CONCEPT OF RESEARCH LITERACY IN ACADEMIC CONTINUING EDUCATION: A SYSTEMATIC REVIEW

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ABSTRACT

To date, research literacy has not been studied conceptually in academic continuing education even though it has gained recognition in practice as one of competence areas that learners need to acquire. The aim of our review was to identify the concepts and competences related to research literacy in academic continuing education in order to provide a fit concept of research literacy in academic continuing education. We roughly followed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) statement. We conducted the search in the domains of continuing education and higher education, in case of lack of research in continuing education. Our search identified in total 857 items. Based on title and abstract review, we considered 111 articles for review. After scrutinising the full-text articles, we included 72 publications for the extraction of the data and analysis. The main finding of the review is the lack of research on research literacy in continuing education. Our search did not yield any study that focused on academic continuing education. A second important finding is the lack of a comprehensive and holistic concept of research literacy, not only for continuing education, but also for higher education. Especially with the global trends and changes altering ways of production and research, it is important to provide an up to date definition of research literacy and the right set of skills and competences that meet the needs of learners in academic continuing education.

INTRODUCTION

Literacy can be understood as the ability to read and write, or – in a more modern sense – to competently use and produce media products. Frequently, literacy is used in a binary understanding of either literate or illiterate, which would locate the development of literacy in primary schools only. In contrast to that one could accept literacy as the centrepiece of formal education, as an ability that can be increasingly improved and further developed across different stages of the formal education system. From the perspective of competencies, the sequential structure of the formal education system (e.g. primary, secondary and tertiary education; or 1st, 2nd and 3rd cycle in higher education) can be described as a way of continuous development of literacy, not just as a mere accumulation of knowledge. Literacy, in general, requires procedural knowledge - the ability to do something - as opposed to declarative knowledge - knowing of something (Venezky, 1990). Thus, in the case of research literacy it is about the skills and practice of how to conduct research and produce academic research.

Consequently, this allows us to investigate literacy at universities, in particular research or academic literacy, as a central task of higher education, not as a mere deficit of some

students. The term “research literacy” therefore especially refers to tertiary education, the highest level of the formal education system. This makes it clear that research literacy should be a concern of every higher education institution, especially in times when the digital transformation influences and changes the relevant media formats and ways of academic communication.

In a similar vein, research literacy also constitutes one of the core competences of academic continuing education. Even if definitions vary across countries, university continuing education can be defined as learning “at university level and [as] research-based”[5], and it “includes all initiatives aiming at updating, broadening or specialising knowledge, skills and/or competences” (Baert *et al*., 2017, p. 18). Especially in German speaking countries, continuing education offerings by the universities have been increasing. Gornik (2019) categorizes these offerings under the following groups: individual seminars without ECTS; free continuing education series; summer courses; university courses without degree; corporate programs; ECTS-based certificate courses; ECTS-based individual seminars; and academic expertise programs. Beside these offers, there are formal university continuing education offerings that lead to a Bachelors or Masters degree and which can be identified as “academic continuing education” where students are expected to plan, conduct and report research at the post-graduate level in order to graduate.

Compared to traditional students, who enter college immediately (or, at least, soon) after high school, and which tend to enrol at university in their early twenties, continuing education students tend to be much older with professional experience and family responsibilities. For example, in the case of Danube University Krems, a specialized university in academic continuing education in Austria, the average age of new entrants is approximately 40 years (Dornmayr *et al*., 2017, p. 13). Due to permeability and assessment and recognition of prior learning, students without an academic background can be admitted to academic continuing education programmes. They represent a diverse and unequal prior experience (Long, 2004). Hence, research literacy plays a crucial role in academic continuing education considering the diversity of students’ competences (academic and non-academic). We do not know how research literacy is defined and which skill sets are targeted at the academic continuing education programs for these special target group and these special programmes.

