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Contents

1	Conceptualising Student Assessment Literacy	1
1.1	Introduction	1
1.2	Rationales for Reconceptualising and Promoting SAL	5
1.3	Conceptual Framework of SAL	7
1.4	Structure of This Book and How Audiences Can Benefit from Reading It	10
	References	11
2	Insights into Student Assessment Literacy: A Scoping Analysis of SSCI Publications	15
2.1	Introduction	15
2.2	Present Study	16
2.3	Selection and Coding Procedure	17
2.4	Results of the First Phase of Review	18
2.5	Results of the Second Phase of Review	21
2.6	Summary of Results by Linking Them to the SAL Components	22
2.7	Discussion	30
	2.7.1 Phase I Review	30
	2.7.2 Phase II Review	31
2.8	Limitations and Future Directions	33
2.9	Conclusion	36
	References	37
3	Using Self-assessment to Develop Student Assessment Literacy	41
3.1	Self-assessment as a Learning Process	41
3.2	Assessment Literacy and Student Self-assessment Literacy	43
3.3	Using Self-assessment to Develop Student Assessment Literacy	44
3.4	Conclusion	47
	References	48

4	Peer Assessment: A Powerful Way to Cultivate Student Assessment Literacy	51
4.1	Introduction	51
4.2	Theoretical Mechanism of Peer Assessment	52
4.3	Impacts of Peer Assessment on Student Assessment Literacy	54
4.4	Effective Peer Assessment Design Elements in Promoting Student Assessment Literacy	55
4.4.1	Design Elements at Stage 1: Planning and Coordination of Peer Assessment	56
4.4.2	Design Elements at Stage 2: Discussion Around the Given Peer Feedback	58
4.4.3	Design Elements at Stage 3: Uptake of Peer Feedback	59
4.5	Factors Mediating the Impacts of Peer Assessment on Student Assessment Literacy	60
4.5.1	Sociocultural Factors	60
4.5.2	Interpersonal Factors	60
4.5.3	Material Factors	61
4.5.4	Individual Factors	61
4.6	Implications for Practitioners	62
	References	63
5	Moving Student Assessment Literacy Scholarship Forward	69
5.1	Introduction	69
5.2	Key Themes About Understanding and Developing SAL	69
5.3	Limitations and Future SAL Research and Practice Development Agendas	73
5.4	Concluding Remarks	74
	References	74

Chapter 1

Conceptualising Student Assessment Literacy



1.1 Introduction

In this book, we argue that *student assessment literacy* (SAL) is a core capability that students should be supported to develop. SAL is advocated as one of the 21st Century student academic literacies (others may include digital literacy, numeracy, science literacy, and modern language literacy) (c.f., González-Pérez & Ramírez-Montoya, 2022; Silber-Varod et al., 2019) that are crucial for students when engaged in formal and informal learning scenarios, so that they become capable of lifelong learning and effective functioning in an ever-changing, uncertain era (Chan & Luo, 2021). The cultivation of SAL in students equips them with knowledge and skills about assessment as well as appropriate attitudes and dispositions for engaging in and managing the assessment process to attain learning goals (Hannigan et al., 2022; Knight et al., 2019; Smith et al., 2013).

Similar to teacher assessment literacy (TAL), the notion of SAL has stemmed from a broader concept *assessment literacy* (AL), which is an umbrella term proposed by assessment scholars to denote the *knowledge, skills, and attitudes or disposition that various stakeholders need to demonstrate in using assessment for their own purposes*, where the stakeholders may encompass test-makers and educational measurement specialists, teachers, school or university administrators, policy-makers, students, parents, employers, and the public (Leirhaug et al., 2016; Stiggins, 1995; Taylor, 2009). For example, school or university administrators need AL for planning and coordinating school- or institution-level assessment activities, using outcomes from such activities to determine whether the curriculum has been effectively taught and/or require amendments, and to provide teachers with professional development opportunities to carry out their assessment work successfully. Frontline teachers and faculty members need AL for designing and executing classroom assessment activities to evaluate if students have mastered the subject matter and met assessment standards, providing students with feedback, and communicating assessment results to parents and students in ways they can understand. Similarly, parents and students should be

aided to develop their AL to understand the process of assessment and comprehend assessment results in order to figure out the extent to which students are making progress as desired and the ways to improve learning.

AL has originally emerged in the context of summative assessment and testing as a desirable competency for stakeholders to fulfil accountability purposes and to ensure the reliability and validity of assessment, so that assessment can accurately and faithfully reflect students' academic performance levels while adhering to the principles of fairness and social justice (Guskey, 2020; Hanesworth et al., 2019). With greater importance being attached to the potential of assessment to support students' ongoing and lifelong learning under the influence of assessment for learning movement (Black & Wiliam, 2010), the meaning of AL has been expanded by placing greater emphasis on the formative purposes of assessment (Chan & Luo, 2021; Lee, 2017). In this reconceptualisation of AL, assessment is considered as a social practice located in specific cultural contexts and a process rather than an end point of learning, which necessitates stakeholders' proactive and critical engagement (Torshizi & Bahraman, 2019). Such a reconceptualisation of AL signifies a paradigm shift from an examination-focused manner of seeing AL towards a learning-focused way of conceiving AL that is closely aligned with formative assessment, assessment for learning, and learning-oriented assessment—all of which are student-centered approaches to assessment (Carless, 2007; Engelsen & Smith, 2014; Leirhaug et al., 2016). The upsurge of research into the conceptualisation, training, and evaluation of TAL in the past decade is a testimony of this trend of rethinking AL as a research area and educational practice with significant potential for enhancing learning, teaching, and assessment (see, for example, systematic reviews on TAL research generally and in specific disciplines: Estaji et al., 2024; Gan & Lam, 2022; Khalid et al., 2021).

This paradigm shift in understanding AL is important, because it opens up the space for teachers and other practitioners to choose from a broader array of assessment strategies or approaches (e.g., performance assessment, student-generated questions, and self- or peer-assessment) that are better suited than traditional assessment to cultivate students' higher-order thinking and agency in learning (Adie et al., 2018; DeLuca & Braund, 2019). In turn, engaging in such alternative (or authentic) forms of assessment can potentially increase both teachers' and students' assessment literacy, since with appropriate design these forms of assessment involve teachers and students in communicating assessment standards explicitly and offer multiple opportunities for feedback provision to enhance learning (Deeley & Bovill, 2017; Doyle & Buckley, 2020). Indeed, some assessment researchers have called for promoting a synergy between SAL and teacher assessment literacy (TAL) by establishing student–teacher partnerships whereby they work as co-assessors (e.g., self-assessment and peer assessment) or assessment co-creators (e.g., co-designing essay titles or assessment criteria) (Deneen & Hoo, 2023; Doyle et al., 2019). These innovative assessment practices, which are based on student–teacher partnerships, can potentially democratise the assessment process by placing greater responsibilities for the quality of assessment and learning on students' shoulders. However, challenges may exist in constructing such student–teacher partnerships, such as miscommunication of assessment standards (Deeley et al., 2019), the need to transform students' and teachers'

conceptions of assessment, and the extra time needed to redesign the assessment process and train students' assessment knowledge and skills (Marquis et al., 2017; Yan & Brown, 2021).

Despite the immense potential of SAL in supporting students' proactive and critical engagement with assessment to improve learning, only a small cluster of studies have explicitly focused on how SAL can be understood, developed, and evaluated (e.g., Deeley & Bovill, 2017; Deneen & Hoo, 2023; Engelsens & Smith, 2014; Lee & Butler, 2020; Xu et al., 2023). Compared with the substantial body of TAL research, research into SAL is apparently under-developed, as reported by Hannigan et al. (2022), whose systematic review found a paucity of empirical research that explicitly addressed the conceptualisation and investigation of SAL. The scarcity of SAL studies implies that it has not gained sufficient attention in the academia until now. Based on Hannigan et al.'s (2022) systematic review and Chap. 2 of this book which presents a scoping review of SAL and TAL studies, it may be suggested that: (1) SAL in its totality in terms of its nature, components (or facets) and its process of development is still under-explored; (2) there is a shortage of empirical studies that systematically examine the effects of pedagogical approaches to developing SAL, as well as the influencing factors and learning outcomes of SAL development; (3) there is also a scarcity of research into the conceptual and practical linkages between TAL and SAL.

This short book is written to inform stakeholders (e.g., teachers, school and university administrators), researchers, and postgraduates on the understanding and development of SAL in students across school and higher education sectors. It aims to provide research-based classroom strategies for formulating actionable approaches to developing student assessment literacy (SAL) and evaluating the effects of such approaches on student learning. While the in-depth examination of the theoretical underpinnings and empirical evidence of SAL lends rigor to the conceptualisation of SAL which lays a theoretical foundation for educators' understanding of SAL, the recommendation of classroom strategies enables educators to develop SAL among their students. To achieve this aim, we focus on how teachers and practitioners can:

- (1) Understand the concept of SAL and its significant role in assisting students' achievement of desirable learning goals,
- (2) Design and implement supportive classroom strategies for inducting students to the knowledge and skills as well as appropriate attitudes for exercising SAL and engaging actively and effectively in assessment and learning processes,
- (3) Reflect critically on and improve their own classroom practice to promote SAL among students.

This book builds on the authors' scholarly expertise and research outcomes as assessment researchers and teacher educators as well as a critical synthesis of major research themes from the literature related to SAL in school education and higher education. We integrate these two sources into our examination of relevant theoretical background and empirical evidence and the recommendations of approaches to developing SAL. This allows us to reconceptualise the concept of SAL as a core student literacy in context of unpredictable changes of assessment and learning.

First and foremost, this book draws on our synergic expertise in assessment research. The authors are core members of a research team dedicated to investigating innovative assessment practices that can enhance student learning. Research problems that related to student-centered assessment that our research projects have addressed include, but are not limited to:

- What is the process of student self-assessment, and what are the predictors and effects of students' self-assessment practices (Yan, 2022; Yan & Brown, 2017; Yan & Carless, 2021)?
- What are students' experiences of peer-assessment, and what are the influencing factors on their engagement with peer-assessment (Zhan, 2021a, 2021c)?
- How can teachers develop peer- and self-assessment strategies to support SAL development (Xiao & Yang, 2019; Yang & Carless, 2013; Yang et al., 2018; Zhan, 2021a, 2021c)?

In relation to SAL research, our previous research has not explicitly addressed the question “What are the key frameworks and important competencies that comprise student assessment literacy as conceptualized in existing literature?”. Thus, we deem it necessary to conduct a scoping review to help establish consensus around the conceptualisation and core domains of SAL by identifying commonalities and differences in how SAL is defined and understood in the existing research landscape, which assist us in elucidating the unique features of SAL in the current book. The scoping review lends strong support for our emphasis on the need to create a synergic space where students and teachers exercise SAL and TAL through collaboration as assessment partners. Following this review, two chapters delve into approaches to fostering SAL among students through self- and peer-assessments, respectively. In this way, our research outcomes lay a solid foundation for the critical conceptualisation of SAL and recommendations on its development among students in this book.

