CHAPTER 9.

IMPROVING SYSTEMATIC REVIEWS OF LONGITUDINAL WRITING RESEARCH: DEFINITIONS, QUESTIONS, AND PROCEDURES

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This chapter describes the theoretical background and methods used to conduct a systematic review of longitudinal writing studies (readers can find the results of the systematic review in the following chapter).[1] As longitudinal writing research involves a wide spectrum of different types of methods and methodologies, we conducted a systematic review of this broad area of work in order to bring together what's been learned from longitudinal writing research, to add our own contribution to that research base, and to provide a model of transparent, replicable methods for future research reviews. This review builds on the critical questions and varying definitions of what constitutes longitudinal writing research, as discussed in previous work (see Bazerman, 2018; Rogers, 2009; Tierney & Sheehy, 2005), which we used to shape our efforts to select and critically review longitudinal writing research from 2000-2020.

Within the framework of a larger inquiry into what we have learned about writing development from longitudinal studies of writing around the world and how that might be relevant to those interested in lifespan perspectives on writing development, in this chapter we provide a model for other researchers by telling the story of *how* we conducted a review of longitudinal writing research focused on methods of data collection and data analysis.

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THEORETICAL FRAMEWORK

Longitudinal studies have long been used to study writing development. From the earliest longitudinal studies of writing (see Gage, 1973; Loban, 1963; Rentel & King, 1983) to those most recently published (Aldossary, 2021; Duan & Shi, 2021; Guo et al., 2021), these inquiries have proven particularly impactful for studying writing development as they highlight change over time and across contexts for all kinds of writers. According to Bazerman (2018), most longitudinal studies share several common features including the periodic and repeated collection of data from a specific group of people across a long enough time sequence to surface meaningful comparisons. In addition, longitudinal research typically includes an intentional periodicity (i.e., recurrent activities) in the application of measurement tools (like scales, surveys, or interviews) and in the ways in which data are collected. Longitudinal studies are particularly useful for studying writing since they can help to find patterns, surface meaningful correlations, and predict future outcomes amongst the many variables associated with writing development, including family and social activities (e.g., the amount of time parents write or read with their children), school-based interventions (e.g., curriculum, instruction, etc.) and personal factors (e.g., self-efficacy or socio-economic status), all of which can impact writing practices and learning to write. Further, because almost all pedagogical writing research involves a focus on learning and improvement, longitudinal writing research can be extremely valuable for those interested in learning and instruction, as measuring that growth inevitably means looking at changes that take place over time.

Ultimately, what makes this work so valuable (and worth the tremendous effort and investment of time and resources that longitudinal studies require) is that results of longitudinal research can provide insights into the ways in which writing development can be supported by revealing what development is and when and how it happens. The long-term view of writing development associated with longitudinal research can help clarify what is developmentally appropriate for specific individuals or groups within the same community, for writers at various ages and grade levels, and by comparing differences in outcomes for those who have different access to resources. Longitudinal writing research is also useful in tracking personal writing trajectories, the ways in which writers deal with learning opportunities and challenges, and changes in writer's identities.

By collecting situational data (socio economic status, cultural context, instructional level, etc.), growth in writing within the individual's ecosystem and context can be seen. Further, this research can surface information related

to the interactions between the intra-individual and the inter-individual variables in writing development, which is critical because so much writing research is predicated on such a wide spectrum of interrelated variables which can be difficult to differentiate from one another. Knowledge gleaned from longitudinal writing research can thus influence decision making related to writing development at the policy, curricular, and instructional levels.

The complex network of factors which can affect any one person's writing development are complicated by the general social, developmental, and familial milieu which varies so widely across languages, cultures, and contexts. In this regard, longitudinal writing research holds particular promise in looking at growth and development during important transitions, such as from preschool to kindergarten, from elementary to middle school or secondary school, from high school to college, from undergraduate studies to graduate-level work, and from graduate studies to the highest levels of professional life and beyond. Longitudinal research helps illuminate the uneven, nonlinear, and multidimensional aspects of writing development (Rogers, 2009) including the spurts of growth, disruptions, redirections, and regressions of writing skills that can occur (Haswell, 1991). For these reasons, writing researchers have long made calls for more and better quality longitudinal studies of writing (see Bazerman, 2018, p. 327; Emig, 1971, p. 95). Yet, due to the many complicating factors associated with writing development, Bazerman (2018) has called the pursuit of true lifespan longitudinal studies "the impossible dream."

