Truth, Knowledge, and Information Literacy: An *Aporetic* Approach

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ABSTRACT

This paper aims to conduct a critical examination of the foundational assumptions and challenges of information literacy (IL), serving as a timely 'reality check' and a constructive instance of 'problem-posing'. To this end, it advocates for an 'aporetic' approach, which constitutes a pivotal tool in philosophical inquiry. This approach posits that *aporia*—puzzlement rooted in the conflict of reasons—compels us to confront and grapple with (seemingly) insurmountable problems. It thereby creates opportunities to rethink fundamental concepts, theories, and perspectives. Through a critical literature review, this paper scrutinizes IL *aporias* across six scopes: conceptualization, theorization, philosophical underpinning, challenge, critique, and prospect. As a part of a broader project, the study focuses primarily on two key topics: truth and knowledge. The literature review identifies two *aporias* in IL: the disjunction between knowing and learning of knowledge, and the tension between information as objective truth and subjective interpretation of information, i.e., informativeness.

ALISE RESEARCH TAXONOMY TOPICS

Information literacy; education; information use.

AUTHOR KEYWORDS

Information literacy; philosophy of information; aporia; knowledge; truth.

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INTRODUCTION: FROM 'PROBLEM-SOLVING' TO 'PROBLEM-POSING'

Several researchers have highlighted the fact that certain fundamental issues within IL research and practice warrant a more thorough investigation, maintaining that overlooking these issues could ultimately impact the viability of IL and the achievement of its goals. First, it has been argued that there is a tension between an implicit consensus on defining IL versus the prevalence of arbitrary and imprecise definitions (e.g., Bawden, 2001; Sample, 2020; Stordy, 2015; Todd, 2017). IL is often posited as "not clearly communicat[ing] its meaning" (Bruce, 1999, p. 34) and as a "muddy concept" (Seamans, 2012, p. 223). Second, the issue of under-theorization in IL has become a persistent issue. In particular, the ongoing incongruence between theory and practice remains unresolved (Julien & Williamson, 2011; Lloyd, 2017; Schachter, 2019, 2020). IL requires diverse theoretical approaches to explain it not only as a learning activity but also as a process/path leading to a product (Budd & Lloyd, 2014; Sample, 2020; Todd, 2017). Third, the lack of clarity in defining the scope and boundaries of IL has been frequently acknowledged. In particular, there is a need to distinguish IL from other literacies and to clarify its specific roles (Becker, 2018; Koltay, 2011; Mackey & Jacobson, 2011; Schneider, 2013; Todd, 2017; Wuyckens et al., 2022). Finally, from a critical perspective, it is imperative that IL research acknowledge the political and critical dimensions of practice and discourse in the field. IL practices are always influenced by diverse—social, political, economic, and cultural—forces, but could also serve as a potential instrument for the transformation of society (Elmborg, 2006, 2012; Whitworth, 2014).

While discussions on the challenges of IL abound, there is a limited amount of literature that systematically analyzes those identified challenges. Given this, a comprehensive and critical 'reality check' is timely (Seamans, 2012). Such a 'reality check' may encompass a variety of broad aspects, including principal conceptions, assumptions, theories, models, methodologies, and findings. This paper, in particular, employs the philosophical inquiry of *aporia* in order to identify the principal challenges of IL research and practice, situated between its necessity as well as its impossibility. Posing this question challenges taken-for-granted assumptions in the IL field and stimulates ongoing debates about the legitimacy of current orientations of research and practice. In sum, this study aims to problematize unacknowledged issues (i.e., 'problem-posing') beyond a functional view of educational research focusing on 'problem-solving' (see Biesta et al., 2019; Freire, 1970/2000).

WHY '*APORIA*'?

An *aporia*[1]—often translated as 'puzzlement rooted in conflicts of reasons'—is a collection of propositions that are individually plausible but collectively inconsistent or

[1] Szaif (2018, p. 31) explains that the terms *aporia* and its corresponding verb *aporein* (meaning 'to be in a state of *aporia'*) originate from the root of *poros* ('passage', 'pathway', or 'way/means of achieving'). Their meanings seem influenced by their links to *porizein* ('to provide') and its antony m *euporia*/*euporein* ('plenty' and 'abundance'). Thus, to be in a state of *aporia* can imply being caught in an impasse without a perceivable exit as well as a lack of resources.