Secondly, as faculty members in teacher education, the authors have contributed to teaching development projects, staff induction programmes as well as school teachers' professional development programmes and workshops that concentrate on supporting students' SAL development in school and higher education. Our extensive professional expertise in teacher education ensures that our conceptual insights can be transferred into practical approaches to developing SAL, making this book an invaluable and accessible resource for teachers and practitioners.

Thirdly, this book is based on a critical synthesis of key research themes related to SAL in the literature, which allows us to reconceptualise the concept of SAL as a core student literacy in context of unpredictable changes of assessment and learning. We now explain our rationales for reconceptualising and promoting SAL and provide a working definition and a framework of SAL.

1.2 Rationales for Reconceptualising and Promoting SAL

We argue for a need to refocus teachers' and practitioners' attention on SAL, including its multi-faceted nature and its interconnection with TAL, so that its potential for assisting students' learning can be fully realised to benefit students now and in the future. We offer four major rationales for reconceptualising and promoting SAL.

Firstly, SAL is a holistic concept and is different from other terminologies related to students' abilities to manage and benefit from assessment and feedback. Examples of such terminologies include student evaluative judgment (Boud et al., 2018), self- and peer-assessment skills (Yan, 2022), student feedback literacy (Carless & Boud, 2018; Zhan, 2021b), and student feedback orientation (Yang, 2021; Yang et al., 2021). Each of such terminologies provides a unique perspective for understanding ways of increasing students' abilities to make evaluative judgment, and to understand and use feedback to improve learning. Nevertheless, none of these terminologies are explicitly associated with TAL conceptually, which offers critical insights for exploring students' potential for managing assessment like their teachers do (see more about the conceptual linkages between SAL and TAL in Chap. 2). As we allude to earlier in the Introduction section, developing SAL among students necessitates equipping them with adequate understanding about assessment as well as appropriate skills and attitudes or dispositions for adeptly and critically engaging with the academic, social, and emotional facets of assessment. In other words, students need to develop *teacher-like qualities including knowledge and skills, self-responsibility, self-confidence, as well as self-awareness in relation to assessment* in order to successfully manage their assessment process. These qualities are delineated as the key components of SAL in this book (see Fig. 1.1). As such, SAL not only entails students' induction to and involvement in the assessment process to gain a deeper understanding of standards of quality learning (Aidan, 2021), but it also requires them to gain a sense of self-awareness with regards to how various forms of assessment may positively or negatively impact on them in academic (e.g., performance results, qualification) (Doyle & Buckley, 2020), social (e.g., student–teacher relationships and peer relationships) (Brooman et al., 2017), and affective (e.g., well-being, academic emotions) (Smith et al., 2014) domains. Having such self-awareness then helps students make informed decisions as to how they can deal with assessment tasks in a proactive and critically reflective way and work with their significant others (e.g., teachers and fellow students) collaboratively (Stiggins, 2014). In turn, students' increased competence of making decisions and taking actions associated with assessment would enable their development into independent, lifelong learners in the long run (Adie et al., 2018; Yang & Lee, 2021).

Secondly, SAL aligns well with a range of student-centred conceptualisations of assessment, such as formative assessment (Black & Wiliam, 2009), learning-oriented assessment (Carless, 2007), sustainable assessment (Boud, 2000), assessment for learning (Black & Wiliam, 2010), and assessment as learning (AaL) (Yan & Boud, 2021; Yan & Yang, 2021), but differs from these notions by stressing the

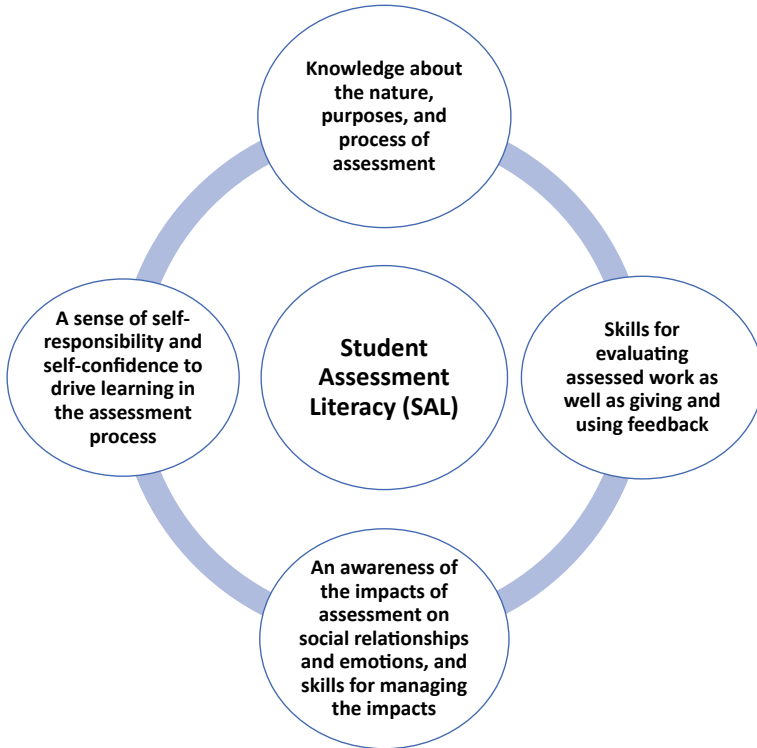


Fig. 1.1 A framework of student assessment literacy (SAL)

importance of supporting students’ development of the capability for managing the assessment process (Adie et al., 2018; Yang & Lee, 2021). SAL is necessary for all these assessment approaches, especially AaL, which enables students to clarify success criteria and improve learning through self-evaluating their assessed work (i.e., self-assessment) and/or reviewing their peers’ work and providing feedback (i.e., peer-assessment) (Yan & Boud, 2021). Nonetheless, nurturing students’ sense of self-responsibility, self-awareness, and self-confidence is not explicitly stressed (though implied) in AaL, which we argue to be core elements of SAL (see Fig. 1.1 in section “Conceptual framework of the book”).

Thirdly, with the increased use of diversified assessments, including technology-supported assessment (Yang et al., 2018; Zhan et al., 2022) as exemplified by assessment practices across school and higher education sectors during the coronavirus pandemic (Estaji et al., 2024), there is a particular need to expand our current knowledge by addressing important questions such as the following to push the field forward:

- How do students understand the evolving nature of assessment?

- What new challenges students face in navigating the assessment process, especially when they act in the role of self-assessors or peer-assessors?
- How can students be empowered to build partnerships with their teachers and peers in reshaping the assessment landscape?

Fourthly, given the potential linkages between TAL and SAL and the under-developed status of SAL research and practice, an explicit synthesis of TAL and SAL research is necessary for future advancements of SAL scholarship. Carless and Winstone (2020) recommended integrating classroom strategies to simultaneously promote teachers' and students' feedback literacy for the purpose of benefiting students' learning. In the same vein, in this book we argue for creating a synergy between SAL and TAL scholarships, so that the development of TAL in teachers becomes an enabling condition for fostering SAL among students.

1.3 Conceptual Framework of SAL

As our preceding discussion of the rationales for reconceptualising and promoting SAL shows, different from previous definitions of SAL that focus on building students' knowledge and skills related to assessment to raise standards of their learning (Price et al., 2012; Stiggins, 2014), we argue that simply acquiring knowledge and skills to deal with assessment is a necessary but insufficient condition for students' effective engagement in assessment and their own learning to attain academic success (Chan & Luo, 2021). Students' experience of assessment—and by extension, feedback on their assessed work—is not only an academic endeavour, but also an essentially social-affective experience due to the often imbalanced power relationships among students and teachers, as well as emotions that assessment and feedback induce in students (Carless & Boud, 2018; Chan & Luo, 2021; Yang et al., 2021; Zhan, 2021a).

Take students' feedback experience as an example. When students process feedback received, they need to feel accountable for using the feedback to improve learning before taking the next steps of comprehending and interpreting it to judge its helpfulness, and deciding whether to use it to revise their work based on this judgment—along these processes managing emotions aroused by feedback so as to effectively deal with it (Yang et al., 2023). Compared with peer feedback, students tend to regard teacher feedback as more credible and authoritative though less accessible due to their varied social relationships with teachers and peers, which affects their interpretation of and action upon feedback (Sun et al., 2023). Students were also found to be more honest and open with friends and more cautious with non-friends when giving peer feedback (Yang et al., 2021). These research themes in the literature indicate a need to pay attention to the multi-faceted nature of such experience when formulating classroom strategies to nurture SAL in students—students should be enabled to manage these different aspects of their assessment and feedback experience to gain academic success. Similarly, some researchers (e.g., Lee, 2017;

Leirhaug et al., 2016; Pastore & Andrade, 2019) also acknowledged that assessment literacy encompassed not only conceptual, but also behavioural, social, and affective domains, though these researchers mostly wrote from the perspective of teacher assessment literacy.

More importantly, students should have a sense of self-responsibility and self-confidence in acquiring and applying their knowledge and skills related to assessment appropriately, so that they can make informed decisions to achieve academic excellence by exercising their learner agency (Adie et al., 2018; Brooman et al., 2017; Yan & Boud, 2021; Zhan, 2021c). This is based on research evidence that students are capable of making sense of their own assessment and feedback experience and its consequences on their learning and well-being—an ability that might be often under-estimated by educators and practitioners.

For instance, studies on student voices regarding assessment experience in both school and higher education contexts showed that even students at very young ages were aware of the strengths and drawbacks of different assessment strategies (e.g., tests, projects, presentations) in assessing their abilities and supporting their learning (Butler et al., 2021), that students were aware of the impact of social relationships on the quality of feedback received from peers and teachers as well as their own responses to feedback (Xiao & Yang, 2019; Yang et al., 2021), and that current assessment regime largely places students in a passive role which often discourages their active engagement with it and even makes them feel alienated (Chan & Luo, 2021; Sun et al., 2023). Based on these findings, we propose that the provision of explicit training and exposure to SAL development activities and programmes can potentially enable students to embrace their responsibilities and gain a sense of self-confidence in making their own assessment experience rewarding and successful.

Based on the above discussion, and in line with the reconceptualisation of AL, SAL, and TAL in the literature (e.g., Chan & Luo, 2021; Gan & Lam, 2022; Hannigan et al., 2022; Khalid et al., 2021) that we have discussed in the introductory section, we now put forward a framework of SAL that we use throughout this book (see Fig. 1.1 for a visual representation). SAL refers to *a multi-faceted, essential capability that students should develop and apply as they engage in the assessment process to attain learning success*. The multiple facets of SAL encompass:

- Knowledge about the nature, purposes (both summative and formative), and process of assessment in formal and informal modes (**Component 1**)
- Skills for making evaluative judgement of their own work or peers' work as well as giving, comprehending, and using feedback (**Component 2**)
- A sense of self-responsibility to drive their own learning by setting personally meaningful learning goals and self-evaluating learning progress, as well as a sense of self-confident in taking actions to fulfil such a self-responsibility (**Component 3**)
- An awareness of the impacts of assessment on their social relationships and emotions, as well as skills for managing such impacts and seeking help when facing difficulties in these aspects (**Component 4**)

To enable educators and practitioners to devise suitable classroom strategies to promote SAL among their students, three common approaches to promoting SAL among students will be explicated. These approaches include: (a) building a synergy between SAL and TAL through student–teacher partnerships in assessment design, (b) involving students in self-assessment, and (c) engaging students in peer-assessment. When appropriately designed and implemented, these common approaches provide the support that students need in building their SAL as illustrated in Fig. 1.1. We put forward two reasons for using the three common approaches.