In spite of these difficulties, longitudinal writing research has contributed to the field's understanding of different aspects of the long, individual, and complex writing trajectories found across the full arc of human development (Bazerman, 2018; Rogers, 2009). Lifespan longitudinal research, while currently out of reach, would involve studying all dimensions potentially relevant to writing development beginning with the very earliest developments of print literacy in young children before school, accounting for the multiple and varied contexts of schooling, and extending to all aspects of an individual's literate life.

The cognitive complexity and social aspects of writing make defining writing development a difficult task as writing development is always dependent on context (Rogers, 2009), and the term "development" itself is rooted in cultural and social practices (Matusov, 2007). Further writing development is related to other aspects of development at both the microgenetic (small changes in knowledge, attitudes, skills, and behaviors associated with writing, like motivation, or learning a grammatical rule) and ontogenetic levels (i.e., related developmental changes related to the whole person such as one's identity (Ivanič, 1998) or occupation. Since human development is an extremely

complex process (Hickel, 2020; Sagar & Najam, 1998), writing development is therefore equally complex and difficult to precisely define.

Longitudinal studies, however, have helped us to better understand the complexity of child development by following children from birth, and/or through to adulthood (Faden et al., 2004), and by following a particular individual across time. Following child growth over time, particularly in their context of development, helps identify trends, indicators of causal relationships, and individual differences in development (Shulruf et al., 2007) which hold immense potential value for researchers, teachers, and learners across other disciplines. Since human development results from the individuals' ongoing interactions with the various contexts they are in (Zeanah et al., 1997), any developmental outcome, whether social, physical, behavioral, or psychological, represents a uniquely complex and idiosyncratic trajectory. Further, since the various contextual elements within an individual are interrelated it is especially difficult to precisely pinpoint when, where, how, and why different developmental influences occur and shape growth trajectories (Shulruf et al., 2007).

DISTINGUISHING WRITING DEVELOPMENT FROM WRITING CURRICULUM

In research, distinguishing between what counts as writing development and the influence of curriculum is difficult since trajectories of writing growth are intertwined with all other aspects of our life (Moffett, 1968; 1992), especially within literacy instruction and formal schooling. Given the importance of curriculum in learning to write, we might ask why it is important to separate in research the influences of curriculum from development. This turns out to be a critical question because if researchers investigate the results of a particular intervention that is focused on one or more specific elements of writing and then test to see if students indeed grew in those ways, we have to question whether or not that learning is permanent; that is, will it *transfer* to other contexts of other writing experiences across time and throughout development?

So, while a study may show positive results of an intervention, say, in a pre-post-test design, our argument is that conceptions of writing development must extend beyond particular curricular interventions (e.g., beyond a single course of instruction) in ways that can be compared over time within and between individuals and groups to see what in fact is developing and how that development is proceeding beyond a particular classroom experience. Researchers therefore must account for the powerful influence of curriculum on development. As Bazerman (2018) noted, "research should have its eye not just on the immediate success of a lesson or the short-term improvement of scores through a particular

curriculum, intervention, or practice—for such studies do not look beyond the current standards or curricula to see whether the learned curriculum best serves the long-term development of writers" (p. 377-378).

One way to separate what we might think of as normative writing development from writing curriculum is by systematically identifying, selecting, and appraising a body of longitudinal studies of writing development across the entire lifespan drawn from a diverse series of populations (people of varied backgrounds and experience) (Bazerman, 2018). Longitudinal writing research of this kind would examine meaning-making, writing products and the various dimensions that influence if and how writers and writing change throughout the lifespan (Dippre & Phillips, 2020a; Writing through the Lifespan Collaboration, 2019). Ideally, therefore, lifespan longitudinal writing research would involve a wide range of methods and methodologies, theoretical frameworks, and populations and samples (Dippre & Phillips, 2020b).