contradictory. *Aporia* was a pivotal tool in philosophical inquiry for many Ancient Greek philosophers, including Presocratics, Plato, and Aristotle, among others (Karamanolis & Politis, 2017; Rescher, 1987, p. 283). The *aporia*-based method (i.e., 'aporetic method'), which utilizes aporetic reasoning, leads to a point of impasse characterized by puzzlement or perplexity about 'how to proceed' or 'what to say' (Palmer, 2018). While the formal structure of the *aporia*-questions is "Is A the case or is B the case?", not every question form automatically constitutes an *aporia*. An *aporia* necessitates a (seemingly) insurmountable problem (Buddensiek, 2018, pp. 142-143).

An *aporia* compels us to confront and grapple with it, thereby discovering "a revolutionary theoretical question, posed in the very terms of its denial or in the impossibility of its solution" (Arendt, 1951, 1958; Balibar, 1995, 2004). Balibar says that the significance or purpose of all "aporetic undertakings is, if not to 'transform,' probably *to incomplete the world*, or the representation of the world as 'a world,'" which "determines the need for a constant rewriting of the philosophical text" (1995, p. 146). *Aporia* demands an in-depth examination of the problems at hand by prompting consideration of foundational principles and the sciences that build upon them, inspiring a commitment to a specific perspective, and ultimately fostering a proper understanding and description (Buddensiek, 2018, pp. 144-145). In this way, *aporia* serves as a necessary philosophical tool for accessing reality, for understanding the intricate relationship between principles and the phenomena that depend on them, and for determining their explanatory power, implications, and limits (Buddensiek, 2018, pp. 151-153).

However, the term *aporia* denotes more than the mere state of an impasse. It implies that aporetic thinking can create opportunities to rethink fundamental concepts, particularly in times of crisis (Gündoğdu, 2012). Therefore, it allows one to explore the conditions of future possibilities (Aradau, 2006; Balibar, 2004, p. 9), as evidenced by Arendt's critique of the Rights of Man, which offered the potential for the reconstruction and reinvention of human rights through her formulation of the concept of "a right to have rights" (Gündoğdu, 2012).

METHOD: A CRITICAL LITERATURE REVIEW

The field of IL is extensive, making the selection of literature inevitably subject to the researcher's bias. This paper employs the following strategies to gather a diverse range of literature while aligning with the objectives of a critical literature review.

Critical reviews aim to critically analyze the extant literature on a broad topic to reveal weaknesses, contradictions, controversies, or inconsistencies (Paré et al., 2015, p. 189). This approach can demonstrate insight into the current state of knowledge in the domain by providing conceptual, theoretical, and methodological innovation (Carnwell & Daly, 2001, p. 59; Grant & Booth, 2009, p. 93; Paré et al., 2015, p. 189). After reviewing the literature on critical reviews, the author first identified six main scopes which attune to the purposes of the study: Conceptualization, theorization, philosophical underpinning, challenge, critique, and prospect. The author further identified 96 search keywords that serve as indicators for each scope. These search keywords were combined with ("information literac*" OR "information literate*") and input into several databases—i.e., *Scopus, Web of Science* Core Collection, and Library Science

Database (*ProQuest*)—to retrieve matching literature. The search field for search keywords was limited to title to ensure the study's feasibility (Table 1).

As a part of the author's broader project, the analysis scope of this paper is limited to two pivotal *aporias* of IL—truth and knowledge, both of which were identified during the initial phase of the literature review.[2] The author purposefully selected specific scopes and search keywords in alignment with the research goals. Only literature primarily dealing with IL was included, except in cases of comparison with other related terms, such as data literacy and digital literacy. It is worth noting that an article could be related to different scopes or keywords simultaneously. In this case, the author classified the article into the most seemingly relevant category. A total of 102 relevant articles were included in the study.

Table 1
Search Queries and Criteria for Literature Search

Database	Search query
Scopus	(TITLE-ABS[a]-KEY[b] ("information literac*" OR "information literate*") AND) AND TITLE ("*search keyword*")) AND LANGUAGE (english)
Web of Science	((TS[c]=("information literac*" OR "information literate")) AND (TI[d]=("*search keyword*"))) AND LA[e]=(English)
LIS Collection (ProQuest)	[STRICT] (title("information literac*" OR "information literate*")) OR summary[f]("information literac*" OR "information literate")) AND title("*search keyword*") AND la.exact [d]("English")

[a]Abstract [b]Author keywords [c] Topic (Searches title, abstract, author keywords, and Keywords Plus)
[d] Title [e] Language [f] All abstract & summary texts

KNOWLEDGE AND TRUTH AS *APORIAS* OF INFORMATION LITERACY

Knowing versus Knowledge.