First, it is essential to promote SAL by constructing a synergic space where SAL development for students is bolstered by strengthening TAL among teachers. Chapter 2 of this book offers a scoping review of SAL and TAL studies published in journals indexed in Social Sciences Citation Index (SSCI) in Web of Science to critically analyse: (1) the conceptual linkages between the constructs of SAL and TAL in terms of their key components or dimensions, as well as the differences and commonalities between existing models of SAL (Chan & Luo, 2021; Hannigan et al., 2022) and the SAL framework of the current book; (2) the methodologies used and evidence obtained in investigating TAL and SAL training, development, and evaluation among teachers and students respectively as two important groups of stakeholders of assessment. In so doing, Chap. 2 provides critical insights into the topics and methodological approaches for future SAL research. By considering the understanding, development, and evaluation of both SAL and TAL in tandem, insights offered in Chap. 2 contribute to all four components of the SAL framework in this book. School and university administrators can draw on the insights offered in Chap. 2 to formulate school- or institutional-level assessment policies and blueprints, and even to transform current assessment practices towards a greater synergy between SAL and TAL in their local cultural contexts. Apart from implementing a research-based strategy of investigating SAL and TAL among students and teachers to find gaps and offer targeted training for them accordingly, school and university administrators can also encourage teachers to integrate both TAL and SAL into their classroom practice, as delineated in Chap. 2. We offer further recommendations of future SAL scholarship development in relation to creating a SAL-TAL synergy in the concluding Chap. 5.

Second, to facilitate students to develop SAL in its full scope, educators and practitioners need to value and emphasise AaL, in particular self-assessment and peer-assessment. Chapters 3 and 4 of this book discuss theory and research evidence related to these two approaches, based on which to recommend actionable classroom strategies and practices. Two examples illustrate such classroom strategies. One example is involving students in co-constructing assessment rubrics and applying the student-constructed rubrics in evaluating their own assignments or their peers' assignments and provide feedback for improvement (Bharuthram & Patel, 2017; Cheng & Chan, 2019). This classroom strategy can increase students' knowledge of the process and standards of assessment related to their work (Component 1 of SAL) as well as skills for constructing assessment criteria and evaluating assessment tasks (component 2 of SAL). As they have a taste of the helpfulness of self-assessment and/or peer-assessment, their sense self-responsibility and self-confidence as key stakeholders

of assessment will likely be enhanced (Component 3 of SAL). Another example is guiding students to reflect on their learning gains, concerns, and needs for teacher guidance related to self-assessment and peer-assessment by writing reflective journals; based on students' reflection, teachers can then provide guidance and feedback to resolve students' perceived difficulties such as the fear for harming friendships with classmates if they give critical peer comments or their self-perceived lack of authority or competence in evaluating assessment tasks (Cheong et al., 2023). In so doing, students can be assisted to become aware of the intricacies involved in the assessment process and its impacts on their social relationships and learning-related emotions (Component 4). These and similar classroom strategies allow students and teachers to enter constructive dialogues, whereby students' misconceptions and concerns about assessment are clarified, and assessment standards and expected learning outcomes are communicated effectively, so that students will gain a sense of ownership of their own learning (Leirhaug et al., 2016; Xiao & Yang, 2019).

1.4 Structure of This Book and How Audiences Can Benefit from Reading It

To recap, the chapters of this book are written based on critical syntheses of theories and empirical research evidence drawn from research projects conducted by the authors and the assessment and feedback research literature in relation to SAL generally. In Chap. 2, we present a scoping review of 5 reviews and 15 individual studies drawn from SSCI journals to provide a fine-grained examination of SAL in relation to TAL, which can facilitate educators and practitioners' sense-making of SAL with a view of creating an optimal space for building a SAL-TAL synergy. Ideally, such a space is afforded through the joint partnerships and collaboration between teachers and their students and with the support by school or university administrators and policy-makers. Building on the theories and empirical evidence examined, in Chaps. 3 and 4 we recommend actionable approaches and classroom strategies for promoting SAL among students, which can be adapted by educators and practitioners to suit their contexts and their students' needs. These SAL development approaches and strategies are illustrated with classroom examples. While Chap. 2 elaborates on the conceptual linkages between SAL and TAL, Chaps. 3 and 4 discuss how such student-teacher partnerships can be constructed in innovative assessment practices. Chapter 5 concludes this book by drawing the lessons learned from the discussion of research themes and classroom strategies in the preceding chapters, elaborating on their implications for educators and practitioners, outlining the limitations of this book, and proposing future developments of research and practice of SAL in school education and higher education.

The audiences of this book may range from frontline teachers and curriculum leaders in schools, universities and other educational institutions (e.g., vocational colleges), through undergraduate and post-graduate students in teacher education

and other educational fields, to educational service providers and government officers in educational departments. By understanding the theoretical underpinnings of SAL, and by adapting the recommended approaches and classroom strategies for developing and evaluating SAL among their own students, different audiences will be enabled to grasp the significance of promoting SAL and to devise actionable strategies for supporting their students' SAL development. The audiences will hopefully help spread the seeds of promoting SAL in order to benefit a wider scope of students in different learning spaces and contexts.

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Chapter 2

Insights into Student Assessment Literacy: A Scoping Analysis of SSCI Publications



2.1 Introduction

In contemporary education, the concept of Student Assessment Literacy (SAL) has gained increasing attention due to its pivotal role in shaping student learning outcomes and educational quality (Chan & Luo, 2021; Hannigan et al., 2022; Yan et al., 2022). SAL, in this book, has been conceived as “a multi-faceted capability for students’ proactive and critical engagement with assessment. A four-component definition of SAL is suggested, encompassing (1) basic knowledge about assessment, (2) skills for navigating the assessment process, (3) an awareness of the impacts of assessment on their social relationships and emotions, and (4) a sense of self-responsibility and self-confidence to deal with assessment and join partnerships with teachers and peers to attain academic success” (Chap. 1, p. 1). See also detailed elaboration of the four components in Chap. 1. As educators strive to cultivate well-rounded learners equipped with essential skills for success both academically and in real-world contexts, the importance of SAL becomes increasingly apparent (Hannigan et al., 2022). SAL boosts students to understand assessment criteria, track their progress, and set meaningful goals of learning. To illustrate the significance of SAL, consider a scenario where students receive grades on assignments without understanding the underlying assessment criteria or how to interpret feedback. In such cases, students may struggle to identify areas for improvement that hinder their academic progress and overall development. Conversely, students with a strong grasp of SAL possess the skills to engage critically with assessments, leading to more effective learning strategies and enhanced academic performance (Chen et al., 2023).

This understanding of SAL not only empowers students to navigate the assessment process effectively but also fosters a culture of lifelong learning and continuous improvement (Deeley & Bovill, 2017). By equipping students with SAL, educators contribute to the development of independent and reflective learners who are capable

of setting and achieving their learning goals. Furthermore, SAL serves as a cornerstone for promoting equity and inclusivity in education, as it enables all students, regardless of background or ability, to participate meaningfully in the assessment process and take ownership of their learning journey (Butler et al., 2021). Researchers have identified the integration of SAL into educational practices as crucial, not only for ensuring effective assessment methods but also for synergizing the impact of teacher assessment literacy to promote student learning. This integration serves to promote student success and foster a supportive and enriching learning environment (Brown et al., 2023; Deneen & Hoo, 2023). Deneen and Hoo (2023) further observed that the use of self-evaluation and peer feedback serves as a valuable intervention for facilitating the synergy between SAL and teacher assessment literacy, promoting desirable outcomes in both areas and cultivating discipline-relevant competencies in higher education.

Recognizing the importance of SAL, we did a scoping review of scholarly articles documented in the Social Sciences Citation Index (SSCI). By analyzing existing research using the lens of SAL, this review aims to categorize studies based on the four fundamental components of SAL. Through this review, we seek to explore the current development of SAL research, identify gaps in existing literature, and propose directions for future inquiry. By critically examining the methodologies, findings, and implications of past studies, we aim to contribute to a renewed understanding of SAL in terms of what has been done and provide insights into avenues (i.e., what can be done next?) for further exploration. Our aim is to advance the discourse surrounding SAL, fostering a more nuanced understanding of this critical aspect of education and paving the way for innovative assessment approaches to promoting student productive learning.

2.2 Present Study

The present study aims to review SSCI papers to answer two research questions: What is the current state of research on Student Assessment Literacy (SAL) components within the WoS database? How can the existing body of research on SAL be synthesized and critically evaluated to contribute to the academic discourse, enhance understanding, and inform future research directions? The selection procedure encompassed two phases (I & II): initially, identifying review papers on assessment literacy potentially encompassing both students and teachers; subsequently, shifting focus in the second phase to pinpoint individual studies specifically addressing student-oriented assessment literacy. This review at phase II will categorize the papers based on the four components of SAL. By doing so, this chapter aimed to offer a structured overview of the field, highlighting the major findings and contributions of key studies as well as limitations and future directions of research.

2.3 Selection and Coding Procedure

The selection of Web of Science Core Collection as the primary database for the review process was justified based on its reputation for providing high-quality scholarly publications across various disciplines (Garfield, 2006). Web of Science is widely recognized for its extensive coverage of peer-reviewed journals, ensuring that the studies included in the review are from reputable sources (Falagas et al., 2008). Additionally, the use of Web of Science allows for a comprehensive search of relevant literature, enabling the identification of key studies on assessment literacy (Martín-Martín et al., 2018).

Furthermore, the decision to focus on publications indexed in the Social Sciences Citation Index (SSCI) within Web of Science was based on the understanding that SSCI publications are typically regarded as high-quality sources within the academic community (Zhu & Liu, 2020). Journals indexed in SSCI undergo a rigorous selection process to adhere to publishing standards, ensuring the quality and credibility of the research published within them. Journals indexed in SSCI offer international visibility, impact factor metrics, broad disciplinary coverage, indexing in prestigious databases (Li et al., 2018; Van Raan, 2006). By selecting studies from SSCI publications, the review aims to prioritize scholarly works that have undergone thorough rigorous peer evaluation and are deemed to contribute significantly to the field of assessment literacy (Bakkalbasi et al., 2006; Birkle et al., 2020).

