introspective techniques, such as think-alouds, etc.); and 2) Assessing how and to what extent students have changed independently and across situations. As the data may involve both interval measures and frequency data tied to categorical analyses, there is a need for both parametric and non-parametric analyses.

In studies of the effectiveness of reading strategies, for example, comparisons might involve slight variations of the strategies and comparisons to a control group. These might include: pre- and post- measures, plus ongoing measures of learning during and after the intervention; a pedagogical protocol (involving teacher or student explanations, explorations, practices, etc.); explorations of the differences that occur across students of varying abilities or backgrounds; analyses to assess the effects of treatments over time and texts and across students of different abilities; a consideration of convergences (e.g., the relationship between think-alouds and classroom performance with the results of the measures); and a positioning of findings as *situated*—that is, representing findings as demonstrations rather than prescribed generalizations dependent upon similarities in circumstances. In addition, studies have been likely to measure up to the theories that they espouse. In studies of reading comprehension, for instance, measures of the reader's prior knowledge became commonplace as a schema theoretic orientation became dominant. Then, as metacognition and learning to learn undergirded pursuit of strategy research, studies began to include multiple measures of effects, including some focused on transfer and on sustained, delayed, or generalized learning.

Qualitatively-Oriented Research, Design-Based Studies, and Mixed Methods. As positivist approaches failed to address more complex classroom dynamics along with a myriad of other facets to which researchers were attracted, many researchers began to shift to less constrained

qualitative analyses. Interests in qualitatively-oriented research, or mixed methods, also occurred as research interests shifted to studies of language development (e.g., literacy acquisition), reading-writing connections (e.g., studies of comprehension and composing), and the social dynamics of learning. These shifts seemed to initiate a period of discovery involving more intense, extensive, and creative observations and data that befit the research goals of understanding the ongoing meaning making of readers and writers and capturing emergent possibilities. Recalls, retellings, think-alouds, and a host of different observation and probing techniques were pursued. As these were mostly open-ended, they demanded that researchers be contemplative and discerning about how to view, analyze, code, and represent the data. Certainly, one might have counted some of the variables, but the open-ended data often offered much more. Pre-determined measures were replaced with approaches that might afford deeper and more complex considerations of meaning making. Among the treasure trove of approaches were case studies of young learners as parents and educators pursued longitudinal studies of reading and writing development (e.g. (Chomsky, 1969; Dyson, 1988; Ferreiro & Teberosky, 1982; Harste, Woodward, & Burke, 1984; King, Rentel, Pappas, Pettegrew, & Zutell, 1981; Teale, & Sulzby, 1986). They highlighted the socio-cognitive and linguistic prowess exhibited by learners as they negotiate and appropriate various literacies to meet their needs and expand their worlds (See Side Comment IV.1a.1).

Side Comment IV.1a.1.

Longitudinal and Case Studies

Longitudinal Studies. *Longitudinal studies of literacy have proven themselves key to understanding development—moving research away from speculating about changes to tracing changes across time. As researchers attest, they glean insights from longitudinal studies that studies simply comparing learners across ability level or ages will not provide or might indeed misconstrue. Longitudinal studies involve an extended commitment to close observations of learners over time, enlisting appropriate and specific lenses and samplings of behavior as well as different artifacts and measures to repeatedly do so (for purposes of comparison). They can involve measures and data for the same student or students over time and in ways that afford legitimate comparability. Such pursuits are not straightforward and require a major investment. However, the returns can be immense and offer new insights to the nature of development. Certainly, the field of literacy has been enriched significantly by breakthroughs from such studies across the ages—from studies of language acquisition and early reading and writing development to reading to learn and more advanced literacy development. Longitudinal studies of reading development across the elementary grades, for instance, have highlighted the advantages of a meaning-centered approach over a code emphasis as students move beyond the third grade and suggested flaws in Chall's stages of reading..*

Case Studies. *Case studies are increasingly enlisted as stand-alone studies or as complements to multifaceted pursuits. They are opportunities to engage in studies of one or more individuals or a group or groups to either provide illustrations, demonstrations, or perhaps to generate hypotheses or check on existing and looming possible generalizations. They often incorporate descriptive details and observations in an effort to portray a learner in different circumstances en route to suggesting a possible frame of reference against which the learner might be profiled. As such, case studies might be used simply to detail the situational-specific characteristics of a learner. Alternatively, they can be used in a fashion that befits more emergent formulations of themes or frames that might connect elements of the case.*

The approach to case studies requires a reiterative style of progressive refinement while enlisting social, cultural, linguistic, historical, political, and material considerations across time and space. It entails foregrounding context-specific elements and providing background information so that one can discern the forest from the trees. While case studies can focus upon or incorporate data or measures including survey data, most case studies tend to be qualitative and pursue descriptive detail. At times they are coupled with other methods as they serve to spur or confirm other studies. In literacy research, case studies of learners, classrooms, and communities are commonplace—following exemplars that enlist socio-linguistic or socio-constructivist frames to guide both observations and analyses. These exemplars include studies by Ann Haas Dyson (e.g., Dyson, 1988), Douglas Hartman (1995) and Victoria Purcell-Gates and her colleagues (Purcell-Gates, Perry, & Briseño, 2011).