This paper is part of a project which aimed to investigate the research literacy competences of academic continuing education students in Austria. We wanted to examine the skills and competences in research literacy in academic continuing education, and how students and lecturers evaluate these skills and competences for themselves. Our preliminary search for a conceptual and theoretical framework indicated that research literacy in academic continuing education has not been touched upon, while it is more commonly investigated in higher education level (see studies from Gee, 1996; Lea & Street; 1998; Lillis & Scout, 2007; Van Dyk & Weideman, 2004a). Thus, we conducted a systematic review to thoroughly scan the literature and set the stage for further research on research literacy. The aims of our review were to identify the concepts and area of competences related to research literacy in academic continuing education; to provide a clear conceptual and theoretical understanding of the concept as well as the sub-skills and competences attributed to research literacy, and to guide lecturers and administrative staff involved in academic continuing education in their practice of designing and delivering academic and research literacy.

METHOD

This study was designed as a systematic literature review. Details of the methodology are presented in the following part.

[5] EUCEN-website: http://www.eucen.eu/aims-and-objectives/

Design

A systematic literature review is a review of *"*a clearly formulated question that uses systematic and explicit methods to identify, select, and critically appraise relevant research and to collect and analyse data from the studies that are included in the review*"* (Moher, Liberati, Tetzlaff & Altman, 2009, p. 264). This approach was adopted as it provides a clear, accurate and reliable framework for conducting a review on "research literacy". The current review roughly followed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) statement (Moher *et al*, 2009). We did not conduct quality appraisal as we aimed at examining the theoretical and conceptual aspects concerning "research literacy in continuing education". *Figure 1* presents the seven steps of the systematic review.

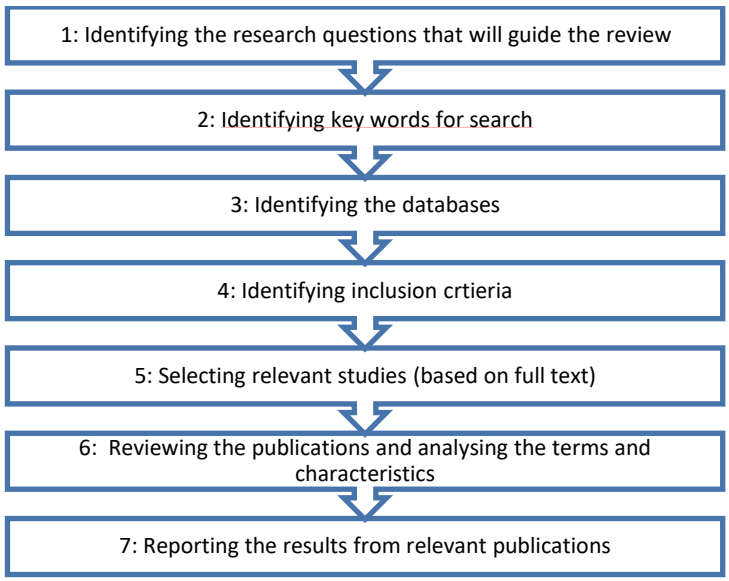


Figure 1. Steps in our systematic review according to PRISMA guideline

Research Questions

As the first step, we identified our research questions that would guide the review. Based on our initial discussions and preliminary literature search we determined six research questions. Our systematic review addressed the following questions:

1) How is "research literacy" defined in the literature?
2) What types of studies exist on research literacy that can be related to continuing/ higher education (and/or professional occupations)?
3) Which sub-literacies, skills and competencies can be ascribed to research literacy?
4) Which measurement tools exist in the literature to study research literacy? How is research literacy measured?
5) Which theories and concepts are used to study research literacies?
6) Which disciplines, fields and actors deal with questions of research literacy?

Search Terms

After the initial literature search, a list of search terms was formed according to education level and concept of research literacy. The initial list of search terms was altered after the pilot search. For example, "study skills" and "learning skills" did not yield results related to the concept of research literacy, as well as "lifelong learning". These key words were removed from the list.

Moreover, “information literacy” was also removed due to the large number of unrelated articles. We focused on the concept of academic and research literacy as the generic term and did not include sub-competences such as academic writing, academic reading. *Table 1* presents the list of the search terms.

We separated the level of education for our search as we wanted to see first the studies in the area of continuing education. Another search was conducted with the higher education search terms.