The literature review demonstrates a conflicting tension between IL (as a way of knowing) and knowledge. IL is usually considered to be crucial to fostering independent learners who can engage with information in effective and critical ways (e.g., Andretta, 2006; Fázik & Steinerová, 2021; Lenox & Walker, 1994; Lupton, 2008; Walton & Cleland, 2013). Such an understanding of IL is often advocated by constructivist learning theories, which advocate that knowledge is not simply 'found' (or 'transferred') but rather 'made' (or 'constructed') (Eskola, 2007; Harding, 2008; Hicks & Lloyd, 2021; Hwang, 1996). Constructivists also claim that reality is more in the mind of the knower, as the knower constructs a reality based on the apperceptions

[2] Despite the author's study being in its preliminary stages, several other potential *aporias* have already been identified, such as data, ideology and politics, instrumentalism and vocationalism, technology, genericism, context, education and curriculum, and illiteracy.

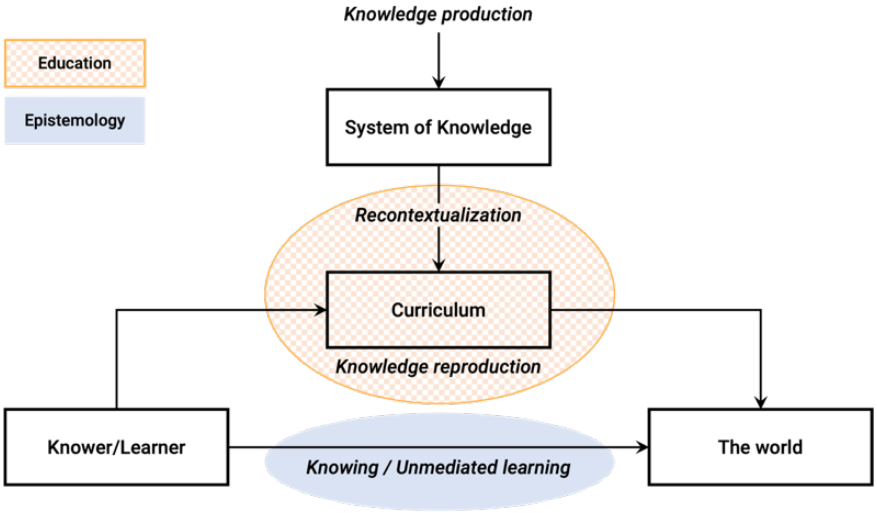
shaped around their unique set of experiences with and their beliefs about the world (Jonassen, 1991). In IL instruction, constructivism is utilized to emphasize the context of the learner and focuses on recognizing their role in engaging with content and constructing meaning (e.g., Dömsödy, 2007; Lloyd, 2010; Williams & Wavell, 2007).

On the other hand, some literature has reported the significant influence of existing knowledge in learning, noting that students struggle with the use and integration of information sources in their academic work (e.g., Ackerman & Arbour, 2016; Rosenblatt, 2010; Stevens & Campbell, 2008). Even when students possess proficiency in IL (e.g., retrieving appropriate sources), they tend to struggle to synthesize their findings in their academic work. This issue often stems from a disconnect between the novice perspectives of students and the expert viewpoints of faculty members in terms of existing knowledge and cognitive patterns (National Research Council, 2000). Furthermore, unlike students, faculty possess a deeper, more nuanced understanding of the research process and discourse in their disciplines (Bodi, 2002; Leckie, 1996). This may imply that students need to enhance fundamental competencies, such as domain-specific knowledge, cognitive maturity, knowledge transfer, and critical thinking, *before* being introduced to IL and research. This also suggests that IL instructional approaches should account for students' initial knowledge bases and aim to gradually enhance their understanding (Aglen, 2016).