In contrast to enlisting a positivistic approach, researchers also became more interested in subjectivities and demonstrations of learning than in objectivity and generalizability. Essentially, research shifted toward participatory, introspective, and explorative approaches, rather than aiming

for objective and definitive results. Increasingly, quasi-experimental work included observational studies enlisting qualitative tools, formative approaches, and measures, such as retellings, think-alouds, or debriefings. Consultation with participants was thus seen as clarifying—correcting results rather than confounding or corrupting them. Retellings involved extensive analyses of what appeared to be explicit recall as well as researcher inferences and were often followed by debriefings with the students (see Side Comment IV. 1.2).

> **Side Comment IV.1a.2.**
> ### *Debriefings: Rob's comments*
> *In my own work, debriefings proved invaluable. I would tell the students what I was exploring and then ask them for feedback. Their feedback was rich and illuminating. For example, in one study with Taffy Raphael (Raphel & Tierney, 1981), we presented some readers (identified as not-as-able readers when compared with others) with passages in which errors had been inserted (i.e., words or phrases that did not make sense in terms of the meaning). These readers did not appear to notice the errors as they read or recalled the text; however, once we debriefed them, they pointed out where they noticed the inserted errors. In another study with colleagues looking at the effects of writing and writing on critical thinking, such debriefings afforded corroboration that substantiated the key findings that reading and writing together contributed to thinking critically (Tierney, Soter, O'Flahavan and McGinley, 1989).*

Essentially, then, as scholars endeavored to delve into the role and nature of literacy within a socio-cultural frame, they found themselves shifting paradigmatically. Observational engagements and conversations with readers and writers as they read and wrote enabled researchers to witness and, in turn, depict the layers of social negotiations and transactions within learners' heads and on paper—demonstrating the union of social networks with meaning making processes and products over time. The raw research material involved detailed observations, which sometimes were dependent upon video or recorded data, classroom artifacts, and researcher observations. And, despite the modest numbers of students being observed, there was a massive amount of data.

It is important to recognize that this shift in methodology encompassed a change in the knowledge claims that emanated from these pursuits. A constructivist approach is not driven to confirm, but to understand, to postulate, and to discover. Researchers' knowledge and critical reflections are key factors as they interact with participants and share observations, discernments and, in select cases, notes. Certainly, reliability and validity still matter, but they take different forms. The reliability of data is evidenced by the verifiable, concrete manner of data presentation.[1] The validity

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[1] There is an important distinction in measurement between nominal and ordinal data—depending on whether it is categorical or comparative in terms of magnitude or degree. The nature of the classificatory scheme should be presented in a manner grounded in how it is collected and verified by participations and how they might be analyzed. One might find differences in perspective relative to weight, their discreteness and interrelationship, and validity, as well as the reliability of informed rubric scorers.

of data is tied to usability rather than generalizability and relies upon the extent to which the data can be explained and results transferable to other settings.

That is not to say that there is no analysis; there is, rather, an inductively-oriented form of reasoning with constructivist and phenomenological approaches Furthermore, there is a different approach to interpretation as different frames and lenses applied to the data function hand in hand with attempts to discern themes. In conjunction with discerning trends and themes, the onus of responsibility is upon the research to account for the data quite fully. At times, these interpretations lend themselves to examinations of the data via forms of abduction and transmediation—such as enlisting art, narrative, or poetry as a way of uncovering previously undisclosed meanings or interpretations (e.g., Irwin, 2008; Irwin & Springgay, 2008; Leggo, 2008; Norman, 2008; Springgay, 2008; Van Maanen, 1988). Some scholars prefer to view interpretivism as integral to going beyond phenomenology (e.g., Finlay, 2009)[2]