Level of education #1	**continuing education** **adult education** **postgraduate education** **further education** **non-formal education** **adult training, adult education**
Level of education #1a	higher education university college
Key Concepts #2	research literacy academic skill* academic literacy*ies research skill* academic competence

Table 1. List of search terms

Search Strategy

For this review, the Web of Science with all database options was used. After pilot searches in some databases, we decided that Web of Science was the most comprehensive database, including several of the most important citation databases in education and social sciences such as Science-Citation index Expanded, Social Sciences Citation Index, Arts & Humanities Citation Index, Conference Proceedings Citation Index, Emerging Sources Citation Index, and many more. Scopus and Web of Science had a high degree of overlap, therefore Scopus is not included in the list of databases.

The search was conducted using Boolean operators AND and OR. First, the key word search for education level was conducted and then the key words for the concept of research literacy. As a third step, these two searches were combined. Search results are presented in *Table 2*.

Database searched	Search terms	Filters applied	# of records retrieved	# of records included after abstract screening	# of records included in the full-text screening
Web of Science	#1 and #2	2020-2015	319	19	3
Web of Science	#1a and 2	2020-2015	538	92	69
Total studies			857	111	72

Table 2. Search strategy and results

Selection Criteria

A review guide and table for inclusion criteria were developed by the research team. While creating the inclusion criteria we focused on the concepts that are closest to the research questions. Concepts such as “lifelong learning” or “media literacy” are excluded as they are too generic. *Table 3* presents the criteria for the inclusion of relevant studies. These criteria were followed both at the abstract screening and full-text screening stages.

Criterion type	Inclusion criteria
Topic	research literacy, academic literacy studies focused on continuing education, adult education, postgraduate education, or higher education/university NOT: study skills, learning skills, generic skills, lifelong learning, academic writing, information literacy, academic writing, academic reading, media literacy
Recency/dates	2015-2020
Age-range/sample	continuing education/university students/new entrants/post graduate education
Language	English
Research base	All empirical studies (theoretical, quantitative, qualitative, mixed case)
Type of publication	Peer-reviewed articles, book chapters, project reports, thesis, conference proceedings

Table 3. Inclusion criteria for the review

Study Selection

The study selection was conducted in three steps. First, titles of all the articles were screened according to the inclusion criteria listed above. Then, as the second step, abstracts were screened for eligibility using the same criteria. The full-texts of included articles were retrieved. At this stage some of the articles were excluded due to the language in which they were written, as some of the articles that emerged with English abstracts turned out to be written in another language. As the last step, full texts were screened and the required information was retrieved. The following information was extracted from each article: name of the author(s), year of publication, country, the purpose, type of publication, research design, data collection methods, definition of key concept, key skills, measurement tools/scales used, theories adopted, concepts adopted, and discipline/area. Not all of the articles yielded all the necessary information.

RESULTS

In total, our search identified 857 citations after exclusion of duplicates. Based on title and abstract review, we considered 111 articles for review out of 857. After scrutinising the full-text articles, we included 72 publications for the extraction of data.

Study Characteristics

The tables below present the basic characteristics of the publications in the study. Publications were mainly articles from peer-reviewed journals (see *Table 4*). Those that lacked full-texts were mainly conference proceedings.

Type of publication	n
Peer-reviewed article	67
Commentary	1
Conference proceeding	2
Editorial	1
Study book	1
Total	**72**

Table 4. Number of texts by type of publication

One of our search criteria was recency and we focused on the last five years to be able to have a more current look at the literature. Most of the publications were published during the last two years (see *Table 5*).

Year	n
2015	8
2016	12
2017	15
2018	20
2019	17
Total	**72**

Table 5. Number of texts by year of publication

Another interesting feature of the publications included in the review is that the majority of the publications originated in South Africa and Australia (see *Table 6*). It is clear that there is a rich context and community that works on research literacy and academic literacy in higher education in these countries.

Country	n
Australia	13
Bostwana	1
Canada	2
Chile	1
China	1
Denmark	1
Ecuador	1
Fiji Islands	1
Germany	4
Indonesia	1
Israel	1
Lebanon	1
New Zealand	3
Portugal	2
Russia	1
Singapore	1
South Africa	20
Spain	3

Sweden	1
UK	8
USA	5
Total	**72**

Table 6. Number of texts by country of origin

Definitions of Research Literacy

The first research question addresses the conceptualisation of the term “research literacy”. It is important to note that not every publication provided a clear definition of the key concepts they work with. Thus, analysis was conducted on the articles that provide a clear definition of research literacy.