THE CURRENT REVIEW

Since systematic reviews call for the researchers to make a set of decisions, in this chapter we explain how we conducted a systematic review of longitudinal writing studies. In this review we set out to provide an updated perspective on the current methods being used to conduct longitudinal studies of writing since the turn of the century (beginning in 2000). Why did we decide to conduct a systematic review and not a narrative review? To answer that question first we need to clarify the difference between the two. A narrative review summarizes available literature without adhering to a set of formal guidelines and they are generally written when the topic or questions are best suited to a narrative, for example when reviewing research perspectives (Gregory & Denniss, 2018). On the other hand, a systematic review uses a well-defined set of steps to remove the risk of bias as much as possible. This adherence to strict guidelines is what qualifies a systematic review as "evidence-based" (Gregory & Denniss, 2018).

We approached this study with a sense of the value and importance of longitudinal research methods for the study of writing and, although we had identified some partial narrative accounts of longitudinal writing research (for example, Rogers, 2009 narrative review of longitudinal studies in higher education in North America), we saw a clear need to identify the state of the art in longitudinal writing research and to ground our understanding of the landscape of longitudinal writing research landscape empirically. Given these goals, it was clear we needed to conduct a systematic review. In conducting our review, we also decided that we wanted to provide other researchers with information and

tools that would assist them in carrying out their own systematic reviews, which in our view would be of great benefit to the field.

We further wanted to support researchers in designing and carrying out longitudinal studies, especially in ways that contribute to conceptions of lifespan writing research as outlined by Bazerman et al. (2018) and Dippre & Phillips (2020b). In particular, we wanted to learn:

1. General study characteristics
2. The quality of studies
3. Study settings
4. Methodologies
5. Methods of data collection and analysis
6. Longitudinal characteristics
7. Participant characteristics
8. Educational context
9. Funding Sources

The Process: From the Initial Search to the Research Synthesis: Deciding to Conduct a Systematic Review

At the forefront of the many concerns about longitudinal writing research are charges that what constitutes 'longitudinal' research varies widely (Rogers, 2009). While a great deal of work has been done on longitudinal writing research over the preceding two decades, the data collection and analysis methods, objects of study, and research questions remain disparate. In response to this potential incongruity, along with the sheer volume of research and scholarship in this area since the year 2000, we decided to conduct a systematic review in order to see if we could identify the state of the art in longitudinal writing research (identify, select, and critically appraise relevant research), while at the same time we wanted to be extremely clear and transparent about the methods we used to carry out that systematic review in the hopes of supporting the efforts of future writing researchers in carrying out similar reviews.

Our goal was to build and analyze the longitudinal writing research base in a replicable, aggregable, and data-driven manner. We wanted to understand the state of the art in longitudinal writing research and to fully map the research program as it was being carried out around the world. We further wanted to see the degree to which results from these studies might contribute to the theoretical frameworks associated with lifespan approaches to writing development. In our view, longitudinal research provides the most promising approach to building the knowledge base to empirically support a vision of lifespan writing development.

Steps in the Systematic Review

We started the process by conducting a search of the literature to identify the corpus of longitudinal studies used in writing research since the year 2000, following Alexander's (2020) recommendations, which meant reviewing handbooks, narrative reviews, and empirical articles. This first step identified the full corpus of potentially longitudinal writing research. For a full description of the literature search, see the preferred reporting items for systematic reviews and meta-analysis (PRISMA) flow diagram (Panic et al., 2013; see https://osf.io/tjyu2/?view_only=72272c4f124b4b00bbd41667798edc76).

To identify these studies we carried out a thorough database search in November 2020 in the following databases: Google scholar, Linguistics and Language Behaviour abstracts, Elsevier, communication abstracts, APA psycinfo, Psychology and Behavioural sciences, JSTOR, Education database, Education Research Complete, Teacher Reference Center, Social Science database, Science Direct, Anthropology Online, Sociological Abstracts, and ProQuest. The search string included the keywords "writing" and "longitudinal", to prevent the exclusion of relevant articles at this early stage. We focused on research from 2000-2020 in order to identify the most current trends in longitudinal writing research. The search yielded a total of 594 records across 14 databases.

Creating and Completing a Matrix with all Longitudinal Studies of Writing

Out of these 594 records, we narrowed the corpus down to 290 records by screening out duplicates, studies conducted before 2000, and those not strictly related to longitudinal research on writing. All remaining records were tagged according to nine non-exclusive categories (i.e., a study could receive multiple category tags): adult learners, L2, K-12, pedagogical studies (studies focused on teachers and teaching more than learning, students, or writing), higher ed, naturalistic, WID (writing in the disciplines), cognitive, and methodological (studies that were focused on research methods rather than actual writing development).