Mixed Methods, Model-Building, and Path Analysis. Nowadays, a large number of studies incorporate a blend of the aforementioned approaches—combining observations and quantitative analyses with follow-up probes, and a mix of focused comparisons of quantitative and qualitative data. In the hopes of determining the relationship between variables based upon their shared variances, model-building has become increasingly common. Building upon multiple correlations between variables and their interrelationships with one another, researchers have subjected data from their studies or data accessible in data repositories (e.g., national and state tests and surveys) to a range of multivariate analyses as a means of suggesting how salient variables are related to one another (in a fashion akin to creating what has been described as path models). Oftentimes these models depicting the constellation are then checked for their applicability, with a closer look at the interplay of variables through case studies or other forms of scrutiny. For example, if researchers were interested in how reading and writing are related to other measures, such as science and math ability and critical thinking, they might examine the data from a national pool and generate correlations—looking for the best fit between those variables. In the end, they might develop a path

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[2] In this interpretive vein, according to Finlay (2009):

> Van Maanen (1990) suggests that when description is mediated by expression, including nonverbal aspects, action, artwork, or text, a stronger element of interpretation is involved. However, drawing on Gadamer's ideas, he distinguishes between interpretation as pointing to something (interpretation suited to phenomenological description) and interpretation as pointing out the meaning of something by imposing an external framework (such as when offering a psychoanalytic interpretation). Ricoeur has made a similar distinction between the "hermeneutics of meaning-recollection" which, he says, aims for greater understanding of the thing to be analyzed in its own terms, where meanings are brought out and the "hermeneutics of suspicion," which involves deeper interpretations needed to challenge surface accounts (Ricoeur, 1970). (p. 11)

model indicating the interrelationships that best coincide with accounting for their shared variances or intercorrelations (Figure IV.1a.1).

Figure IV.1a.1.
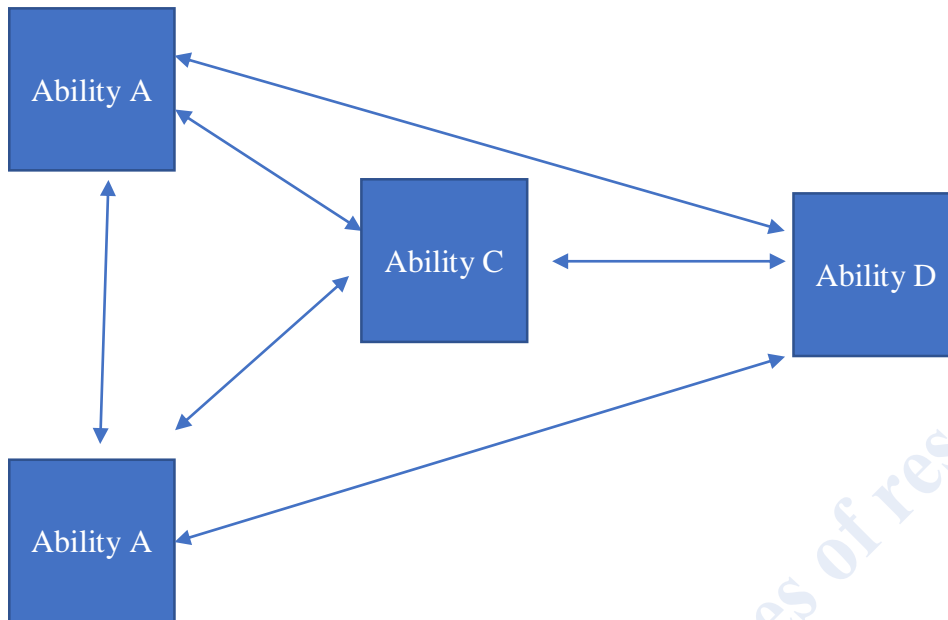
Consistent with a mixed methods approach, a follow-up or verification of the model would be pursued with perhaps case studies to examine how these abilities work together for different students in different situations. Essentially, the follow-up serves two purposes: 1) To check whether or not the model represents a reasonable fit across different cases or circumstances; and 2) To provide a more complex description of the relationship between the variables, at times highlighting the limitations and possible applications of the mathematically-derived path model.

Perhaps not dissimilar are models that pull together the interrelationships between variables. These are enlisted in attempts at syntheses or meta-analyses—when researchers look across studies in an effort to extract common tendencies or common effects of different practices across the different populations studied to date. This could include studies examining class size and its relationship to learning, different organizational structures within school, or the overall efficacy of different approaches to teaching and learning. Or, a researcher might gather together a substantial corpus of studies exploring culturally responsive pedagogy and its effects on attitudes, values, etc. They might look to see if they could reasonably draw trends in the effects across studies to declare the overall worth of these practices. During a period of reform tied to mandating best practices and evidence-based approaches, educators often defaulted to such studies to guide their advocacy of certain reforms, with a number of researchers garnering reputations for such pursuits (e.g., Hattie, 2008; Herbert Marsh, Martin & Hau, 2006).