In terms of the selection procedure, the first phase of the review involved identifying review papers on assessment literacy that may cover both students and teachers. This was accomplished by conducting a search within Web of Science Core Collection using relevant keywords such as “assessment literacy” or “assessment literacies” or “literacy of assessment” or “literacies of assessment” in titles. Data were retrieved from the Web of Science Core Collection of Clarivate Analytics on December 31, 2023, using the default setting spanning from 1975 to that date. From the initial pool of 108 results, five reviews in English were identified as meeting the criteria for inclusion in the review. The first criterion for screening is titles should include “assessment literacy” or “assessment literacies” or “literacy of assessment” or “literacies of assessment”. This criterion ensures that the selected articles directly address the concept of assessment literacy, which is the scope of the current review. Subsequently, in the second phase of the literature search, the focus, aside from keeping the first criterion, added one lens to identifying individual studies that specifically addressed assessment literacy by considering “*student*” in the topic as SAL focus on AL of *students*. We refined our search by adding a search of “feedback” within all fields of these publications. We did this with the SAL rationale as follows: Component 1 of SAL in this book highlights the significance of grasping assessment nature, purposes (especially formative), and processes including formal modes. By incorporating feedback across all search fields, we aim to identify publications that could offer insights into formal assessment practices. Component 2 of SAL centers on evaluative judgments, with feedback as its core. Integrating feedback across all search fields would enable us to identify publications on giving and using feedback. From this process

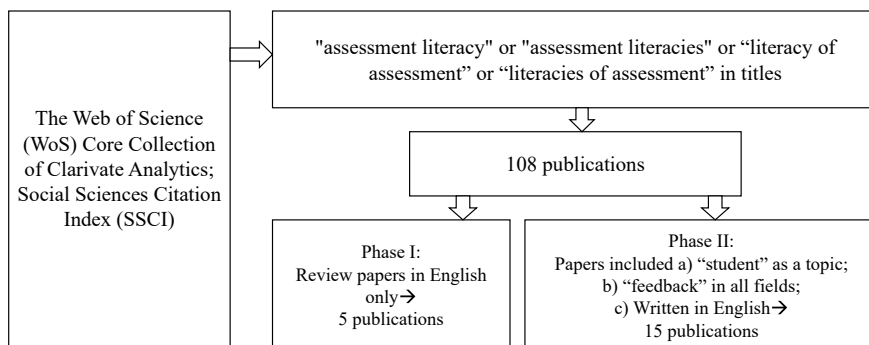


Fig. 2.1 Database and flow for selecting papers

(see also Fig. 2.1), 15 studies were identified as meeting the criteria for inclusion in the current review. The coding procedure commenced with an initial screening and categorization of publications according to the primary SAL components they addressed. Subsequently, a descriptive coding phase identified key research objectives, methodologies, and findings within each component. Content analysis and conceptual analysis followed, examining links with the four components of SAL introduced in Chap. 1. The procedure culminated in synthesizing these findings, offering an insightful overview of the current status of SAL research in these SSCI publications.

2.4 Results of the First Phase of Review

It is noteworthy that all five reviews identified in Phase I focused on exploring assessment literacy among educators. This somewhat reflects the scarce of review studies on student assessment literacy in the Web of Science database. Given the growing discourse emphasizing the significance of aligning educators' assessment literacy with that of students to enhance the effectiveness of assessment in optimizing learning outcomes (see Brown et al., 2023; Yan et al., 2022), we conducted a further review and summary of the five reviews.

These reviews provided valuable insights (see Table 2.1 for an overview of key features) into the assessment literacy landscape, focusing on language teachers and Content and Language Integrated Learning (CLIL) educators, teacher assessment literacy measures, and assessment literacy standards. Gotch and French (2014) emphasized the need for improved measures of assessment literacy, stressing the importance of developing valid and reliable instruments to assess students' assessment literacy levels effectively. Liu et al. (2023) highlighted the importance of understanding CLIL teachers' assessment literacy, highlighting research gaps and contextual factors influencing assessment practices in diverse educational settings. Weng

and Shen (2022) performed a comprehensive analysis of language teachers' assessment literacy levels, training needs, and developmental trajectories, emphasizing the factors influencing teachers' assessment literacy and its implications for classroom practices. Gan and Lam (2022) explored language assessment literacy studies, examining research trends, methodologies, and implications for teacher education, while DeLuca et al. (2016) critically analyzed shifts in assessment standards and measures, emphasizing the need for comprehensive standards and measures aligned with diverse conceptions of assessment literacy.

Across the five reviews, a common trend of increasing attention to AL emerged from these educational contexts, such as language teaching and CLIL programs. All reviews primarily focus on teachers' assessment literacy (TAL), highlighting its importance in educational practice and professional development. Each review identifies gaps in the existing literature, including the need for more comprehensive measures of AL, research on localized components, and exploration of AL developmental trajectories. As for review methods, while some reviews focus on specific contexts like CLIL programs or language teaching, others have a broader scope, examining assessment literacy in general educational settings. It should be noted, in our review of assessment literacy, our focus was not exclusively on TAL. The searching results available at the WoS data base may reflect the extensive research conducted on TAL, indicating the significance of our current book in examining SAL through a carefully constructed framework comprising four components through three chapters (including the current one), aside from the introduction and concluding chapters. Additionally, for facilitating the examination of the synergy between TAL and SAL as a future research agenda, we have conducted a detailed review and summary of the key features of assessment literacy outlined in the five review papers. Table 2.2 presents an overview of these key features.

We suggest that TAL serves as a foundational framework, equipping educators with the essential knowledge, skills, and principles required to effectively engage in assessment practices. When examining the key features of TAL described in the five reviews (see Table 2.2), such as comprehension of assessment purposes and procedures, alignment with educational standards, and awareness of assessment quality, commonalities emerge with the components of SAL. For instance, TAL aligns closely with SAL's Component 1 by emphasizing educators' understanding of assessment principles and practices. Similarly, TAL's focus on guiding students in setting learning goals and fostering self-responsibility resonates with SAL's Component 3. Additionally, TAL's recognition of the impacts of assessment on student emotions and social relationships mirrors SAL's Component 4, highlighting the interconnect-edness between educators' assessment literacy and students' holistic development within the assessment process.

Table 2.1 Key features of the five reviews on assessment literacy identified from the WoS data base

Authors	Review scope	Included studies	Context	Key findings
Liu et al. (2023)	Theoretical and empirical articles on Content and Language Integrated Learning (CLIL) teachers' assessment literacy	60 theoretical and empirical articles on CLIL teachers' assessment literacy	CLIL programs	Identified four dimensions of CLIL assessment literacy and emphasized the role of contextual factors (e.g., institutional, geographical, educational contexts)
Gan and Lam (2022)	Language assessment literacy (LAL) studies from 2008 to 2020	81 papers on LAL studies (71 empirical vs. 10 non-empirical)	Language testing and assessment	Found an increasing trend in LAL studies, predominantly focused on language teachers in Asia-Pacific, Europe, and the Middle East. Identified research gaps and provided guidelines for future research
Weng and Shen (2022)	Conceptualizations and empirical studies of language assessment literacy (LAL) among language teachers from 1991 to 2021	LAL studies (the total number was not reported in this publication)	Language teaching and assessment	Identified five major themes: teachers' LAL levels, factors influencing LAL, assessment training needs, training courses, and LAL development through reflection
DeLuca et al. (2016)	Assessment literacy standards from five English-speaking countries and mainland Europe, and prominent assessment literacy measures developed after 1990	A thematic analysis of 15 assessment standards and an examination of 8 assessment literacy measures	Educational assessment and teacher preparation	Identified shifts in assessment standards over time and regions, along with the need for measures aligned with evolving conceptions of assessment literacy
Gotch and French (2014)	Teacher assessment literacy measures from 1991 to 2012 within contemporary teacher evaluation policy	Objective tests ($n = 15$), teacher self-reports ($n = 14$), rubrics ($n = 7$) used in assessment literacy studies	Teacher evaluation policies	Identified weaknesses in psychometric properties of assessment literacy measures, emphasizing the need for further research

Note These reviews were listed by date (newest first)

Table 2.2 Key features of assessment literacy in the five reviews

Five reviews	Key features of AL in the five reviews
Gan and Lam (2022), Weng and Shen (2022)	<i>Language Assessment Literacy (LAL):</i> In the context of language education, there is a specific emphasis on LAL. This involves knowledge, skills, and principles necessary for language educators to handle various language assessment activities effectively. LAL encompasses competencies, abilities, or a knowledge base specific to language assessment
Liu et al. (2023), DeLuca et al. (2016)	<i>Knowledge and Skills for Teachers:</i> AL involves teachers’ knowledge and skills in educational assessment. This includes understanding assessment purposes, content, strategies, interpretation, and action-taking. Teachers need to be equipped with assessment literacy to measure student achievement accurately and effectively in various educational settings, including Content and Language Integrated Learning (CLIL) environments
DeLuca et al. (2016), Gotch and French (2014)	<i>Fundamental Concepts and Procedures:</i> Assessment literacy entails teachers’ comprehension of fundamental assessment concepts and procedures that are likely to influence educational decisions. This includes understanding the principles and practices of assessment, such as selecting and using assessments, interpreting student performance, and administering and scoring assessments accurately and ethically
DeLuca et al. (2016)	<i>Alignment with Educational Standards:</i> Assessment literacy involves teachers’ constructing reliable assessments aligned with state or provincial educational standards. This alignment ensures that assessments facilitate valid instructional decisions and adhere to legal and ethical responsibilities in education

Note The notion of assessment literacy was initially introduced by Stiggins (1991) and frequently used in the AL studies. As such, we added a note about it as follows: *Understanding of Assessment Quality:*) defined AL as the capacity of stakeholders to possess a fundamental understanding of high- and low-quality assessment and to apply this knowledge to various measures of student achievement (p. 535)

2.5 Results of the Second Phase of Review

The 15 studies documented in the WoS database presented in Table 2.3 offer a valuable view of assessment literacy research, spanning various research contexts, methodologies, and publication years. Despite the methodological diversity, a number of recurring themes emerge. Many of these studies aimed to enhance assessment literacy among both educators and students through diverse interventions, collaborative partnerships, and innovative pedagogical approaches. These endeavors frequently produced positive outcomes, such as enhanced knowledge, improved skills, and enhanced confidence in assessment practices. Additionally, researchers of several studies delved into identifying key indicators and dimensions of assessment literacy among educators and students, covering a ranging of factors including knowledge, engagement, skills, and perceptions, attitude and actions pertaining to assessment. Furthermore, some studies underscored the influence of contextual elements in shaping assessment literacy, with contexts ranging from language instruction and

university courses to business education, all playing important roles in affecting and reflecting the levels of assessment literacy attained.