Discussing with Other Researchers

At this point in the process, we met with two senior scholars who are considered experts in longitudinal writing research: Charles Bazerman and Rui Alves. This conversation guided our research design and general thinking as we began our data analysis. We were encouraged to continue considering longitudinal writing research in the broader context of lifespan growth but were advised to avoid

searching for an overarching narrative, as the maturity of the field would not warrant generalizations at the lifespan level. Rather we were encouraged to identify the smaller stories within the lifespan; in particular, we were counseled to focus on L1 learners in the K-20 context (leaving out for now, L2, preschool, workplace, and adult learning).

We were also prompted to use a low inference, binary definition for what counts as a longitudinal study (which for us was a really important question: "what counts as a longitudinal study?") by applying the following simple criteria: Does the study have two points of measurement? Additionally, we were strongly encouraged to avoid conflating the effects or impact of curriculum and targeted instructional interventions with writing development. Finally, we were advised to separate L1 and L2 studies as discrete areas of research for now, but to retain the goal of comparing results from both areas for future work. These considerations shaped our understanding of and approach to designing our analysis of this systematic review.

Methodological Focus of the Systematic Review

At this point we began developing inclusion and exclusion criteria. As we were advised, we began with L1 longitudinal studies in order to identify a baseline of writing development. We also decided to only include studies from the schooling years (kindergarten through university) because research indicates this is the period when the bulk of writing development occurs. Following this decision, all records labeled preschool, workplace, adult learners, as well as pedagogical and methodologically focused works were removed from the corpus to include only works of L1 writing research from kindergarten to university. This cut the final dataset to 111 studies.

Screening for the Systematic Synthesis: Inclusion and Exclusion Criteria. In developing our inclusion and exclusion criteria we began with a quality assessment screening that included two items: first, the study needed to have been published in a peer-reviewed journal, book, or book chapter. The second quality measure was methodological rigor, which meant that to be included, a study needed to be empirically grounded and conceptually focused with qualitative or quantitative data appropriate to the study's claims.

Next we created a set of exclusion criteria which aligned with our research goals. First, we only included studies in which writing was the central focus. This became an important and somewhat difficult distinction at times, as writing is frequently used in other studies related broadly to literacy, such as reading and especially emergent literacy, but it is not necessarily *the central focus* of those studies. As Berninger (2010) noted, "Few longitudinal studies of writing exist

. . . moreover, comparatively little research has focused on writing alone. The research on writing that does exist is often focused on writing–reading relationships" (p. 281). Therefore, in our coding of quantitative longitudinal studies of writing we only included studies in which writing growth, development, change or learning was the core dependent variable, or in which writing was the primary independent variable and the dependent variable was a construct centrally related to writing, such as self-regulation or motivation. We only included qualitative studies in which the primary object of study was writing development, growth, learning, or change over time. Secondly, we only included studies that included at least two points of measurement so as to ensure that all studies were in fact longitudinal studies of writing.

Third, outcomes from the studies needed to be distinct from curricular intervention as to distinguish development from curriculum. For example, we screened out a study in which the intervention was supporting undergraduate students in better using APA style because the study set out to strictly measure improvement in the usage of APA style rather than a more general writing development construct such as knowledge of conventions or another item that would not simply be measuring precisely what was taught. We excluded a variety of studies across grade levels which presented similarly narrow conceptions of development based on measures limited to the constructs presented in the curriculum.

Fourth, quantitative studies needed to specify the measures collected (qualitative studies were excluded if writing and/or writing development was not clearly the central object of the study). The fifth criteria asked if a study included participants in the schooling years (K-university): kindergarten, elementary school, middle school, high school/secondary school, university (undergraduate or graduate). Finally, we added studies that *only* included L1; so, if a study was of both L1 and L2 writers it was excluded.