Classroom-based Mixed Methods. Oftentimes, classroom-based research follows other pathways (e.g., from close study to larger studies). For example, we have been involved in a host of studies with antecedents in observational work that also made an effort to look at different interventions. While observational work has been key to unpacking some of the dimensions and their relationships to one another, sometimes follow-up interventions have enabled a check on or closer look at some of the dimensions that seemed salient. For example, following exploratory work on the viability of the use of portfolios, Rob was engaged in a number of follow up studies. In one study, in response to a large school district's effort to initiate portfolio use as well as monitor its implementation and influences, Rob set up a study comparing portfolio use across classrooms over time. By implementing a staggered start approach, we were able to engage with and compare classrooms initiating portfolio use with those classrooms that had yet to enlist them (Tierney, Carter, & Desai, 1991). Later he extended this work to studies of student-led conferencing. Similarly, Rob and his colleagues followed up their work on reading and writing working together. Following extensive and intensive observations that involved following and talking with students as they engaged in reading and writing projects, Rob and his colleagues engaged in a quasi-experimental pursuit to examine the combined effects of reading and writing in terms of influence on thinking critically (Tierney, Soter, O'Flahavan, & McGinley, 1989). To pursue this comparison, they selected topics that would likely provoke critical thinking and engage a reader. In terms of setup, they first asked students to write an essay on a topic. Following this exercise, they gave around 12 students the opportunity to read an editorial on the topic prior to being given a chance to revise. The remainder of the students were not provided with any reading to do—they were simply asked to write and revise. The two key elements that emerged were the writing that the students did, including the revisions (especially the various types of revisions), and the students' explanations of their thinking as they read, as they wrote, and as they revised. The analyses of the differences across the students in each case, with evidence from the revisions and debriefings, demonstrated the power of reading and writing in combination. Essentially, the reading and writing study offered what some might consider a mixed methods approach—combining a quasi-experimental approach with case studies of a range of rich, open-ended data for selected individuals from comparison groups. At that time, the hope was that this research design and approach appealed to a broader, more mixed audience of scholars, such as those with positivist leanings or constructivists interested in a more complex, organic approach with a form of responsive evaluation. However, despite the use of comparisons styled after positivism, the research approach was anchored in constructivist logic (e.g., with findings presented as situated demonstrations rather than overgeneralizations on a universe of readers and writers).

While quantitative data were reported, they were represented in a fashion that was grounded with examples.

Other forms of mixed methods have propagated over the last thirty years as theorists enlisting various tools and perspectives have borrowed from different theorists or searched for explanations that account for their observations. Increasingly, approaches to research design involve a mix of methods and approaches, which are participatory, critical, or verging on activism (The Design-Based Research Collective, 2016/2003; Reinking, Bradley, & National Conference, 2008; Stahl, King, & Lampi, 2019). (See Side Comment IV a 3).

Side Comment IV.1a.3.

Complementarity

David Pearson in reflecting on the various "wars" that the reading field has experienced over issues such as instructional approaches to early reading instruction (Pearson, 2004; Pearson, 2007), theories ot the reading process (Kamil & Pearson, 1979), and research paradigms and methods (Pearson, 1980; Pearson, 2004), offers a view of what might be called research complementary or compatibilism.Writing in 2007 (pp 25-27) for the National Reading Conference Yearbook, here's what David had to say about complementarity among research methods. Alas, the concerns—and the recommendations still hold today. The need for complementary is as strong as ever.

In the current research context, literacy scholars find themselves between a "rock and a hard place." The official views of research promulgated by the federal government in its research programs administered within the Department of Education are weighted toward quantitative and experimental work. At the same time, the work of many, perhaps even most, literacy researchers and doctoral students in research training programs is decidedly qualitative, narrative, and/or ethnographic in character. An impending crisis? A confrontation of the immovable object and the irresistible force? Or just the exclusion of a wide array of literacy scholars from federally funded research efforts? I would bet on the exclusion, but I hope and argue for a rapprochement among methods and even epistemologies.