Our analysis indicated that “academic literacy” is widely used in comparison to “research literacy” in the literature. In our full text review, only seven of the 72 articles were based on the concept of “research literacy”. “Academic literacy” is more comprehensive in terms of the skills and competences it focuses on as well. Thus, we mainly used the term “academic literacy” for reporting the results.

Our review of the literature indicated that it is a complex task to define academic literacy. There exist several different conceptualisations based on contrasting theoretical frameworks. Lea and Street (1998) present a useful classification of three views that also serves our purpose. The first group views academic literacy as normative, unitary and monolithic which is based on a generic set of skills that students have to master in order to be successful in “academic” life. This traditional approach to academic literacy is neutral and uncritical of the complex nature of academic literacy as well as its relation to identity, power, class and inequality (see Bourdieu, 1991, and Gee, 1996 regarding academic discourse, habitus and competences). This approach is called the “study skills” approach (see Lea and Street, 1998), and the focus is on the technical and instrumental skills such as grammar and spelling. In this approach, academic literacy is considered as an “autonomous” subject to teach.

The second approach to academic literacy is built on the idea of multiple literacies and multimodalities as well as a sociocultural lens, which emphasises the dynamic and contested nature of academic literacy. In this approach, the plural version of the term “academic literacies” is preferred to underline the epistemological differentiation to its singular counterpart. It is based on “new literacy studies"; critical discourse analysis; systemic functional linguistics; and cultural anthropology. They discuss the meaning making, identity, and power issues especially at the legitimate knowledge to teach/learn and views academic literacy as a “social practice”. It also takes into consideration that there are other types of literacies, which are not limited to words, such as numeracy and visual literacy.

The third conceptualisation is called “academic socialisation”. In this approach, academic literacy is seen as an acculturating process through which students acquire the necessary skills to adapt to academic culture. This distinction emerged from our review as well.
Not every article provided a clear definition or a conceptual framework, but based on the ones provided we classified the definition into three categories (see *Table 7*) following Lea and Street’s (1998) classification: study skills, academic socialisation and academic literacies.

Definitions in different categories	Publication
Study skills approach	
The focus of this discussion, however, will be academic literacy, the ability to use language competently in higher education….	Weideman, 2019, p. 35
For the purposes of this article, "literacy" refers to a student's ability to read English texts fluently and with comprehension, write English texts coherently, synthesise different information sources and offer a critical awareness of the information at a grade-appropriate level to ensure access to knowledge and success in education (UNESCO, 2011).	Millin, 2015, p. 107
Academic socialisation approach	
The term "academic literacy/ies" in this paper follows Wingate's definition: "the ability to communicate competently in an academic discourse community" (Wingate 2015, p. 6). It includes attention to the conventions and communicative purposes of Year 1 essays in particular disciplinary contexts; however, it did not focus on issues of identity and power relations as found in literature from the United Kingdom.	Wette, 2019, p. 36
Developing academic literacy involves harnessing both the linguistic tools and the conceptual tools that organize the social activity of academic life. In this sense, developing academic literacy can be understood as acculturating into the social language that enables legitimate participation in formal academic settings	Imbrenda, 2018, p. 319
Academic literacy, the ability to cope with the demands of academic discourse in the language of teaching and learning	Sebolai, 2018, p. 58
Academic literacies approach	
Although many definitions and interpretations of 'academic literacy' have been offered by theorists in the field, this study draws on Lea and Street's (1998: 160) view that "academic literacy in higher education points to reading and writing in the different disciplines where such reading and writing constitute the central process through which students learn new subjects and develop their knowledge	Scholtz, 2019, p. 107
The concept of academic literacy has a number of interpretations. However, this study uses the concept of academic literacies (plural) as outlined (Street in Baker, Clay & Fox 1996, p. 118): *"Academic writing is not a single thing but an aggregation of literacy practices that make, and are made, by the epistemologies and practices (including the use of power) of specific disciplines and other institutional formations; that it mediates identity struggles; that it is largely transparent to instructors socialised in a discipline, assumed; that technical solutions such as study skills do not get at the problem"*	Hackmack, 2019, p. 1
The article draws on an understanding of academic literacy as a local practice situated in the social and institutional contexts in which it appears	Clemensen & Holm, 2017, p. 34
To do so, the article develops an analytical framework by synthesizing and extending the concept of literacy practice based on insights from NLS, AcLits, and practice theory as proposed by the philosopher Theodore Schatzki (1996).	Kaufhold, 2017, p. 74