Against such a backdrop, it is worth noting that several researchers in education studies have critiqued constructivism (and context-dependent learning) in that it reduces *knowledge* to *knowing* by conflating 'epistemology' with 'learning' (e.g., Maton, 2014; Young, 2008). First, these researchers, in contrast to the constructivist perspective, posit that *what* is being learned is not the world *itself* (e.g., information phenomena) but a recontextualized system of knowledge *about* the world (e.g., information science) (Figure 1). They assert that constructivists conflate the process behind the 'production of knowledge' with that behind the 'learning of knowledge' (Song & Kang, 2018, pp. 21-22). Furthermore, they defend the importance of context-independent knowledge. Basil Bernstein distinguishes between mundane knowledge—common sense, contextual, and local— esoteric knowledge—conceptual, abstract, and systematic (Bernstein, 1975/2003, pp. 90-91; 1990/2003, pp. 172-174; 1999; Wheelahan, 2010, p. 20). Bernstein explains that mundane knowledge, being context-dependent and non-transcendental, is confined to and can only be comprehended within their particular context. In contrast, esoteric knowledge, characterized by systematic principles that generate meaning, integrates knowledge based on abstract relationships rather than relevance to specific contexts. This form of knowledge is thus deemed 'powerful knowledge' due to its potential to transform both knowledge and the ways to use that knowledge (Hoadley & Muller, 2010, pp. 74-75; Wheelahan, 2010, pp. 20-21).

Given such tensions, IL researchers need to tackle with this *aporia* by answering several questions: How does IL influence an individual's different types of knowledge (e.g., propositional, experiential, performative, and epistemological) (see Mingers, 2014; Pavese, 2022; Swanson, 2006)? What are the relationships between new information and the existing structure of knowledge, understanding, and skills?

Figure 1
Knowing and Learning in Education



Informativeness versus Truth.

Another *aporia* identified from the literature was the tension between seeking objective truths through IL and acknowledging the subjective nature of information interpretation and use. The use of multiple concepts of information was more prevalent in the early 2010s. Scholars tend to present a diverse range of conceptions of information, without clearly differentiating information from data, documents, content, media, knowledge, interpretations, and opinions (e.g., Bruce, 1997; Kuhlthau, 1985; Limberg et al., 2012; Mackey & Jacobson, 2011). Here, information could be nearly whatever an individual considers 'informative.' However, such an understanding of information conflicts with more recent IL frameworks, which adopt information as (true) propositional content (e.g., Grizzle et al., 2021; Information Literacy Group, 2018). This shift appears to reflect the changing information landscape due to the rise of 'post-truth' phenomena.

This invites critical questions about the connection between truth and information in IL research and practice. For example, Hannah (2023) highlights the shortcomings in the ACRL framework, which could complicate efforts to address the spread of misinformation and disinformation. Furthermore, there have been recent attempts to articulate the relationship between truth and information within IL models. Fázik and Steinerová (2021) discuss Lupton's (2008) categorization of IL concepts—namely, (1) the dimension of external (objective) information outside the user entity, (2) the dimension of internal (subjective) information, and (3) the dimension of subjective information with a transformative nature—and argue for an understanding of IL as the competence to critically assess information with the purpose of verifying its truthfulness through a dialectic process. According to this study, knowledge of the

truth serves as a bridge between subjective (internalized) information with objective (external) information.

This alleged *aporia* is related to the conceptualization of information with regard to its 'objectivity,' which is intrinsically linked to the ontological status of information (Adriaans, 2024). A subjective interpretation (i.e., a state of an agent) views information as contingent upon the receiver's interpretation of the message (e.g., 'reduction in uncertainty' or 'change in cognitive structure') (McKinney & Yoos, 2019; Mingers, 2013, pp. 389-390). This suggests that a message conveys *no* information if its content is already known or not understood by the recipient. Such an approach aligns closely with the pragmatic dimension of information, highlighting its relativity to the receiver's context. Conversely, an objective perspective on information (i.e., the capacity of an object to inform an agent) argues for a clear, if not absolute, distinction between 'true' and 'false' information—i.e., mis- and disinformation—as the basis of IL instruction (Baines & Elliott, 2020; Brisola & Doyle, 2019; Rubin, 2019). This view highlights several drawbacks to subjective interpretation (Mingers, 2013, pp. 389-390). First, this standpoint argues that the subjective approach undermines the inherent informational content of information resources and neglects to acknowledge the nature of information as distinct from interpretation.