Regarding science, my fundamental claim is that reading research can never be truly rigorous, indeed truly scientific, until and unless it privileges all of the empirical and theoretical methodologies that characterize the scientific disciplines. Included among those methodologies would surely be experimentation and of course randomized field trials of the sort that are being proposed for several federally-sponsored programs, but the range of scientific methods would extend to

- *careful descriptions of phenomena in their natural settings (just like Darwin did and just like today's environmental scientists),*
- *examinations of natural correlations among variables in an environment, just to see what goes with what,*
- *natural experiments in which we take advantage of the differences that serendipity and the normal course of events has created between two or more settings that are otherwise remarkably similar—the most common form of this effort in education being outlier studies and the even more common approach in public health's epidemiological studies,*
- *data gathered in the name of theory building and evaluation—just to see if we can explain the nature of things,*
- *design experiments in which we adopt a planful, incremental approach to knowledge refinement, with each successive step building carefully on what was learned in the last,*
- *the use of qualitative tools such as ethnography and discourse analysis in concert with randomized experiments to describe what is really going on inside those randomly assigned treatments, so that we can explain why a treatment worked or didn't work, or whether the range of variation in treatments is so great across sites that it is doubtful that it can really be called the same intervention across sites, or what the consequences, especially the unintended consequences, of an intervention might be.*

Side Comment IV.1a.4 continued

As good as randomized experiments are for determining the overall efficacy of interventions, they are very short on details about the interventions, such as why, how, for whom, and under what conditions interventions work. For that, we need complementary methods, and this is where qualitative methods come into play. Donald Campbell, one of the foremost design methodologists of the 20th Century, and the co-author of the infamous book on Quasi-Experiments (Campbell & Stanley, 1963) the classic treatment of threats to internal and external validity, recognized this need for complementarity.

> To rule out plausible rival hypotheses we need situation-specific wisdom. The lack of this knowledge (whether it be called ethnography, program history, or gossip) makes us incompetent estimators of program impacts, turning out conclusions that are not only wrong, but are often wrong in socially destructive ways…
>
> There is the mistaken belief that quantitative measures replace qualitative knowledge. Instead, qualitative knowing is absolutely essential as a prerequisite for quantification in any science. Without competence at the qualitative level, one's computer printout is misleading or meaningless. (Campbell, 1984, p. 141-142)

We hear a lot of talk about randomized field trials in medical and pharmaceutical research, and we are advised to follow their lead. I agree. But if we follow medicine and pharmacology, then we should follow them all the way down the road of science. Let's remember that before researchers in those fields get to the last 10 percent of the journey, which is when they invoke randomized field trials in anticipation of advocacy and policy recommendations, they have already used a much wider range of methodologies, including much observation, description, examinations of relationships, and just plain messing around (that is a technical term used by scientists to describe what they spend most of their time doing) to travel the first 90 percent of that journey. So let's talk about complementarities and convergence among methods rather than competition and displacement of one worldview with another. This is the message of the report on educational research by a committee empanelled by the National Academy of Science (Shavelson & Towne, 2002), a message I heartily endorse.

If we rush too soon to the last 10 percent of the journey and enamor ourselves of randomized field trials for their own sake, we are likely to end up conducting expensive experiments on interventions that were not worth evaluating in the first place. A drug company would never think of conducting a randomized field trial on a new drug that had not gone through a thorough basic research phase in which biochemical theories, tryouts on non-human organisms, correlational research on chemical components of the drug in the natural environment, and probably some serendipitous case studies of individual subjects who volunteered to use the drug out of desperation all played a key role. We should ask no less of educational interventions and programs. An intervention that is based upon bad theory or no theory is not likely to yield a significant contribution to practice in the long run. To know that something worked without a clue about how and why it worked does not advance either our scientific or professional understanding of an educational issue. We cannot afford blind experimentation and horse races with interventions of unknown theoretical characteristics. As our candidates for randomized field trials, we want treatments and interventions that have gone through these various stages of scientific development.

I fear that as a profession we have fallen into a methodological trap. We have become so attached to our methodologies and to their epistemological (some would say ideological) underbellies that we, as individuals, are likely to begin our work by looking for a question that fits our methodological preferences, rather than the other way around. This does not serve our profession well, for it allows us to address questions that may or may not be of great relevance to policy and practice. We must return to the ethic of insisting that just as form follows function in language, so methods must follow questions in research. And if we do not, as individuals, possess the range of methodological expertise to address different sorts of questions then we ought to align ourselves with scholarly communities in which such expertise is distributed among its members.

Shifts to Critical Analyses, Reflexivity, and Participatory Research

As qualitative research and the social turn advanced, there was a shift toward recognizing and making visible social constructions and systemic structures and practices via social, cultural, critical and postcolonial critiques. To these ends, various forms of sociological analyses, often enlisting forms of discourse analysis, were pursued in the interests of examining the forces at work—including norms, conventions, representations, and positioning. Oftentimes, they incorporated critical frames to interrogate cultural constructions such as gender and racial and ethnic issues. They served to unpack the power dynamics, hegemonies or social relations at play (e.g., Apple, 2010; Apple, Au, & Gandin, 2009; Bloome & Green, 2015; Bourdieu; 1991; Cook-Gumperz & Gumperz, 1992; Dyson,1988; Gee, 1990; Gilmore & Marshall, 2019; Gutiérrez, 2008; Heath, 1983; Luke, 2014; Marshall, 2018; McDermott, 1974; Philips, 1983; Purcell-Gates, 1995; Purcell-Gates, Perry, & Briseño, 2011; Rex, Bunn, Davila, Dickinson, Ford, Gerben & Carter, 2010; Scribner, Cole,1981; Shannon, 1989/1998; Tuck & Yang, 2014).