Other terms (research literacy, social-scientific research competence, educational research literacy)	
'Research literacy' (RL) includes the acquisition of information access and retrieval skills, and more importantly it emphasises ''the learning of discursive practices within the context of an academic discipline'' (Simmons, 2005, p. 299).	Han & Schuurmans-Stekhoven, 2017, p. 31
The definition of social-scientific RC used in the present paper bears on an understanding of competency as "domain-specific cognitive dispositions that are required to successfully cope with certain situations or tasks, and that are acquired by learning processes" (Koeppen, Hartig, Klieme, & Leutner, 2008, p. 68). Accordingly, RC is defined as cognitive dispositions that are required to successfully cope with situations or tasks in empirical social-scientific research, and that are acquired in higher education learning processes.	Gess, Geiger, & Ziegler, 2019, p. 738
Educational research literacy can be defined as the ability to purposefully access, comprehend, and reflect on scientific information, as well as to apply resulting conclusions to problems. When making educational decisions, this ability is referred to as Educational Research Literacy (ERL; cf., Shank & Brown, 2007).	Groß Ophoff, Schladitz, & Wirtz, 2017, p. 39

Table 7. Categories of definitions of academic literacy

Our review showed that the conceptual terrain of academic literacy is quite fragmented, and it is not possible to indicate one single comprehensive definition. Moreover, in line with this conceptual fragmentation, the practices are also fragmented. Some institutions adopt the single subject approach, while others prefer an embedded approach where academic literacy is taught within/along with the discipline specific subjects and courses. It depends on the institutional policies, goals and values as well as the academic culture of the institution.

Another important result regarding definitions of academic literacy is that a traditional and monolithic approach to academic literacy has not been adopted, while multi-literacy approaches and socio-cultural views gain importance. It can be concluded that academic literacy is not one single set of skills that one can teach/learn in distinct modules. Moreover, it is not only about writing and reading, but it is about communication, different genres of academic production as well as different modes of production parallel to global trends and drivers.

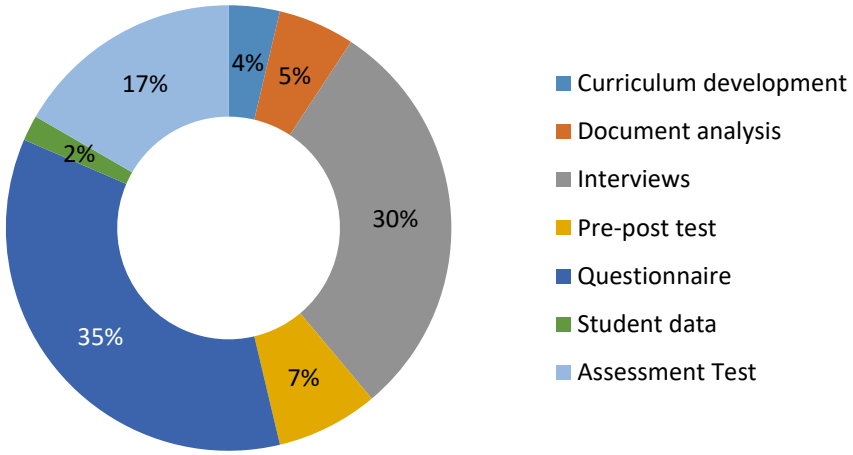
Methodological Aspect of the Studies

From a methodological perspective, there is no clear tendency concerning the dominant methodological framework. Even though the majority of the publications used a qualitative approach, other approaches including quantitative and mixed methods were also applied (see *Table 8*).