2.6 Summary of Results by Linking Them to the SAL Components

Malone (2013) illuminated the complexities faced by language instructors and testers in grasping the essentials of assessment. This study, pivotal in its exploration of Component 1 of SAL, underlines the necessity for comprehensive resources and training programs that bridge the theoretical underpinnings and practical applications of language assessment. Additionally, Malone's work subtly touches upon Component 2 by examining the practical applications of assessment knowledge in classroom settings. Deeley and Bovill (2017) delved into the realm of evaluative judgments and feedback, resonating primarily with Component 2 of SAL. Their exploration of the benefits arising from staff-student partnerships in assessment and feedback practices was a testament to the transformative power of collaborative approaches in fostering assessment literacy. In a similar vein, Denton and McIlroy (2018) focused on how students utilize feedback from electronic marking tools. Their study emphasizes the critical role of students' assessment literacy in effectively engaging with and benefiting from feedback, aligning with Component 2 of SAL. Medland (2019) offered a critical examination of the extent of assessment literacy among external examiners, contributing significantly to Component 1. This study initiates a vital conversation about the development of a shared discourse in assessment literacy, particularly for professionals engaged in quality assurance in higher education. Knight et al. (2019) presented an insightful analysis of the benefits of calibration tasks as tools for learning, aligning with Component 2. The above-mentioned investigations into the relationship between benchmarking performance, student learning, and self-assessment abilities sheds light on the integral role of calibration tasks in enhancing assessment literacy skills. As for the role of self-assessment abilities in promoting student assessment literacy, Chap. 3 of this book provides an in-depth analysis, paving ways for further studies on using self-assessment practices as a rigorous approach of SAL enhancement. As Chap. 3 commented "Engaging in self-assessment not only allows students to evaluate their own work but also serves as a valuable tool for cultivating their understanding and competence in assessment practices. Teachers are encouraged to integrate meaningful self-assessment activities into their daily instruction as a means of enhancing students' assessment literacy." (pp. 11–12).

In the EFL classroom, Vogt et al.'s (2020) study can be linked to both Components 1 and 2 of SAL by examining the perceptions of learners and teachers regarding assessment practices. Their study provided a foundation for designing interventions aimed at enriching teachers' language assessment literacy, addressing both knowledge and skills in assessment. Butler et al. (2021), focusing on young learners' language assessment literacy, primarily contribute to Component 1. Their study,

Table 2.3 Demographic information of the 15 studies focusing on assessment literacy involving students

Authors	Research design	Objectives	Sample size	Context	Key findings
Chen et al. (2023)	Quasi experimental	Develop scaffolding self and peer assessment to build student assessment literacy	44 students	HE, China	Intervention positively impacted assessment literacy levels and translation performance
Deneen and Hoo (2023)	Intervention study	Investigate teacher feedback literacy served as a condition for promoting feedback literacy	51 students	HE, Singapore	Peer feedback and self-evaluation skills were improved; established a link between teacher and student feedback literacy
Xu et al. (2023)	Mixed-method	Develop and validate a student writing assessment literacy scale	Students: 208 in the first wave; 587 in the second wave	HE, China	Scale showed high reliability and validity across languages; significant predictor of positive engagement in L2 writing
Butler et al. (2021)	Exploratory study	Understand young learners' language assessment literacy	20 students	PE, China	Young learners exhibited substantial knowledge, skills, and principles in assessment literacy
Xie (2021)	Design-based research	Enhance language assessment literacy of preservice teachers	92 preservice teachers (students)	HE, Hong Kong	Participants developed practical language assessment skills; identified issues for further improvement

(continued)

Table 2.3 (continued)

Authors	Research design	Objectives	Sample size	Context	Key findings
Chan & Luo (2021)	29 focus group interviews	Propose a new framework for student assessment literacy with a focus on holistic competency development	122 students from 6 universities in Hong Kong	HE, Hong Kong	The revised framework addresses specific features of holistic competency assessment by incorporating knowledge, attitude, action, and critique dimensions, which emphasizes students' active engagement in assessment processes
Vogt et al. (2020)	Survey	Conduct needs analysis for enhancing teachers' language assessment literacy	2446 participants (1788 students and 658 teachers); Educational level unspecified	EFL Context in Europe	Varied assessment practices and perceptions across educational contexts; emphasized traditional approaches in EFL
Knight et al. (2019)	Quantitative methods	Examine benefits of calibration tasks in learning	500 students	HE, Australia	Calibration tasks improved benchmarking and self-assessment skills; identified positive relationship between benchmarking performance and student outcomes
Denton and McIlroy (2018)	Quantitative methods	Explore student engagement with electronic feedback	161 students	HE, England	Feedback engagement linked to higher performance; highlighted importance of assessment literacy in utilizing feedback

(continued)

Table 2.3 (continued)

Authors	Research design	Objectives	Sample size	Context	Key findings
Deeley and Bovill (2017)	Case study	Explore staff-student partnerships in assessment	27 students	HE, Scotland	Partnerships enhanced assessment literacy and student agency; promoted engaged learning community
Malone (2013)	Interviews and online survey	Develop a tutorial for foreign language instructors on language assessment literacy	Language instructors (n = 44) and Language testers (n = 30)	SE and HE language instructor, US	Identified challenges in balancing technical information and practical teaching needs
Brown et al. (2023)	Survey study	Examine relationship between teachers' assessment literacy, practices, and beliefs	109 teachers	SE, Australia	Teachers' practices and beliefs influenced by their assessment literacy and government policies to support students
Medland (2019)	Individual-based interview study	Investigate external examiners' assessment literacy	13 undergraduate external examiners	HE, UK	Called for a shared discourse on assessment literacy to maintain academic standards
Acar (2023)	Case study	Explore genre-based pedagogy in enacting writing assessment literacy	1 in this case study	HE, China, US	Found genre-based pedagogy was effective in diagnostic assessment and enhancing students' writing assessment literacy
Hannigan et al. (2022)	Scoping review	Identify key domains and indicators of student assessment literacy	98 articles on assessment in students	Multiple educational contexts	Identified 6 domains and 45 indicators of student assessment literacy, encompassing students' knowledge, skills, disposition in assessment

Note PE = primary education, SE = secondary education, HE = higher education

considering students' perspectives on assessment purposes and principles, offers insights into the development of a more balanced understanding of assessment literacy. Xie's (2021) exploration of interventions designed to enhance the language assessment literacy of preservice English teachers predominantly contributes to Component 2. The adoption of a design-based research approach underpins the study's effectiveness in enhancing teachers' understanding and application of assessment principles.

Among the fifteen studies, it is noteworthy that Hannigan et al.'s (2022) recent review work stands out for its timely examination and summarization of the multidimensional features of student assessment literacy. These scholars conducted a review of 95 papers on the topic of "Assessment," with a focus on examining "students' discrete knowledge, skills, and disposition relating to assessment literacy" (Hannigan et al., 2022, p. 488). Through their analysis, they identified six domains (Domain 1: General Knowledge of Assessment, Domain 2: Development of Strategies to Engage in Assessment, Domain 3: Active Engagement in Assessment, Domain 4: Monitoring Learning Progress, Domain 5: Engagement in Reflective Practice, Domain 6: Disposition in Assessment), each contributing to students' overall assessment literacy. These domains can be categorized into three key aspects they examined: knowledge, skills, and disposition. The knowledge aspect includes Domain 1. Skills aspect encompasses Domains 2 to 5. The disposition aspect is represented by Domain 6. The six domains categorized by Hannigan et al. (2022) through their review and coding of these identified papers, provides valuable insights into students' assessment literacy and engagement. In the current Chapter, we also made valuable attempts to align the six domains with the components of SAL, the focused construct of this book. By reviewing their conceptual descriptions (See Chap. 1 of this book; And Hannigan et al., 2022, pp. 489–493), we could identify their conceptual alignments (See Table 2.4). The SAL framework, with its four proposed components, serves as a novel conceptualization aimed at elucidating key aspects of students' assessment literacy, such as understanding assessment principles, developing assessment strategies, taking self-responsibility for learning, and managing the emotional and social impacts of assessment. On the other hand, the six domains identified by Hannigan et al. (2022) are categorized based on a review of previous studies, providing a comprehensive understanding of students' engagement in assessment activities.

The other important framework on SAL identified in the current scoping review was the one proposed by Chan & Luo (2021) based on their 29 focused group interviews among 122 students from six universities in Hong Kong. This Knowledge-Attitude-Critique-Action framework (abbreviated as KACA) underscores the importance of holistic competency development through four key aspects. Firstly, Knowledge emphasizes understanding the purpose and diverse approaches of assessment in fostering competency. Secondly, Attitude highlights the significance of maintaining a positive attitude towards competency development and managing emotions effectively during assessment. Thirdly, Critique encourages a critical approach to assessment, advocating for improved practices and engaging in collaborative dialogues for enhancement. Lastly, Action promotes active involvement in assessment processes,

Table 2.4 Conceptual alignments between the four components proposed in the SAL construct and the six domains categorized by Hannigan et al.’s (2022) review

Four conceptual components of SAL in this book	Exploring the conceptual alignment between SAL components and domains categorized in Hannigan et al.’s (2022) review work
Component 1: Knowledge about the nature, purposes (both summative and formative), and process of assessment in formal and informal modes	Domain 1 aligns closely with Component 1 as both focus on students’ knowledge about assessment principles and practices. Students who possess knowledge about assessment fundamentals are better equipped to engage meaningfully in assessment activities, as they understand the nature and purpose of assessment
Component 2: Skills for making evaluative judgement of their own work or peers’ work as well as giving, comprehending, and using feedback	Domain 2 aligns with Component 2, both emphasizing students’ skills in assessment engagement, including self- and peer-assessment, as well as feedback utilization. Students who develop these skills can actively participate in assessment tasks and utilize criteria and standards effectively
	Domain 3 also aligns with Component 2 as it emphasizes students’ active engagement in assessment tasks, which involves assessing their own work, engaging in peer assessment, and providing and comprehending feedback effectively
Component 3: A sense of self-responsibility to drive their own learning by setting personally meaningful learning goals and self-evaluating learning progress, as well as a sense of self-confident in taking actions to fulfil such a self-responsibility	Domain 4 aligns with Component 3 as both emphasize students’ monitoring of their learning progress and taking actions to address weaknesses. SAL in this book suggests that students who possess a sense of self-responsibility are better able to effectively monitor their learning progress, adapt their strategies accordingly, and develop a sense of self-confidence

(continued)

Table 2.4 (continued)

Four conceptual components of SAL in this book	Exploring the conceptual alignment between SAL components and domains categorized in Hannigan et al.'s (2022) review work
	Domain 5 aligns with Component 3 as both emphasize students' engagement in reflective practice and self-evaluation (e.g., Component 3 focuses on students' reflective responsibility and self-evaluation of confidence in learning). Students who engage in reflective practice are likely to take ownership of their learning process, set meaningful goals, and self-evaluate their progress
Component 4: An awareness of the impacts of assessment on their social relationships and emotions, as well as skills for managing such impacts and seeking help when facing difficulties in these aspects	Domain 6 aligns with Component 4 as both emphasize students' awareness of the emotional and social impacts of assessment, as well as their skills for managing these impacts effectively. Students who possess these skills are better equipped to navigate the emotional and social aspects of assessment and seek help when needed

including developing strategies, reflecting on feedback, and responding proactively to improve competency outcomes (Table 2.5).