As these socio-cultural lenses were increasingly employed, researchers were not spared from turning a critical lens on themselves—interrogating their positioning and the ethics and integrity of their research approaches. Their critiques reframed and questioned the notion of a fair witness divested of cultural moorings and encouraged researchers to look beyond adopting empathetic or antagonistic roles to adopting approaches that are responsible, respectful, reciprocal, participatory, democratic, and reflexive relative to their biases, backgrounds, and motives.

Emerging from these developments were new expectations for research, especially for teacher action or inquiry-driven studies and other forms of democratic, action-oriented research approaches. These expectations befit a critical turn that requires researchers to direct the lens on themselves and approach research with an ethic and consciousness of self and others—including the realization of their positionality including perhaps displacement lest their interests and perspectives perpetuates an appropriation or colonization of communities. In the mid-1980s, those who were the objects of anthropological research spoke back and questioned not just how they had been positioned in studies but also how their cultures were being described in ways that sometimes reflected colonial and racist tendencies. More recently, Takayama, Sriprakash, and Connell (2017), in conjunction with critiques of comparative education, suggested that research findings have been blinkered by Northern constructions of other cultures and perpetuate colonial constructions. Along with Indigenous scholars and others, Takayama et al. instead argue for an approach to research of others, with others or by others—that is, research conducted under the control of Indigenous peoples and in a manner that is

respectful, consultative, and engaging with regard to communities. Patti Lather (1986) offered a similar critique of key ethnographic work—arguing that while it may have been empathetic and rigorous, it failed to add the possibility of transformative goals with participants. She offered the term "catalytic validity" (Lather, 1986, p. 67) as a way of highlighting the importance of both researcher and participant engagement, working together as a form of member checking, "responsive evaluation," or shared transformational pursuits. Unfortunately, despite the advent of socially transformative and activist research in the interests of others, such research sometimes falls short in terms of matters of consultation and often crosses ethical boundaries—especially when respect and community and participant interests are displaced by the researcher's own interests and approach--as if the research itself is a commodity (i.e., the ownership is transferred to the researcher and to the academic outlets or policy makers that operate outside of the community).

Teacher Research. Teacher research again shifts the expectation and focus. In teacher research, the relationship between research and practice is overt. The position of teacher as decision-maker becomes prominent and, in some ways, radical—especially when contrasted with top-down reform efforts or outside, preset, interventionist approaches. However, teacher research is not always straightforward. It often requires developing a teacher's trust as well as their confidence in their decision-making, reflections, and students. In our own collaborations attempting to advance teacher-based inquiry in student-directed learning environments in the U.S. and China (Tierney, 2015; Tierney, Tucker, Gallagher, Crismore & Pearson, 1988), we have found it key to have teachers reflect positively on their endeavors as they consider what they wish their students to pursue. If they focus too much on their behaviors rather than on their goals for their students, teachers tend to become more inhibited in their thinking. For example, if the goal is to advance students' access and sharing of ideas, the teacher would be encouraged to explore how to engage the students in doing so rather than focusing extensively on their own actions. Should a teacher seek the researcher's counsel, advice should be provided in a fashion that engages the teacher in reflexivity and decision-making and avoids judgment or direction. The research goal is to work with what the teachers are already pursuing, not with what others might impose. Hence, such research begins in classrooms, wherein researchers talk about the possibilities and observe and reflect on students in a fashion that is formative rather than evaluative. The goal is transformative and the approach is established in a manner whereby change and impact are not afterthoughts, but integral to the pursuit from the outset.[3]

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[3] In terms of transformative approaches, the work on teacher action research advanced by academics such as Schön (1983), Kinchloe (2003), Shor (1980), McNiff (1993; 2013) and classroom teachers (e.g., Lassonde & Israel, 2008) has been exemplary.

The orientation is participatory and responsive—befitting forms of democratic processes. Table IV.1a.2 below differentiates teacher inquiry from traditional outsider research.

Table IV.1a.2.