CONCLUSION

This study contributes to the field by moving beyond conventional 'problem-solving' frameworks towards a more reflective 'problem-posing' approach that acknowledges the complexity and multifaceted nature of IL. Adopting an aporetic method, the study aimed to a new mode of engaging with the realities of IL, offering a fresh perspective on its challenges and opportunities. A critical review has identified knowledge and truth as key *aporias* that need to be confronted in IL research and practice. Given both *aporias* are intrinsically linked to the understanding of information, future research could benefit from a philosophical analysis of information (Floridi, 2016; Furner, 2010; Mingers, 2013; Sequoiah-Grayson & Floridi, 2022).

REFERENCES

Ackerman, E., & Arbour, B. K. (2016). "I Have Ten Peer Reviewed Articles. Now What?" How Political Science Research Methods Textbooks Teach Students About Scholarly Context. *Journal of Academic Librarianship*, *42*(5), 612-619. https://doi.org/10.1016/j.acalib.2016.06.009

Adriaans, P. (2024). Information. In E. N. Zalta & U. Nodelman (Eds.), *The Stanford Encyclopedia of Philosophy* (Summer 2024 ed.). Metaphysics Research Lab, Stanford University. https://plato.stanford.edu/archives/sum2024/entries/information/

Aglen, B. (2016). Pedagogical strategies to teach bachelor students evidence-based practice: A systematic review. *NURSE EDUCATION TODAY*, *36*, 255-263. https://doi.org/10.1016/j.nedt.2015.08.025

Andretta, S. (2006). Information Literacy: The new "pedagogy of the question"? In G. Walton & A. Pope (Eds.), *Information Literacy* (pp. 12-19). Chandos Publishing. https://doi.org/10.1016/B978-1-84334-243-4.50003-2

Arendt, H. (1951). *The Origins of Totalitarianism*. New York: Harcourt.

Arendt, H. (1958). *The Origins of Totalitarianism* (2nd ed.). Meridian Books.

Baines, D., & Elliott, R. (2020). *Defining misinformation, disinformation and malinformation: An urgent need for clarity during the COVID-19 infodemic*. https://EconPapers.repec.org/RePEc:bir:birmec:20-06

Balibar, É. (1995). The infinite contradiction. *Yale French Studies*(88), 142-164.

Balibar, É. (2004). *We, the people of Europe?: Reflections on Transnational Citizenship* (J. Swenson, Trans.). Princeton University Press. (Nous, citoyens d'Europe: Les Fronti`eres, l'´Etat, le peuple)

Bawden, D. (2001). Information and digital literacies: a review of concepts. *Journal of Documentation*, *57*(2), 218-259. https://doi.org/10.1108/eum0000000007083

Becker, B. W. (2018). Information literacy in the digital age: Myths and principles of digital literacy. *School of Information Student Research Journal*, *7*(2), 2. https://doi.org/10.31979/2575-2499.070202

Bernstein, B. (1975/2003). *Class, Codes and Control: Vol. III. Towards a Theory of Educational Transmissions*. Routledge. https://doi.org/10.4324/9780203011430

Bernstein, B. (1990/2003). *Class, Codes and Control: Vol. IV. The Structuring of Pedagogic Discourse*. Routledge. https://doi.org/10.4324/9780203011263

Bernstein, B. (1999). Vertical and Horizontal Discourse: An essay. *British Journal of Sociology of Education*, *20*(2), 157-173. https://doi.org/10.1080/01425699995380

Biesta, G., Filippakou, O., Wainwright, E., & Aldridge, D. (2019). Why educational research should not just solve problems, but should cause them as well [Editorial]. *British Educational Research Journal*, *45*(1), 1-4. https://doi.org/10.1002/berj.3509

Bodi, S. (2002). How do we bridge the gap between what we teach and what they do? some thoughts on the place of questions in the process of research. *The Journal of Academic Librarianship*, *28*(3), 109-114. https://doi.org/10.1016/S0099-1333(01)00302-0

Brisola, A. C., & Doyle, A. (2019). Critical Information Literacy as a Path to Resist "Fake News": Understanding Disinformation as the Root Problem. *Open Information Science*, *3*(1), 274-286. https://doi.org/10.1515/opis-2019-0019

Bruce, C. (1997). *The seven faces of information literacy*. Auslib Press Adelaide.