Acar's (2023) study on genre-based pedagogy (GBP) could advance Component 2. By demonstrating how GBP empowers L2 writing instructors to enact effective writing classroom assessment practices, Acar's work facilitates both diagnostic assessment and learner involvement, thereby enhancing assessment literacy skills. Deneen and Hoo's (2023) investigation into the connections between teacher feedback literacy and student peer feedback intersects with both Components 1 and 2. Their study underscores the significance of feedback literacy, which could be an integral to AL. Brown et al. (2023) offer an insightful examination of the relationship between teachers' assessment literacy and their practices and beliefs. This study, aligning primarily with Component 1, highlights the influence of teachers' conceptual knowledge on shaping assessment literacy within varied educational contexts. Chen et al. (2023) investigated the efficacy of scaffolding self and peer assessment (SSPA) in developing student assessment literacy, aligning primarily with Component 2. Their quasi-experimental design elucidates the positive impacts of SSPA on students' assessment literacy levels and translation task performance. However, the component of peer assessment (PA) in Chen et al.'s (2023) study has not been thoroughly examined, as we have done in this book. Chapter 4 of this book has extensively discussed and evaluated the significance of PA in fostering student assessment literacy, highlighting its distinctive characteristics, including assessment criteria, feedback mechanisms, timing of activities, and required training and support. As for measurement, in this scoping review, we found Xu et al.'s (2023) development and validation of a student writing assessment literacy (SWAL) scale addresses both

Table 2.5 An overview of some unique features of SAL in this book and the KACA framework

Framework	Component	Some unique features
SAL (Chap. 1 of this book)	Knowledge	Broad understanding of assessment principles; Knowledge about various assessment modes and purposes
	Skills	Development of practical assessment skills; Application of assessment knowledge for effective learning outcomes
	Self-responsibility and confidence	Student autonomy in driving own learning; Setting meaningful learning goals and evaluating progress
	Awareness	Awareness of assessment impacts on emotions and relationships; Skills for managing emotional responses and seeking support when needed
KACA (Chan & Luo, 2021)	Knowledge	Understanding the implicit nature of holistic competency assessment; Recognizing diverse assessment approaches and activities
	Attitude	Managing emotions constructively during assessment; Appreciating the value of competency development
	Critique	Challenging existing assessment norms; Advocating for improved assessment practices
	Action	Proactive engagement in assessment processes; Developing strategies for different assessment tasks

Note In Table 2.5 we used shorter names for the four components of SAL in this book; Full names are provided in Table 2.4

Components 1 and 2. Their study, examining the scale’s reliability and validity across languages, provides a valuable tool for measuring students’ assessment literacy and predicting their engagement in writing contexts.

One interesting finding of the current review is that feedback literacy (Carless & Boud, 2018) was explicitly mentioned in some definitions of assessment literacy (Acar, 2023; Deneen & Hoo, 2023) as an integral part, while others do not make this connection clear. Acar (2023) explored feedback within genre-based pedagogies in

L2 writing assessment, viewing it as a tool for enacting writing assessment literacy and supporting student learning. Deneen and Hoo (2023) examined feedback in the peer assessment process, highlighting the dual role of peer feedback in raising awareness of standards and engaging students with criteria, while emphasizing the cognitive benefits of feedback construction. Due to the scarcity of studies explicitly examining the integration of feedback literacy in the current review, which could potentially serve as a nested component of AL, it proves challenging for us to delve deeper into the conceptual correlations between FL and the four components of SAL.

2.7 Discussion

In this scoping review, we aimed to explore the status of SAL research by examining Social Sciences Citation Index (SSCI) papers. Our selection process involves two phases. Initially, we identify assessment literacy review papers from SSCI that may encompass both students and teachers. Subsequently, our focus shifts to individual studies within SSCI that specifically address student-oriented assessment literacy. Through this methodical approach, we seek to gain insights into SAL, identify gaps, and suggest directions for future research.

2.7.1 Phase I Review

The five reviews identified in the first phase, spanning from 2016 to 2023, primarily focus on assessment literacy among teachers. We did not find any review with a focus on student assessment literacy. While their immediate target is educators, the insights of the five reviews could contribute to the conceptualisation of SAL. DeLuca et al. (2016) highlight shifts in assessment landscapes, indirectly informing students about assessment processes (Component 1 of SAL). Gotch and French (2014) emphasized the importance of improving assessment literacy instruments, indirectly benefiting students by demonstrating effective feedback and evaluation (Component 2 of SAL). Weng and Shen (2022) provided insights into effective assessment practices, indirectly empowering students to understand assessment principles (Component 1 of SAL). Gan and Lam (2022) focused on teacher education implications, indirectly fostering students' self-responsibility and confidence (Component 3 of SAL). Liu et al.'s (2023) review underscored the significance of self- and peer-assessment skills in Content and Language Integrated Learning programs, aligning with Component 2 of SAL. While the five reviews targeted educators and emphasized the need for further reviews specifically focusing on SAL (as demonstrated in the current chapter), they also have implications for understanding SAL to some extent, given that educators and students are key stakeholders in educational settings. The results of phase I

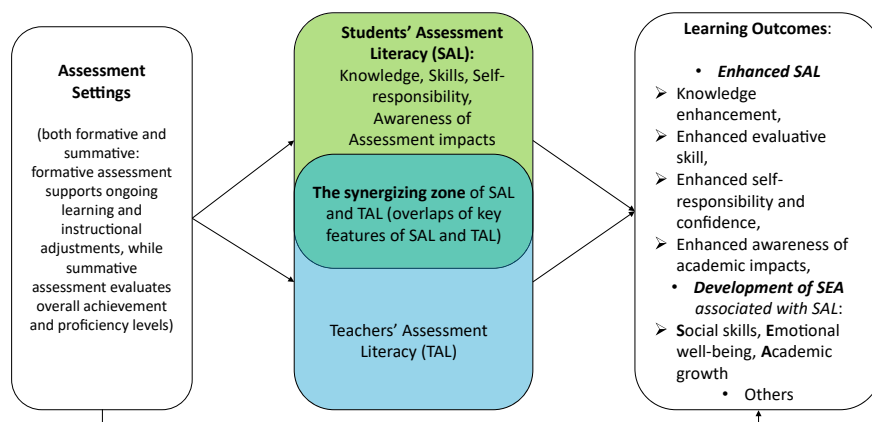


Fig. 2.2 An enriched AL model based on SAL and insights from the current review. *Note* This figure was designed based on key findings of the current review and the SAL framework

review also inform us to develop future directions of research by considering a synergizing zone of TAL and SAL, see Fig. 2.2 in the discussion part with corresponding introduction for future directions.

2.7.2 Phase II Review

Knowledge about Assessment: Malone (2013), Hannigan et al. (2022), Medland (2019), Vogt et al. (2020), Brown et al. (2023), Butler et al. (2021) contribute to Component 1, each emphasizing the critical importance of foundational knowledge in assessment. Malone's work with language instructors and testers underscores the gap between theory and practice. Hannigan et al.'s comprehensive framework and Medland's exploration of external examiners' literacy highlight the breadth of knowledge required for effective assessment. Vogt et al.'s study on EFL learners and teachers, and Brown et al.'s analysis of teachers' practices, demonstrate how contextual understanding enhances teacher assessment literacy to support secondary students. Butler et al.'s focus on young learners' perspectives brings a unique angle for analysing this component.

Skills in Evaluative Judgment and Feedback: Acar (2023), Deneen and Hoo (2023), Chen et al. (2023), Xie (2021), Knight et al. (2019), Denton and McIlroy (2018), Deeley and Bovill (2017) primarily contribute to Component 2. Knight et al.'s exploration of calibration tasks, Deeley and Bovill's study on staff-student partnerships, and Deneen and Hoo's research on feedback processes underscore the importance of developing evaluative and feedback skills. Chen et al.'s work on scaffolding self and peer assessment, Xie's design-based approach with preservice teachers, and Denton and McIlroy's examination of feedback utilization in electronic marking tools

highlight practical applications of these skills. Acar's genre-based pedagogy provides a novel approach to enhancing these skills in L2 writing. Hannigan et al. (2022) categorized at least four domains on skills and engagement in student assessment literacy.

Integration of Knowledge and Skills: Recent studies by Rad and Alipour (2024) and Xu et al. (2023) have demonstrated successful integration of both knowledge and skills components within their research. Their findings present evidence of interventions that effectively enhance both the understanding and practical application of assessment principles. Analyzing the conceptual alignment between KACA (Chan & Luo, 2021) and SAL (Yang, Chap. 1) components reveals several similarities. Both frameworks emphasize the knowledge of comprehending the purpose, nature, and processes of assessment, alongside recognizing the diverse array of assessment approaches and activities. Moreover, they stress the cultivation of skills as crucial for evaluative judgment, effective feedback exchange, and mastery in self and peer assessment.

It should be noted that there are five studies focusing on teachers' assessment literacy (TAL), because TAL serve as essential pillars in shaping students' understanding and proficiency in assessment, playing a crucial role in enhancing SAL. Firstly, initiatives aimed at enhancing assessment practices, such as calibration tasks and staff-student partnerships, refine how assessments are conducted, indirectly benefiting students' SAL (Deeley & Bovill, 2017; Knight et al., 2019). Secondly, interventions targeting teachers' feedback literacy, like those focusing on peer feedback and self-evaluation skills, enable educators to provide more effective feedback, thereby aiding students in understanding and acting upon assessments, ultimately enhancing SAL (Deneen & Hoo, 2023). Additionally, research exploring how contextual factors shape teachers' assessment practices allows educators to tailor assessments to better meet students' needs, positively impacting SAL (Brown et al., 2023). Lastly, investigations into the effectiveness of scaffolding strategies, such as scaffolding self and peer assessment (SSPA), demonstrate how teachers' guidance fosters students' skills necessary for effective assessment, contributing significantly to SAL (Chen et al., 2023).

Inadequate Coverage of Components 3 and 4 in SAL Studies: The analysis of the 15 studies reveals a notable focus on Components 1 and 2 of SAL, with a relatively inadequate coverage of Components 3 (Self-Responsibility) and 4 (Social and Emotional Impacts). While the majority of studies have contributed to enhancing knowledge about assessment and skills for making evaluative judgments, fewer researchers have delved deeply into how students take responsibility for their learning and manage the social-emotional aspects of assessment. The concept of self-responsibility in learning, which encompasses setting personal learning goals and self-evaluating progress, is crucial for student autonomy and agency. However, the reviewed studies scarcely address this area, potentially overlooking the importance of empowering students to take charge of their learning process through assessment. The emotional and social dimensions of assessment, including the impact on student relationships and emotional well-being, also appear underexplored. These aspects are fundamental in understanding how students perceive and are affected by

assessment practices, which can significantly influence their overall learning experience and success. One exception in this chapter is Hannigan et al.'s (2022) review, where they identified 45 indicators of student assessment literacy, grouping them into six domains. These domains align with components 3 and 4 in the SAL framework presented in this book but lack empirical validation.

2.8 Limitations and Future Directions

One apparent limitation of the current body of literature, as highlighted by the five reviews, is the predominant focus on assessment literacy among teachers rather than students. This gap suggests a need for more research specifically targeting SAL. While the 15 studies contribute valuable insights to understanding various aspects of assessment literacy, they exhibit limitations in comprehensively addressing all four components of SAL. Many of these studies primarily focus on specific aspects of assessment literacy, such as feedback literacy, language assessment literacy, or the development of assessment skills among teachers and students. Few studies explicitly address all four components of SAL, which include knowledge about assessment, skills for self and peer assessment, a sense of self-responsibility in learning, and awareness of the social and emotional impacts of assessment. Hannigan et al.'s (2022) review paper would be one of the first that have explored a wide range of studies (not necessarily SSCI publications) and categorized the multidimensional features of student assessment literacy. Together, the SAL framework proposed in this book and the six domains provide a comprehensive lens (see also Table 2.3) through which educators and researchers can explore and address the complexities of assessment literacy.