Screening and Agreement Between Judges. A screening procedure took place for the 111 articles following the PRISMA guidelines (Moher et al., 2009) and the screening guide explained above. All 111 abstracts were screened using Rayyan, an online tool for systematic reviews (Ouzzani et al., 2016). All three authors read all 111 titles and abstracts and decided to include or exclude for all 111 records based on the screening guide. The initial agreement was calculated by conducting an interclass correlation (ICC). This analysis showed an ICC of .75 which indicated moderate to good reliability (Bobak et al., 2018). Of the 111 initial articles, 42 required further screening; i.e., there was some disagreement among the reviewers. Whenever a disagreement occurred, the study was discussed to reach a consensus decision to include or exclude. In the end, 53 studies were selected as eligible for the review.

Complementary Searches. To ensure we included every possible study we could find, at this time we also conducted an additional "hand-search" of possible eligible records. To do this, the 2nd and 3rd author checked every reference list of the 53 studies selected in Rayyan and read full texts when the title and abstract didn't provide enough information. The complementary search found 13 more eligible studies to add to the first 53. The final dataset included 66 articles. All selected articles were added to a reference management software, Zotero, as recommended in Cooper (2010) for ease of use in writing up the results of the review.

Coding Eligible Studies. After deciding on the final set of 66 studies, we created a coding guide to extract information from the studies. Our coding guide was constructed with our research questions and goals in mind and according to the recommendations on creating a coding guide as found in Cooper (2010). At this step, we designed each coding category to be as low-inference as possible, to avoid any bias in the data entry (Cooper, 2010). Low-inference coding happens when we only need to locate the information in the research report and transfer it to the coding sheet (see Cooper, 2010). However, some high-inference categories were unavoidable as they provided critical information related to our research questions.

The high inference categories were methods of data collection and data analysis, which on the surface might appear counterintuitive. However, in practice, many of these studies used a battery of different measures to collect a wide range of different types of data, all of which were analyzed in different ways. Reducing a study which collected nine different forms of data to a single code required capturing more detail. To address the complex and inferential nature of these coding categories, we also collected the stated methods of data collection and analysis within each article in order to review as a group later.

Based on our aims, we coded nine categories of data: 1) General characteristics of the study; 2) Quality assessment; 3) Study settings; 4) Methodology; 5) Methods of Data Collection and Analysis; 6) Longitudinal Characteristics; 7) Participants' characteristics; 8) Grade level and 9) Funding Sources (We coded for funding, even though it isn't strictly related to writing development, in order to better understand the landscape within and conditions under which longitudinal research on writing is carried out, as longitudinal writing research can be costly given that it takes place over long periods of time and can require a great deal of resources.)

The 66 studies were coded by the first and second authors to ensure any potential bias was eliminated from the coding. Any disagreements were resolved by the 3rd author. During the coding we eliminated ten more articles since we realized that they did not meet the inclusion criteria when the full texts were read. The final corpus for our systematic review included 56 references.

CONCLUSION

In our systematic review of methods and methodology used in longitudinal studies of L1 writing development, our goal was to provide a comprehensive review of the methods and methodology being used to study writing development across the lifespan since the turn of the century. We further aimed to help inform future research designs and to draw attention to current trends.

We conducted this review to support researchers in designing and carrying out longitudinal studies. With that in mind we: 1) Framed a critical question worthy of review and posed an unanswered but answerable critical question (Alexander, 2020, p. 7); 2) Searched the databases according to our goals; 3) Created a matrix with all the studies found; 4) Divided our goals into three different reviews; 5) Decided to conduct a review of methods and methodology first; 6) Decided on inclusion and exclusion criteria; 7) Screened for eligible reports in Rayyan; 8) Conducted a complementary search; 9) Created a coding guide; 10) Entered the information on every study in the coding guide; 11) Wrote the systematic review following the PRISMA guidelines. The screening guide and coding sheet are available on the Open Science Framework, an online platform that promotes open, centralized access to research elements (Foster & Deardorff, 2017), which promotes open science practices, so that the editable files can be accessed by anyone who wants to use them. To access our coding sheet and screening guide visit https://osf.io/tjyu2/?view_only=72272c4f124b4b00bbd41667798edc76.

The Research Goals as the Driving Force

To conduct this review, we followed the PRISMA guidelines and Cooper (2010) to report a comprehensive and objective systematic review. However, we adapted some aspects of our review to align with our research objectives which were focused exclusively on research methods and methodology. These modifications included adding a general matrix of all the current longitudinal studies of writing as part of our initial identification of studies; modifying the quality assessment to not privilege certain methods over other methods; and adding crucial high inference items to the coding sheet, which precluded us from calculating ICC for reliability in the coding of articles as we felt we would lose vital information related to our understanding of longitudinal writing research methods.