Mixed methods	15
Qualitative	25
Quantitative	19
Review	8
Not clear/not available	5
Total	**72**

Table 8. Number of texts according to applied research methodology

The most widely used method for data collection is a questionnaire/survey, followed by individual interviews or focus groups (see *Figure 2*). A common research practice is the use of assessment tests to measure students' level of academic literacy. Studies from South Africa especially adopted Test of Academic Literacy Levels (TALL) and Test of Academic Literacy for Postgraduate Students (TALPS) (see du Plessis, 2016; Nizonkiza & van Dyk, 2015; Sebolai, 2018). These two tests are used nationwide to measure students' academic skills. Another group of studies draw on pre-test/post-test design and try to measure the effectiveness of intervention programmes to improve academic literacy (Han & Schuurmans-Stekhoven, 2016; Lear, Li & Prentice, 2016). Another group of studies analyses student data, such as writing samples, essays or exam papers. The majority of the studies collected data through multiple data collection methods. Most of the studies target students/learners, while a few of them focus on the perspective of the lecturers/teachers/programme coordinators (see Stebbing, Shelley, Warnes, & McMaster, 2019; Marshall & Walsh Marr, 2018).



Note: n=59, Review articles and those marked as "Not clear/Not available" are excluded here

Figure 2. Data collection methods

Sub-skills Ascribed to Research Literacy

Sub-literacies, skills, and competencies that were studied are also as complex as the definition of the concept. Several lists of skills and competences were identified as sub-skills comprising academic literacy. We classified these skills under eight competency areas. *Table 9* presents these areas and the number of the studies that mention or list these areas as sub-competencies or skills of academic literacy.

Skills	n
Writing	20
Information literacy	16
Reading	14
Visual literacy	9
Critical literacy/thinking/analysis	9
Numeracy	5
Digital/media / technology	5
Oral literacy /academic speaking	4
Total	**82**

Table 9. Frequencies of sub-competencies mentioned in the publications

The most dominant sub-literacy is writing. Considering the origins and historical development of the literacy concept and academic literacy, writing and academic language is still the most emphasised competence area. Twenty studies focus on academic writing to examine academic literacy. Vocabulary, grammar, right use of words and organisation and structure of academic texts are among the writing skills. Plagiarism, paraphrasing and referencing were identified only in two studies. Information literacy is another important sub-literacy. In particular, reaching and accessing information and critically evaluating this information are mentioned several times. Fourteen studies list reading as one of the sub-skills of academic literacy. A few studies focused only on reading as the main area of analysis. Nevertheless, parallel to writing, reading is also an inherent part of several conceptualisations of the academic literacy. “New literacies”, such as visual literacies, media literacy and technology related literacies (Pfeffer, 2014, pp. 12-13) are also becoming popular. The study from Marzal, Cruz-Palacios, & Castros Morales (2019) is a good example of recent attempts to programme development for integrating visual literacy into the higher education curriculum as part of academic literacy. In contrast to emerging ICT based literacies, publication and dissemination skills were listed only in two studies. Moreover, collaborative learning/writing is listed as a skill in one article only.

Among the skill and competence models described and adopted in the studies, one model is cited four times. Thus, we wanted to present this model distinctively. Van Dyk and Weideman (2004a, p. 10) listed the following ten competencies as the core of academic literacy:

1. Understand a range of academic vocabulary in context;
2. Interpret and use metaphor and idiom, and perceive connotation, word play and ambiguity;
3. Understand relations between different parts of a text, be aware of the logical development of (an academic) text, via introductions to conclusions, and know how to use language that serves to make the different parts of a text hang together;
4. Interpret different kinds of text type (genre), and show sensitivity for the meaning that they convey, and the audience that they are aimed at;
5. Interpret, use and produce information presented in graphic or visual format;
6. Make distinctions between essential and non-essential information, fact and opinion, propositions and arguments; distinguish between cause and effect, classify, categorise and handle data that make comparisons;
7. See sequence and order, do simple numerical estimations and computations that are relevant to academic information, that allow comparisons to be made, and can be applied for the purposes of an argument;
8. Know what counts as evidence for an argument, extrapolate from information by making inferences, and apply the information or its implications to other cases than the one at hand;
9. Understand the communicative function of various ways of expression in academic language (such as defining, providing examples, arguing); and
10. Make meaning (e.g., of an academic text) beyond the level of the sentence.

This model was used as a base for the development of TALL and TALPS tests which assess the academic literacy level of university students in South Africa.

Measurement of Research Literacy

Our review yielded some tools to measure and assess academic literacy. A list of the measurements and their constructs are presented in *Table 10*.