Our review focused exclusively on SSCI papers indexed in the Web of Science, specifying our scope to articles with titles containing keywords such as 'Assessment literacy,' 'Assessment literacies,' 'Literacies of assessment,' and 'Literacy of assessment.' This approach, while providing a focused examination of high-quality scholarly literature, inherently limits the inclusivity of our review. It is possible that valuable insights from non-SSCI sources or publications without these specific keywords were overlooked. Additionally, the reliance on SSCI papers may introduce a bias towards certain perspectives or methodologies, potentially excluding relevant contributions from other sources or disciplines. As a result, the findings and conclusions drawn from our review may not fully capture the breadth and diversity of research on assessment literacy. Our review is primarily focused on English-language publications, aiming to provide a comprehensive summary that encompasses both conceptual and empirical findings. We have considered both original research studies and secondary reviews to ensure a well-rounded analysis of the topic. However, it is important to note that our emphasis on English publications may introduce language bias and exclude valuable contributions from non-English sources. Additionally,

while we have synthesized existing conceptual frameworks and theoretical perspectives, we recognize the importance of first-hand empirical data, both qualitative and quantitative, in enriching our understanding of assessment literacy.

In the next step, future research should aim to fill these gaps by adopting a more holistic approach to studying assessment literacy. This could involve developing comprehensive assessment literacy scales that encompass all four components of SAL and exploring their interrelationships. Currently, there is no such a study that has tested the multidimensional student assessment literacy (Hannigan et al., 2022). Additionally, studies should explore innovative interventions or educational approaches to foster assessment literacy among students, considering diverse educational contexts and learner characteristics. Furthermore, there is a need for longitudinal studies to investigate the development of assessment literacy over time and its long-term impact on student learning outcomes.

It is noteworthy that, based on the conceptual model of Chap. 1 and insights from the current review (two phases) including limitations, we also proposed an enriched model (Fig. 2.2) to that integrates various elements crucial for effective assessment practices and outcomes. At the foundation of this model are the assessment settings, which encompass both formative and summative assessment contexts. Positioned in the center are two pivotal components: SAL and TAL, as relatively dominant themes identified in the reviewed assessment literacy research. These components represent the knowledge, skills, and attitudes necessary for proficient engagement in assessment activities. The overlapping zone between SAL and TAL signifies the synergy between students and teachers in fostering a shared understanding and application of assessment principles. See also some preliminary findings of previous research summarized in Tables 2.1, 2.2, 2.3 and 2.4) for supporting the necessity of this important synergy in future research.

In the final segment of the model, we delineate the learning outcomes stemming from the cultivation of SAL and TAL. These outcomes encompass, basically, two parts, one part is Enhanced SAL as follows:

Knowledge enhancement: Students acquire a deep understanding of assessment processes and standards pertinent to their academic endeavors (Component 1 of SAL).

Enhanced evaluative skills: Students cultivate competencies in constructing assessment criteria, evaluating tasks, and accurately interpreting feedback to enhance their work (Component 2 of SAL).

Enhanced self-responsibility and confidence: Students develop a sense of ownership and assurance in their assessment practices, actively engaging in self-assessment and peer-assessment activities (Component 3 of SAL). This book also provides innovative self-assessment and peer assessment designs for boosting SAL. Please see Chaps. 3 and 4 for details.

Enhanced awareness of assessment impacts: students gain insight into the multifaceted implications of assessment on their social interactions and emotional well-being, fostering a holistic understanding of assessment processes (Component 4 of SAL).

And the other part is on students' development of Social, Academic, Emotional, and Career-related outcomes as follows:

Social skills: Through collaborative assessment practices such as peer-assessment, students are anticipated to enhance their interpersonal skills, contributing to a supportive and interactive learning community.

Emotional well-being: Students develop a more positive outlook towards assessment and learning, effectively reducing anxiety and stress related to academic evaluations.

Academic growth: There would be a tangible improvement in students' academic performance and achievement, attributed to their adept use of feedback and adherence to assessment criteria.

To substantiate and enhance the proposed model integrating SAL and TAL, future research can adopt a multifaceted approach, underpinned by empirical studies and supported by established educational theories (e.g., Black & Wiliam, 2009; Vygotsky, 1978). Firstly, implementing longitudinal research is crucial to examine the evolution and long-term effects of SAL and TAL within educational settings. This approach, supported by the developmental theory of Vygotsky (1978), would provide valuable insights into how these literacies mature over time and their sustained impact on learning outcomes. For example, a longitudinal study that intertwines SAL and TAL within the framework of Vygotsky's developmental perspective, could focus on how SAL and TAL co-evolve and influence educational outcomes by including multiple time waves to collect data. The longitudinal study could also examine the impact of social interactions in the context of SAL and TAL, adhering to Vygotsky's emphasis on the social aspects of learning. Furthermore, it is imperative to conduct experimental and quasi-experimental studies to compare the efficacy of traditional teaching methods against those enhanced by SAL and TAL. Drawing upon the research methodologies advocated by Cook et al. (2002), such studies could offer robust evidence of the practical benefits of integrating assessment literacies into educational practices. In addition to quantitative research, using qualitative research methods, such as interviews and focus groups, is essential to gather in-depth insights from students and teachers. This approach, aligning with the qualitative research principles outlined by Creswell and Poth (2016), would provide a nuanced understanding of the experiences, perceptions, and challenges encountered in implementing the model. In the digital age, it's also important for researchers to investigate how digital tools and platforms facilitate assessment literacy.

Drawing on previous work on technology-supported education and assessment (e.g., Means, 2010; Spector et al., 2016; Webb & Gibson, 2015), such exploration could uncover the potential of technology in enhancing SAL and TAL. Moreover, pursuing cross-disciplinary studies is vital to understand how SAL and TAL manifest and impact various academic disciplines. For example, in a teacher education setting, integrating SAL with TAL through computer science innovations could offer a pragmatic approach to enhancing educational practices. A project could involve developing a digital platform where teacher trainees engage in both crafting and applying

various assessment strategies, boosting their TAL skills in teacher education. Concurrently, this platform would serve as a resource for their teaching practicum to teach their students how to understand and effectively utilize assessment feedback, thereby fostering SAL. In this example, the involvement of computer science is pivotal in creating a user-friendly, interactive environment that simulates realistic educational scenarios, providing chances for SAL and TAL synergy for pre-service teachers. This approach is also in alignment with the interdisciplinary research methods advocated by Repko and Szostak (2020). Lastly, investigating the implications of SAL and TAL for educational policy and curriculum development is a critical area of future research. Studies should aim to assess how these literacies can be systematically incorporated into educational frameworks and policies, in line with the evidence-based policy guidelines suggested by Hunsley and Mash (2008) and Levin (2013). This holistic approach will ensure that the implementation of SAL and TAL is grounded in both theoretical and practical realms, thereby enhancing the overall quality of education. By addressing limitations identified in this review and pursuing these future directions, researchers will collectively contribute to a more nuanced understanding of SAL that can be boosted by TAL and its role in promoting student desirable learning outcomes across educational settings.

2.9 Conclusion

Our exploration of SAL components through a dual-phase review of SSCI publications offers a nuanced perspective on research methodologies and outcomes. Ranging from qualitative case studies to extensive surveys, these studies enrich our comprehension of SAL's multifaceted dimensions. While considerable progress exists in components 1 and 2, focusing on assessment knowledge and evaluative skills, components 3 and 4, highlighting self-responsibility and socio-emotional impacts, represent promising avenues for future inquiry. Moreover, we propose a comprehensive model integrating insights and limitations from the two-phase review, outlining potential research trajectories. Such integration is imperative for cultivating assessment literacy among students in terms of the four components conceptualized in Chap. 1, promoting not only their academic growth but also social and emotional outcomes.

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Chapter 3

Using Self-assessment to Develop Student Assessment Literacy



The significance of self-assessment in student learning has led to increased research interest in this area (Andrade, 2019; Yan, 2020). Self-assessment is crucial for enhancing learning processes and products because reflection on one's own performance can generate useful insights for further improvement (Andrade, 2010; Yan, 2022). Recent meta-analyses underscore the positive influence of self-assessment on academic performance (Brown & Harris, 2013; Yan et al., 2022) and other beneficial outcomes, such as the development of self-regulated learning strategies and positive emotional responses (Panadero et al., 2017). Self-assessment can be implicitly conducted by students or explicitly provoked by teachers in classrooms (Panadero & Alonso-Tapia, 2013; Yan, 2022). This chapter primarily focuses on explicit self-assessment activities in classrooms because (1) explicit self-assessment leads to greater learning gains compared to implicit self-assessment (Yan et al., 2021), and (2) the understanding of explicit self-assessment can inform pedagogy in developing students' self-assessment skills.

3.1 Self-assessment as a Learning Process

The term self-assessment covers a wide variety of mechanisms and techniques through which students evaluate their own learning processes and products (Panadero et al., 2016) ranging from simply grade-guessing to complicated processes that contains selecting assessment criteria, seeking feedback, and making evaluative judgements. In principle, any form of self-assessment could have learning benefits but the effect size largely depends on the extent to which students engage with learning during self-assessment. Compared to simple forms of self-assessment, such as grade-guessing, engaging self-assessment as a learning process can provide students with more learning opportunities (Yan, 2022). Thus, instead of considering self-assessment as just a one-off action, more scholars advocate conceptualising it as

a process that can be analysed, learned, and subject to interventions. In particular, Yan and Brown (2017) propose a cyclical self-assessment process model which consists of sequential actions (i.e., determining assessment criteria, self-directed feedback seeking, and self-reflection). Recently, Yan and Carless (2022) reframed the model by highlighting the enabling role of feedback in the process. As a result, the self-assessment process is unfolded into three steps, including (1) determining assessment criteria, (2) self-reflection, and (3) self-assessment judgement and calibration, with feedback seeking serving as an enabling role during the whole process (see Fig. 3.1). Accordingly, in this chapter, self-assessment is operationally defined as *a process, supported by feedback, during which students determine assessment criteria, evaluate and reflect on the learning process and outcome against selected criteria, make and calibrate their judgement on their own strengths and weaknesses for the purpose of improvement.*

The self-assessment process starts with determining and applying assessment criteria for the self-assessment. This is followed by a self-reflection on one’s performance against the set criteria, leading to the identification of personal strengths and weaknesses. After this self-reflective process, a self-assessment judgment is formed, which is continually re-calibrated based on various factors, such as changing assessment criteria, additional feedback, and different self-reflection. In this process, proactively seeking feedback, via monitoring and inquiry, plays a crucial role in facilitating each step. For example, students may seek feedback on the suitability and interpretation of the assessment criteria. They may also solicit feedback to fine-tune their self-reflective strategies and enhance the precision of their self-assessment judgment. Internal feedback is at the heart of self-assessment, as the primary objective of self-assessment is to generate feedback that is from and used by the student to improve