Bruce, C. S. (1999). Workplace experiences of information literacy. *International Journal of Information Management*, *19*(1), 33-47. https://doi.org/10.1016/S0268-4012(98)00045-0

Budd, J. M., & Lloyd, A. (2014). Theoretical foundations for information literacy: A plan for action. *Proceedings of the American Society for Information Science and Technology*, *51*(1), 1-5. https://doi.org/10.1002/meet.2014.14505101001

Buddensiek, F. (2018). Aporia in Aristotle's Metaphysics Beta. In G. Karamanolis & V. Politis (Eds.), *The aporetic tradition in ancient philosophy* (pp. 137-154). Cambridge University Press.

Carnwell, R., & Daly, W. (2001). Strategies for the construction of a critical review of the literature. *Nurse Education in Practice*, *1*(2), 57-63. https://doi.org/10.1054/nepr.2001.0008

Dömsödy, A. (2007). Children's Conceptions about Libraries and Learning. *The New Educational Review*, *11*, 75-84.

Elmborg, J. (2006). Critical Information Literacy: Implications for Instructional Practice. *The Journal of Academic Librarianship*, *32*(2), 192-199. https://doi.org/10.1016/j.acalib.2005.12.004

Elmborg, J. (2012). Critical information literacy: Definitions and challenges. In C. W. Wilkinson & C. Bruch (Eds.), *Transforming information literacy programs: Intersecting frontiers of self, library culture, and campus community* (pp. 75-95). Association of College and Research Libraries.

Eskola, E.-L. (2007). Information Literacy in Medical Education: Relationships with Conceptions of Learning and Learning Methods. In E. D. Garten, D. E. Williams, J. M. Nyce, & S. Talja (Eds.), *Advances in Library Administration and Organization* (Vol. 25, pp. 203-238). Emerald Group Publishing Limited. https://doi.org/10.1016/S0732-0671(07)25010-2

Fázik, J., & Steinerová, J. (2021). Technologies, knowledge and truth: the three dimensions of information literacy of university students in Slovakia. *Journal of Documentation*, *77*(1), 285-303. https://doi.org/10.1108/JD-05-2020-0086

Floridi, L. (2016). Semantic Information. In L. Floridi (Ed.), *The Routledge handbook of philosophy of information* (pp. 44-49). Routledge.

Freire, P. (1970/2000). *Pedagogy of the Oppressed* (M. B. Ramos, Trans.). Bloomsbury.

Furner, J. (2010). Philosophy and information studies. *Annual Review of Information Science and Technology*, *44*(1), 159-200. https://doi.org/10.1002/aris.2010.1440440111

Grant, M. J., & Booth, A. (2009). A typology of reviews: an analysis of 14 review types and associated methodologies. *Health Information & Libraries Journal*, *26*(2), 91-108. https://doi.org/10.1111/j.1471-1842.2009.00848.x

Grizzle, A., Wilson, C., & Gordon, D. (Eds.). (2021). *Media and information literate citizens: think critically, click wisely!* (2nd ed.). UNESCO. https://unesdoc.unesco.org/notice?id=p::usmarcdef_0000377068.

Gündoğdu, A. (2012). 'Perplexities of the rights of man': Arendt on the aporias of human rights. *European Journal of Political Theory*, *11*(1), 4-24. https://doi.org/10.1177/147488511141778

Hannah, M. (2023). Information literacy in the age of internet conspiracism. *Journal of Information Literacy*, *17*(1). https://doi.org/10.11645/17.1.3277

Harding, J. (2008). Information literacy and the public library: we've talked the talk, but are we walking the walk? *The Australian Library Journal*, *57*(3), 274-294. https://doi.org/10.1080/00049670.2008.10722480

Hicks, A., & Lloyd, A. (2021). Deconstructing information literacy discourse: Peeling back the layers in higher education. *Journal of Librarianship and Information Science*, *53*(4), 559-571. https://doi.org/10.1177/0961000620966027

Hoadley, U., & Muller, J. (2010). Codes, pedagogy and knowledge: Advances in Bernsteinian sociology of education. In M. W. Apple, S. J. Ball, & L. A. Gandin (Eds.), *The Routledge International Handbook of the Sociology of Education* (pp. 69-78). Routledge. https://doi.org/10.4324/9780203863701-8

Hwang, A.-S. (1996). Positivist and constructivist persuasions in instructional development. *Instructional Science*, *24*(5), 343-356. https://doi.org/10.1007/BF00118112

Information Literacy Group. (2018). CILIP Definition of Information Literacy 2018. https://infolit.org.uk/ILdefinitionCILIP2018.pdf