The Tool	General information	Developed by / cited in
Test for Academic Literacy Levels (TALL)	It consists of 100 multiple choice questions from a set of seven subtests as indicated in 1. Scrambled text 2. Vocabulary knowledge 3. Verbal reasoning 4. Interpreting graphs and visual information 5. Register and text type 6. Text comprehension 7. Grammar and Text relations	Van Dyk and Weideman (2004a, 2004b) (cited Sebolai, 2018)
Test of Academic Literacy for Postgraduate Students (TALPS)	TALPS is very similar to TALL and is constructed on the same theoretical and conceptual framework but it is adapted for postgraduate students.	Cited in du Plessis, 2016
Research Literacy Self-Efficacy Scale (RLSES)		Kurbanoglu *et al.*, 2006 (cited in Han & Schuurmans-Stekhoven, 2016)
Educational Research Literacy (ERL)	Measuring the research literacy skills of students in the faculty of education	Groß Ophoff, Wolf, Schladitz & Wirtz, (2017)
Measuring the Academic Skills of University Students (MASUS)	The MASUS is composed of four elements: 1. use of source material, 2. structure and development of answer 3. writing style 4. grammatical correctness	Bonnano & Jones 2007 (cited in Palmer, Levett-Jones & Smith, 2018)
AL Test for National Benchmark Tests	The nine sub-constructs of the benchmark test are: 1. Separating essential from less essential information 2. Extrapolation, inferencing and application 3. Academic discourse features 4. Metaphorical and analogous language 5. Academic and general vocabulary 6. Text genre 7. Grammar and syntax 8. Textual cohesion features 9. Communicative purpose	see Sebolai, 2016
Social-Scientific Research Competency Test	Three knowledge domains were identified for the test 1. research process knowledge 2. knowledge of research methods 3. knowledge of methodologies	see Gess, Geiger, & Ziegler, 2019

Table 10. Measurement Tools

Among these tools, TALL was the most widely used assessment tool. One reason for this is that it is a compulsory test for higher education candidates in South Africa (see Sebolai, 2018 for a sample study based on TALL).

Theories Used to Study Research Literacy

Our review analysed the theoretical background of the studies as well. Two dominant frameworks are identified. The first one is the "New Literacy Studies" or "Academic literacies" movement. Within this movement, Lea and Street (1998) are the most frequently cited authors, followed by Lillis and Scout (2007). The second dominant framework is the "Discourses" model which originated from Bourdieu and Passeron's "academic discourse", "habitus" and "competence" discussion. Within this model Gee (1996) is the mostly cited author.

Other theoretical frameworks that were adopted in the studies are: Van Dyk and Weideman (2004), Wingate (2015), the Research Skill Development (RSD) framework (Willison & O'Regan, 2018), theory of systemic functional linguistics (SFL) (Halliday & Matthiessen, 2004), the information literacy integration model (Wang, 2011), self-efficacy (Bandura, 1986), and Skehan's (1998) socio-cognitive model of communicative competence.

Disciplines, Fields and Actors Dealing with Research Literacy

Only a small number of studies had a specific discipline as the context of the research. The majority of the studies were conducted in educational sciences and health sciences, nursing and population health. *Table 11* presents the disciplines and the number of studies contextualised in these disciplines.

Discipline	n
Nursing	4
Population Health	2
Education	6
Engineering	4
Business	1
Several disciplines	2
Total	**19**

Table 11. Disciplines as context for research literacy, if specified

DISCUSSION AND CONCLUSION

It is important to note that our systematic literature review did not appraise the quality of the studies reviewed. We focused mainly on the conceptual and theoretical framework that is used in the research/academic literacy studies to form a basis for our own definition. The main finding of the review for us is the lack of research in continuing education. Our search did not yield any single study that focused on academic continuing education. A second important finding is the lack of a comprehensive and holistic concept of academic literacy, not only for continuing education, but also for higher education. Especially with global trends and changes altering ways of production and research, it is important to provide an up-to-date definition of academic literacy and the right set of skills and competences. Participation in academic continuing education has been increasing significantly (Kulhanek *et al*., 2019) in line with the more permeable, open and flexible educational offerings for adult learners at higher education institutions.

To understand the specialities and complexities of this group, and designing the learning outcomes accordingly, is becoming crucial. This takes us to the next step for further research which is to develop a research literacy framework to specifically focus on the complexities and the diversities of academic continuing education and to help practitioners develop a holistic and complete approach in teaching research literacy.

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