<div align="center">

Outsider versus Teacher Research

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	Researcher (Traditional)	Teacher-Researcher
Goal setting	Preset questions and goals by researcher(s)	Emergent classroom-based interests, concerns, questions by teacher(s)
Method	Uniform Standardized protocols Imposed on circumstances	Customized shaped by classroom teacher(s) and ongoing pursuits Adapted to situation
Participants	Assigned predesigned tasks	Designed and formative learning engagements fitted to students' interests, ongoing learning and teaching pursuits
Measures	Primarily preset and standardized	Mixture of some preset and some emerging
Observations	Predetermined	Ongoing and recursive
Findings	Pronouncements of measurable and objective outcomes	Iterative consideration of processes and outcomes (likely to be qualitative and quantitative) and related to feedback afforded by students and others en route to follow up for purposes of meeting teachers' perceived discernments of students' needs
Conclusions	Seeking generalizable or transferable findings to other situations	Tentative and tied to situation including approach to exploration

In a different fashion, project evaluation research and development may also be closely aligned with transformational and formative goals. Nevertheless, the collective possibility of change from such evaluations can at times be thwarted, depending upon how the evaluation is positioned (e.g., if existing systemic forces and values subvert the pursuit). For example, Rob and some other Deans were asked by the Vice Chancellor to evaluate the state of Indigenous education at the University of Sydney for purposes of assessing the current state as a basis for setting future directions (SEG Indigenous Education Review Working Group, 2010). The approach involved iterative consultation and frequent data mining from various sources, including sources embedded in the academic units under review. The goals of the review were to develop a document that would inspire

stakeholder confidence and to generate data that would be useful both broadly and to specific units within the university. Hence, the data were intended for students, members of Indigenous communities, the faculties within the university, and for administrators. To afford a comparative understanding, the data reflected several years of participation and completion of degree programs by Aboriginal and Torres Strait Islanders within the different faculties, as well as the hiring and retention of Aboriginal and Torres Strait Islanders within the university. Such data were then compared with data for students from different ethnicities as well as for universities across Australia. The final document was meant to instigate deliberative and transformative change by the university and the various units within the university. It did and did not. Although the report was seen as an invaluable resource, regressive institutional forces and deep-seated interests, aligned with approaches that were not transformative but rather assimilative, ultimately remained invested in maintaining colonial vestiges.

Digital Literacy and Youth Activism. There are a range of other examples of advocacy and activist research and development in literacy research, especially in the digital arenas. Engaging in a form of design research with high school and homeless youth in the city of Vancouver through the creation of film, drama, and other arts projects, Theresa Rogers and her colleagues (Rogers, Winters, Perry, & LaMonde, 2015) described how youth enlist new and critical literacies, especially through the multimodal possibilities afforded by various digital media, to engage with various publics and speak out about societal issues (including the public's faulty constructions of youth). Their project demonstrated a form of reflective and responsive engagement in ways that spurred a form of cultural criticism and civic engagement by youth. As Rogers et al. noted, they explored the claims of youth "as expressions of resistance to the inheritance of the broken promises of democratic citizenship and their ability to imagine new possibilities of public engagement" (Rogers, Winters, Perry, & LaMonde, 2015, p. 2). The youth did so, they state, "through multimodal intertextuality—the mix of genres, forms, and modes that functioned as discursive resources for creating counter narratives…. [Thereby] juxtaposing and hybridizing and remixing" (Rogers, Winters, Perry, & LaMonde, 2015, p. 102). In terms of theoretical frames, Rogers et al. enlisted notions of the translocal to highlight various forms of engagements, noting in particular how media resources offered the youth vehicles for participating, resisting, and speaking for themselves as citizens against national and global impositions. Because this work is at the intersection of global and local, they suggest, it befits the convergent space that the media affords.

Working with high school youth in Southern Africa (i.e., Rwanda, Ethiopia, South Africa, and Kenya) and Canadian First Nations communities, Claudia Mitchell and her colleagues (Mitchell, 2011; Mitchell & Murray, 2012) have pursued similar forms of design research on the use of a range

of digital resources and other media to engage youth in significant social issues, ranging from HIV-AIDS to violence against women. Mitchell locates this work as "Social policy 'from the ground up': Youth participation and social change through digital media" (see McGill, 2020), and has encouraged youth to enlist images, websites, and other multimodal digital platforms to spur dialogue around difficult issues concerning their everyday lives. Despite the complexities inherent in such research, Mitchell and her colleagues have pursued a range of provocative design experiments in which young people have been invited to participate in forms of activism involving public disclosures. They posit that unless young people are given a more significant voice in participating in policy dialogues about their own health and wellbeing, the programs themselves are destined to fail.