The study reported on here is the first part of a larger project of synthesizing what has been learned about writing development through international longitudinal studies of writing from preschool through adult life. We encourage others to conduct their systematic analysis according to the PRISMA guidelines. Cooper (2010) and Alexander (2020), however, recommended that researchers

always consider what guidelines should be followed according to the goals they set for their reviews.

We hope many other researchers, especially those at early stages, will consider conducting their own systematic reviews. To those who take up the charge, we encourage you to collaborate; that is, create a research team, and consult often with senior scholars and other colleagues at all levels of your work. Additionally, we strongly recommend that researchers conducting systematic reviews take advantage of the outstanding tools that have been developed including, but not limited to Rayann, PRISMA, and Zotero. Finally, we encourage those conducting such reviews to "go where the action is;" that is, to investigate the most pressing and impactful issues related to writing as together we pursue achieving the impossible dream.

REFERENCES

Aldossary, S. K. (2021). The impact of collaborative writing on EFL learners' writing development: A longitudinal classroom-based study in Saudi Arabia. *Arab World English Journal*, *12*(3), 174–185. https://doi.org/10.24093/awej/vol12no3.12

Alexander, P. A. (2020). Methodological guidance paper: The art and science of quality systematic reviews. *Review of Educational Research, 90*(1), 6-23. https://doi.org/10.3102/0034654319854352

Bazerman, C. (2018). Lifespan longitudinal studies of writing development: A heuristic for an impossible dream. In C. Bazerman, A. N. Applebee, V. W. Berninger, D. Brandt, S. Graham, J. V. Jeffery, P. K. Matsuda, S. Murphy, D. W. Rowe, M. Schleppegrell, & K. C. Wilcox (Eds.), *The lifespan development of writing* (pp. 326–365). The WAC Clearinghouse; University Press of Colorado. https://wac.colostate.edu/books/ncte/lifespan-writing/

Bobak, C. A., Barr, P. J., & O'Malley, A. J. (2018). Estimation of an inter-rater intra-class correlation coefficient that overcomes common assumption violations in the assessment of health measurement scales. *BMC Medical Research Methodology*, *18*(1), 93. https://doi.org/10.1186/s12874-018-0550-6

Cooper, H. M. (2010). *Research synthesis and meta-analysis: A step-by-step approach* (4th ed.). Sage.

Cooper, H., Hedges, L. V., & Valentine, J. C. (Eds.). (2009). *The handbook of research synthesis and meta-analysis.* Russell Sage Foundation. http://www.jstor.org/stable/10.7758/9781610441384

Dippre, R. J., & Phillips, T. (2020a). Conclusion as prolegomena: From points of convergence to murmurations across sites, researchers, and methods. In R. J. Dippre & T. Phillips (Eds.), *Approaches to lifespan writing research: Generating an actionable coherence* (pp. 249–256). The WAC Clearinghouse; University Press of Colorado. https://doi.org/10.37514/PER-B.2020.1053.3.1

Dippre, R. J., & Phillips, T. (2020b). Introduction. Generating murmurations for an actionable coherence. In R. J. Dippre & T. Phillips (Eds.), *Approaches*

to lifespan writing research: Generating an actionable coherence (pp. 3–11). The WAC Clearinghouse; University Press of Colorado. https://doi.org/10.37514/PER-B.2020.1053.1.3

Duan, S., & Shi, Z. (2021). A longitudinal study of formulaic sequence use in second language writing: Complex dynamic systems perspective. *Language Teaching Research*. https://doi.org/10.1177/13621688211002942

Emig, J. (1971). *The composing processes of twelfth graders*. National Council of Teachers of English.

Faden, V. B., Day, N. L., Windle, M., Windle, R., Grube, J. W., Molina, B. S., Pelham, W. E., Jr, Gnagy, E. M., Wilson, T. K., Jackson, K. M., & Sher, K. J. (2004). Collecting longitudinal data through childhood, adolescence, and young adulthood: Methodological challenges. *Alcoholism, Clinical and Experimental Research*, *28*(2), 330–340. https://doi.org/10.1097/01.alc.0000113411.33088.fe

Foster, E. D., & Deardorff, A. (2017). Open Science Framework (OSF). *Journal of the Medical Library Association*, *105*(2). https://doi.org/10.5195/JMLA.2017.88

Gage, T. E. (1973). *The impact of the non-graded, multi-selective English curriculum on high school students* [Doctoral dissertation, University of California, Berkeley].