Jonassen, D. H. (1991). Objectivism versus constructivism: Do we need a new philosophical paradigm? *Educational Technology Research and Development*, *39*(3), 5-14. https://doi.org/10.1007/BF02296434

Julien, H., & Williamson, K. (2011). Discourse and practice in information literacy and information seeking: Gaps and opportunities. *Information Research*, *16*(1), 16-11. http://InformationR.net/ir/16-1/paper458.html

Karamanolis, G., & Politis, V. (Eds.). (2017). *The aporetic tradition in ancient philosophy*. Cambridge University Press. https://doi.org/10.1017/9781316274293.

Koltay, T. (2011). The media and the literacies: media literacy, information literacy, digital literacy. *Media, Culture & Society*, *33*(2), 211-221. https://doi.org/10.1177/0163443710393382

Kuhlthau, C. C. (1985). *Teaching the Library Research Process*. The Center for Applied Research in Education, Inc.

Leckie, G. J. (1996). Desperately seeking citations: Uncovering faculty assumptions about the undergraduate research process. *The Journal of Academic Librarianship*, *22*(3), 201-208. https://doi.org/10.1016/S0099-1333(96)90059-2

Lenox, M. F., & Walker, M. L. (1994). Information Literacy: A Challenge for the Future. *NASSP Bulletin*, *78*(562), 57-72. https://doi.org/10.1177/019263659407856211

Limberg, L., Sundin, O., & Talja, S. (2012). Three theoretical perspectives on information literacy. *Human IT: Journal for Information Technology Studies as a Human Science*, *11*(2).

Lloyd, A. (2010). *Information Literacy Landscapes: Information literacy in education, workplace and everyday contexts*. Chandos Publishing.

Lloyd, A. (2017). Information literacy and literacies of information: a mid-range theory and model. *Journal of Information Literacy*, *11*(1), 91-105. https://doi.org/10.11645/11.1.2185

Lupton, M. (2008). *Information literacy and learning* [Doctoral dissertation, Queensland University of Technology]. https://eprints.qut.edu.au/26825/

Mackey, T. P., & Jacobson, T. E. (2011). Reframing information literacy as a metaliteracy. *College & Research Libraries*, *72*(1), 62-78.

Maton, K. (2014). *Knowledge and Knowers: Towards a Realist Sociology of Education*. Routledge. https://doi.org/10.4324/9780203885734

McKinney, E. H., & Yoos, C. J. (2019). Information as a difference: toward a subjective theory of information. *European Journal of Information Systems*, *28*(4), 355-369. https://doi.org/10.1080/0960085x.2019.1581441

Mingers, J. (2013). Prefiguring Floridi's Theory of Semantic Information. *tripleC: Communication, Capitalism & Critique. Open Access Journal for a Global Sustainable Information Society*, *11*(2), 388-401. https://doi.org/10.31269/triplec.v11i2.436

Mingers, J. (2014). Knowledge and forms of truth. In *Systems Thinking, Critical Realism and Philosophy* (pp. 147-167). Routledge. https://doi.org/10.4324/9781315774503

National Research Council. (2000). *How People Learn: Brain, Mind, Experience, and School: Expanded Edition*. The National Academies Press. https://doi.org/doi:10.17226/9853

Palmer, J. (2018). Contradiction and Aporia in Early Greek Philosophy. In G. Karamanolis & V. Politis (Eds.), *The aporetic tradition in ancient philosophy* (pp. 9-29). Cambridge University Press.

Paré, G., Trudel, M. C., Jaana, M., & Kitsiou, S. (2015). Synthesizing information systems knowledge: A typology of literature reviews. *Information & Management*, *52*(2), 183-199. https://doi.org/10.1016/j.im.2014.08.008

Pavese, C. (2022). Knowledge How. In E. N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy* (Fall 2022 ed.). Metaphysics Research Lab, Stanford University. https://plato.stanford.edu/archives/fall2022/entries/knowledge-how/

Rescher, N. (1987). Aporetic Method in Philosophy. *The Review of Metaphysics*, *41*(2), 283-297. http://www.jstor.org/stable/20128593

Rosenblatt, S. (2010). They can find it, but they don't know what to do with it: Describing the use of scholarly literature by undergraduate students. *Journal of Information Literacy*, *4*(2), 50-61. https://doi.org/10.11645/4.2.1486