Glynda A. Hull, Amy Stornaiuolo and Urvashi Sahni (2010) similarly report on a piece of a larger global study directed at empowering young women via the internet. Their discussion stems in part from their efforts to study cosmopolitanism—in particular, whether cosmopolitanism can serve as a "compass… a point of view [that] remains resiliently hopeful, asserting that people can both uphold local commitments and take into consideration larger arenas of concern" (p. 331). Exploring social networking sites and the "online and offline experiences that accompany them" (p. 332), Hull et al. question whether or not these platforms and practices can provide "a digital proving ground for understanding and respecting difference and diversity in a global world as well as fostering the literacies and communication practices through which… habits of mind develop" (p. 332).

The project itself argues for a form of global citizenship as the aspiration and vehicle by which young people are invited to enlist digital images and texts as they examine, interrogate, and share their past with others around the world. By examining "the participation offline and online of a group of teen-aged girls from India in an international social networking project designed to promote cosmopolitan habits of mind" (Hull, Stornaiuolo, & Sahni, 2010, p. 337), they attempted to question how young people "develop cosmopolitan habits of mind and attitudes toward others;" "the social and cultural processes that characterize the development of cultural citizenship;" what "kinds of educative spaces, especially those online, might facilitate such processes" and "what forms and designs … communicative practices take in such spaces" (p. 337). Their observations of the students' projects and interactions (both virtual and face-to-face) with other students, families, and communities poignantly considered the semiotic dissonance that arises across and within communities between students and their schools, students and their families and communities, and students from across the world. Using a semiotic perspective to examine the meaning making transacted between the various parties, they bring to the fore the complexities of pursuing cross-cultural studies for insiders and outsiders, especially with regard to the different ways in which cosmopolitanism and transliteracies may be reckoned (Hull & Stornaiuolo, 2014).

Whether it be in discussions of the tweets of politicians, press and media coverage, or video clips of police brutality, digitally-based examinations now mediate everyday societal considerations. As such, studies in the digital domain are on the rise, in conjunction with socio-political interrogations of media, social media, and digital videos capturing community developments. As Rogers et al. and Mitchell and her colleagues have argued, art, media, and other resources further facilitate civic engagement due to their transmediating features and the fluid, shifting, and embodied possibilities that they provide. The use of various mobile digital resources has likewise undergirded social movements and enhanced civic engagement and political protests—through "resource mobilization, repertoires of contention, opportunity structure, and the framing function of movement messaging" (Epstein, 2015, p. 15). Critically, however, it is important to remember that as these ideas move across global networks, they may proliferate in filtered or mutated forms—without regard for differences, incongruences, or local considerations. Recent efforts by individuals and some groups represent an effort at pursuing exceptions to this orientation. For example, a non-government not for profit organization, CODE, with a history of support for African literacy development has initiated an effort titled "Context matters" in support of support of African literacy by African scholars.[4]

Moving Forward: Pursuing, Sharing, and Following-Up

Research exists within systems that contribute to its position, placement, and utility. Certain topics may be more popular than others, and certain findings may be sought in support of political agendas. These matters can be quite problematic, especially when research findings are represented as answers to questions and pursuits of certainty (e.g., the "best practice" or "silver bullet"). They may override efforts to reckon with situated complexities.

However, despite the status afforded positivistic approaches, it is doubtful that researchers will retreat from enlisting a range of approaches that meet and embrace research pursuits with and in communities. The approaches to research have shifted in notable ways, and while older traditions remain, a great deal of research has become more intimate, transparent, and formative. Research now befits the values of educators operating in a collective fashion, reflecting: 1) An ethical stance that is

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[4] Research on literacy in general and reading in particular has been largely carried out in high-income countries and contexts, and then generalized to low-income countries and contexts. The Context Matters Research Grants initiative was established by CODE to help address this problematic knowledge flow from North to South and to support African Researchers as they take the lead in evidence-based literacy research. Our intent is to stimulate conversation, develop a research agenda, and support research which is clearly situated in local contexts and recognizes the multifaceted and complex relationships between the local and global in education. This means placing a high priority not only on the location of research but also on the need to engage local researchers. https://code.ngo/approach/research-initiatives/

not only respectful, but also transformative and participatory; 2) Approaches that are collaborative, formative, situation-based, realistic, negotiated, trustworthy, intimate, subjective, and reflexive; 3) Observations and data that are sound, thick, sometimes open-ended, and grounded; 4) Findings that are presented concretely and illuminated via astute analysis schemes; and 5) Conclusions and follow-up practices that suggest rather than inform practice, research, and theory.

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Recommended resource:

National Council of Research on Language and Literacy commissioned a series of books on research approaches. They include:

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