Gregory, A. T., & Denniss, A. R. (2018). An introduction to writing narrative and systematic reviews—Tasks, tips and traps for aspiring authors. *Heart, Lung and Circulation, 27*(7), 893-898. https://doi.org/10.1016/j.hlc.2018.03.027

Guo, Y., Puranik, C., Kelcey, B., Sun, J., Dinnesen, M. S., & Breit-Smith, A. (2021). The role of home literacy practices in kindergarten children's early writing development: A one-year longitudinal study. *Early Education and Development*, *32*(2), 209–227. https://doi.org/10.1080/10409289.2020.1746618

Haswell, R. H. (1991). *Gaining ground in college writing: Tales of development and interpretation*. Southern Methodist University Press.

Hickel, J. (2020). The sustainable development index: Measuring the ecological efficiency of human development in the anthropocene. *Ecological Economics*, *167*, 106331. https://doi.org/10.1016/j.ecolecon.2019.05.011

Ivanič, R. (1998). *Writing and identity: The discoursal construction of identity in academic writing.* John Benjamins. https://doi.org/10.1075/swll.5

Kokaliari, E. D., Brainerd, M., & Roy, A. (2012). A longitudinal study of assessing APA writing competence at a BSW program. *Journal of Teaching in Social Work*, *32*(5), 566-577.

Loban, W. D. (1963). *The language of elementary school children*. National Council of Teachers of English.

Matusov, E., DePalma, R., & Drye, S. (2007). Whose development? Salvaging the concept of development within a sociocultural approach to education. *Educational Theory, 57(*4), 403-421.

Moffett, J. (1968). *Teaching the universe of discourse.* Houghton Mifflin.

Moffett, J. (1992). *Detecting growth in language.* Boynton/Cook.

Ouzzani, M., Hammady, H., Fedorowicz, Z., & Elmagarmid, A. (2016). Rayyan: A web and mobile app for systematic reviews. *Systematic Reviews*, *5*(1), 210. https://doi.org/10.1186/s13643-016-0384-4

Panic, N., Leoncini, E., de Belvis, G., Ricciardi, W., & Boccia, S. (2013). Evaluation of the endorsement of the preferred reporting items for systematic reviews and meta-analysis (PRISMA) statement on the quality of published systematic review and meta-analyses. *PLoS ONE*, *8*(12), e83138. https://doi.org/10.1371/journal.pone.0083138

Rentel, V., & King, M. (1983). A longitudinal study of coherence in children's written narrative. Research Foundation.

Rogers, P. (2009). The contributions of North American longitudinal studies of writing in higher education to our understanding of writing development. In C. Bazerman, R. Krut, K. Lunsford, S. McLeod, S. Null, P. Rogers, & A. Stansell (Eds.), *Traditions of writing research* (pp. 337–389). Routledge.

Sagar, A. D., & Najam, A. (1998). The human development index: A critical review. *Ecological Economics*, *25*(3), 249–264. https://doi.org/10.1016/S0921-8009(97)00168-7

Shulruf, B., Morton, S., Goodyear-Smith, F., O'Loughlin, C., & Dixon, R. (2007). Designing multidisciplinary longitudinal studies of human development: Analyzing past research to inform methodology. *Evaluation & the Health Professions, 30*(3), 207–228. https://doi.org/10.1177/0163278707304030

Tierney, R. J., & Sheehy, M. (2005). What longitudinal studies say about literacy development/What literacy development says about longitudinal studies. In J. Flood, D. Lapp, R. Squire, & M. Jensen (Eds.), *Methods of research on teaching the English language arts* (pp. 79-124). Lawrence Erlbaum.

Zeanah, C. H., Boris, N. W., & Larrieu, J. A. (1997). Infant development and developmental risk: A review of the past 10 years. *Journal of the American Academy of Child & Adolescent Psychiatry*, *36*(2), 165–178. https://doi.org/10.1097/00004583-199702000-00007