Rubin, V. L. (2019). Disinformation and misinformation triangle. *Journal of Documentation*, *75*(5), 1013-1034. https://doi.org/10.1108/JD-12-2018-0209

Sample, A. (2020). Historical development of definitions of information literacy: A literature review of selected resources. *The Journal of Academic Librarianship*, *46*(2), 102116. https://doi.org/10.1016/j.acalib.2020.102116

Schachter, D. (2019). *Bridging the gap between theory and practice: critical information literacy teaching in Canadian higher education* [Doctoral dissertation, The University of Edinburgh]. http://hdl.handle.net/1842/36071

Schachter, D. (2020). Theory into practice: Challenges and implications for information literacy teaching. *IFLA Journal*, *46*(2), 133-142. https://doi.org/10.1177/0340035219886600

Schneider, R. (2013). Research Data Literacy. In S. Kurbanoğlu, E. Grassian, D. Mizrachi, R. Catts, & S. Špiranec (Eds.), *Worldwide Commonalities and Challenges in Information Literacy Research and Practice. ECIL 2013. Communications in Computer and Information Science* (Vol. 397, pp. 134-140). Springer. https://doi.org/10.1007/978-3-319-03919-0_16

Seamans, N. H. (2012). Information literacy reality check. In C. W. Wilkinson & C. Bruch (Eds.), *Transforming information literacy programs: Intersecting frontiers of self, library culture, and campus community* (pp. 221-244). Association of College and Research Libraries.

Sequoiah-Grayson, S., & Floridi, L. (2022). Semantic Conceptions of Information. In E. N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy* (Spring 2022 ed.). Metaphysics Research Lab, Stanford University. https://plato.stanford.edu/archives/spr2022/entries/information-semantic

Song, M., & Kang, S. (2018). Philosophical Critique of Constructivism in Education [Philosophical Critique of Constructivism in Education]. *The Korea Educational Review*, *24*(4), 1-28. https://doi.org/10.29318/KER.24.4.1

Stevens, C. R., & Campbell, P. J. (2008). Collaborating with Librarians to Develop Lower Division Political Science Students' Information Literacy Competencies. *Journal of Political Science Education*, *4*(2), 225-252. https://doi.org/10.1080/15512160801998114

Stordy, P. (2015). Taxonomy of literacies. *Journal of Documentation*, *71*(3), 456-476. https://doi.org/10.1108/JD-10-2013-0128

Swanson, T. (2006). Information Literacy, Personal Epistemology, and Knowledge Construction. *College & Undergraduate Libraries*, *13*(3), 93-112. https://doi.org/10.1300/J106v13n03_07

Szaif, J. (2018). Socrates and the Bene fi ts of Puzzlement. In G. Karamanolis & V. Politis (Eds.), *The aporetic tradition in ancient philosophy* (pp. 30-47). Cambridge University Press.

Todd, R. J. (2017). Information Literacy: Agendas for a Sustainable Future. *Journal of Information Literacy*, *11*(1), 120. https://doi.org/10.11645/11.1.2233

Walton, G., & Cleland, J. (2013). Becoming an Independent Learner. In J. Secker & E. Coonan (Eds.), *Rethinking Information Literacy: A Practical Framework for Supporting Learning* (pp. 13-26). Facet Publishing. https://www.cambridge.org/core/product/84C1524D07082DA44B9F404EE2E17B01

Wheelahan, L. (2010). *Why knowledge matters in curriculum: A social realist argument*. Routledge. https://doi.org/10.4324/9780203860236

Whitworth, A. (2014). *Radical Information Literacy: Reclaiming the political heart of the IL movement*. Chandos Publishing.

Williams, D. A., & Wavell, C. (2007). Secondary school teachers' conceptions of student information literacy. *Journal of Librarianship and Information Science*, *39*(4), 199-212. https://doi.org/10.1177/0961000607083211

Wuyckens, G., Landry, N., & Fastrez, P. (2022). Untangling media literacy, information literacy, and digital literacy: A systematic meta-review of core concepts in media education [Article]. *Journal of Media Literacy Education*, *14*(1), 168-182. https://doi.org/10.23860/JMLE-2022-14-1-12

Young, M. (2008). *Bringing knowledge back in: From social constructivism to social realism in the sociology of education*. Routledge. https://doi.org/10.4324/9780203073667