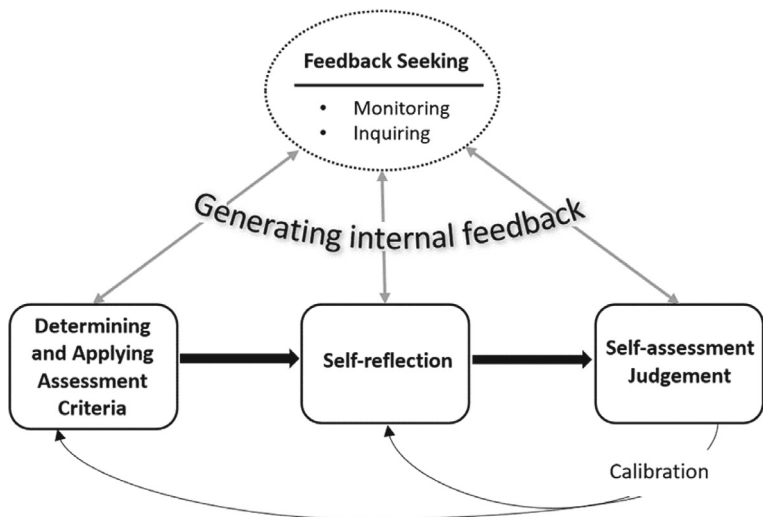


Fig. 3.1 The self-assessment process (Yan & Carless, 2022, p. 1119)

future learning (Andrade, 2010, 2019). In the self-assessment process, various kinds of reference can be used to create internal feedback. These include the assessment criteria, feedback from teachers or peers, and other types of benchmarks such as peer work or exemplars. The type of reference information used can influence the nature of the internal feedback (Nicol, 2021), which in turn, can impact the final self-assessment judgments.

3.2 Assessment Literacy and Student Self-assessment Literacy

Students need to have sufficient assessment literacy to actively engage in and fully benefit from assessment activities. Assessment literacy involves more than just competence; it also includes the capacity to adapt and become proficient in diverse assessment contexts (Leirhaug et al., 2016; Willis et al., 2013). In other words, they need to understand the purpose and process of assessment, know how to assess, appreciate which assessment approach is most suitable for a particular purpose, be able to interpret and use assessment results to promote learning. This is also applicable to the specific assessment form—self-assessment. Drawing insights from Hay and Penney's (2013) assessment literacy model, Guo and Yan (2022) proposed a model of self-assessment literacy that consists of four inter-related components: (1) *self-assessment comprehension*; this involves students recognizing what self-assessment entails, why they're utilising it, and determining if the chosen self-assessment method is appropriate for their learning objectives. (2) *self-assessment application*; it means that students are able to incorporate self-assessment process—includes establishing self-assessment criteria, securing feedback, and engaging in thoughtful self-reflection on their learning processes and outcomes—into their learning process. (3) *self-assessment interpretation*; this requires students to analyse the results gathered from self-assessment in order to enhance their ongoing learning and optimise their self-assessment approach. (4) *critical engagement with self-assessment*; which means, during the self-assessment process, students should be aware of potential negative implications and limitations of self-assessment for their learning.

The self-assessment literacy can be well aligned with the concept of student assessment literacy in this book. As elaborated in Chap. 1, student assessment literacy *refers to a multi-faceted, essential capability that students should develop and apply as they engage in the assessment process in order to attain academic success*. The concept encompasses four components, including (1) knowledge about the nature, purposes (both summative and formative), and process of assessment in formal and informal modes; (2) skills for making evaluative judgements of their own work or peers' work as well as giving, comprehending, and using feedback (i.e., self- and peer-assessment/feedback skills); (3) a sense of self-responsibility to drive their own learning by setting personally meaningful learning goals and self-evaluating learning progress, as well as a sense of self-confident in taking actions to fulfil such

a self-responsibility; (4) an awareness of the impacts of assessment on their social relationships and emotions, as well as skills for managing such impacts and seeking help when facing difficulties in these aspects.

Not surprisingly, the four components of self-assessment literacy in Guo et al. (2021) model can correspond to the four components of assessment literacy proposed in this book. For example, self-assessment comprehension is about knowledge related to self-assessment in terms of its purposes and process. Self-assessment application refers to skills for making evaluative judgements about their work in self-assessment and the capacities to seek, interpret, and use feedback. Self-assessment interpretation is about self-responsibility in optimising ongoing learning through follow-up actions, such as goal setting and learning monitoring, based on the self-assessment results. Critical engagement with self-assessment requires an awareness of the various possibilities of self-assessment impacts, as well as skills for managing such impacts. It is reasonable to note that self-assessment literacy has a relatively narrow focus than assessment literacy. For instance, self-assessment literacy does not cover the requirement for giving feedback, which is an important element in assessment literacy, especially in the scenario of peer assessment. Self-assessment literacy also pays less attention to the impacts of assessment on students' social relationships. Although others play a crucial role in the self-assessment process by providing feedback (Yan & Carless, 2022), the social and emotional impact of self-assessment is more on themselves rather than others.

3.3 Using Self-assessment to Develop Student Assessment Literacy

Assessment literacy, as a capability, and self-assessment, as a practice, are interconnected as they mutually inform and enhance each other. Students who demonstrate a strong aptitude for assessment literacy are likely to conduct more meaningful self-assessments, while the process of self-assessment provides numerous opportunities for developing assessment literacy. A fundamental reason for the interplay between self-assessment and student assessment literacy is that both emphasise student agency in the assessment process and the use of assessment to support learning.

It is well recognised that students need to have sufficient assessment literacy in order to carry out meaningful self-assessment practice, but how self-assessment activities can help develop students' assessment literacy has not been well articulated. Self-assessment is a typical example of assessment-as-learning, i.e., "assessment that necessarily generates learning opportunities for students through their active engagement in seeking, interrelating, and using evidence" (Yan & Boud, 2022, p. 13). Assessment-as-learning can bolster student learning by providing opportunities for learning and making evaluative judgments, which is the primary objective of self-assessment. In principle, there are at least two types of opportunities through which self-assessment can help to develop student assessment literacy.

Firstly, self-assessment provides students with opportunities to familiarise themselves with assessment process and promote their understanding of assessment (Deeley & Bovill, 2017; Hoo et al., 2022). Secondly, actively engaging in self-assessment offers opportunities for students to practice and enhance their ability of evaluative judgement (Boud et al., 2013).

In this section, we elaborate on the self-assessment process into three steps plus one enabling factor, as discussed earlier (see Fig. 3.1). The three steps are (1) determining and applying assessment criteria, (2) self-reflection, and (3) self-assessment judgement and calibration. The enabling factor is feedback seeking that happens throughout the self-assessment process. Each component of the self-assessment process carries opportunities for developing students' assessment literacy. Repeated engagement in self-assessment practices is expected to enhance students' assessment literacy in a continuous and progressive way. Teachers play a pivotal role in creating and maintaining appropriate learning environments for self-assessment, as well as providing guidance and modelling in the development of students' assessment literacy. In light of this, the following discussion offers some suggestions for teaching practice with an aim to further enhance the effectiveness of teachers in developing students' assessment literacy through self-assessment activities.

Although each self-assessment step can foster all aspects of assessment literacy, it is of pedagogical value to highlight the strongest associations between self-assessment step and assessment literacy aspect so as to provide more focused guidelines for teachers to design self-assessment activities accordingly.

The first step of the self-assessment process, determining assessment criteria, plays a pivotal role in students' construction of knowledge about assessment. Normally, students possess a limited knowledge about assessment, as they seldom have opportunities to understand it and usually derive key information about assessment, such as assessment criteria from teachers or task instructions (Yan & Brown, 2017). The limited knowledge about assessment might prevent them from engaging with assessment processes and gaining a full grasp of the benefits from assessment tasks (Hannigan et al., 2022). Conversely, students' participation in the establishment of assessment criteria gives them autonomy to decide what, why and how they could be assessed (Francis, 2008). This facilitates a solid understanding of assessment (e.g., essence, objectives, and modes of assessment), which could also foster students' appreciation for the constructive connection between assessments and learning. For example, students who could distinguish between summative and formative assessment criteria are likely to better understand their respective purposes - while the former one evaluates what they have learned at the end of an instructional period, the later one aids to monitor their learning and provides ongoing feedback. As such, they might exhibit less anxiety when receiving formative assessment grades and display a more critical attitude towards results and feedback from formative assessments. Furthermore, understanding the range of formal and informal assessment modes enables students to capture the actual purposes of assessment methodologies and approaches, which consequently could increase their participation in assessment in different modes.

Essential to engaging students in the process of determining assessment criteria is repositioning them as partners of assessment (Andrews et al., 2018), rather than the traditional subjects of assessment. By altering students' role in assessment, teachers are more likely to successfully engage students through the subsequent actions in the assessment process. Specifically, teachers could arrange class discussion or group activities for students to brainstorm and decide collaboratively the assessment criteria. At this stage, teachers should explicitly explain to students the purpose and relevance of assessment tasks, continuously monitor the progress of developing assessment criteria, and give them constructive feedback to refine the criteria. As students need to gain a clear understanding of what is expected from them and develop criteria-setting skills overtime, teachers' elaboration and monitoring could enrich their knowledge about assessment and refine their relevant skills. Aside from these practices, opportunities to reflect on assessment criteria (e.g., whether the criteria are effective enough to demonstrate students' progress against the learning objectives) upon the accomplishment of assessment tasks could be useful as well.

The second (i.e., self-reflection) and third step (self-assessment judgement and calibration) are intrinsically intertwined and thus better to discuss together. They form an iterative reflective process where students consistently evaluate their own works, judge their own performance, utilise feedback effectively to calibrate their understanding about themselves (Yan & Carless, 2022). Through this iterative process, students could not only develop their evaluative judgement (Boud et al., 2013; Smith et al., 2013), but also cultivate a sense of self-responsibility for their own learning. Specifically, reflecting on their performance can lead to the identification of their areas of improvement. This critical reflection then informs the step of self-assessment judgement and calibration, where they decide whether their performance meet different standards (e.g., their own standards or assessment criteria) and calibrate their perception to achieve increasingly accurate self-judgement. These stages also urge students to concentrate more on their assessment and align them with personal interests (Deeley & Bovill, 2017). As students engage more in these two steps, they will be better in setting personally meaningful goals, monitoring their learning progress, and increasing accuracy in assessing themselves. Overtime, the cumulative positive feelings when accurately assessing themselves could nurture a sense of confidence in their capacity to direct their own learning, and eventually promote their willingness to take ownership of their learning.

The provision of sufficient reflective opportunities for students is key to engaging students in self-reflection and self-assessment judgement and calibration. To create more reflective opportunities, teachers might consider embedding reflective activities, either individual or group-based in the forms of reflective journal, peer discussions and worksheets, during their instruction to form students' habits of reflection. Another feasible approach could be conducting reflective sessions. Although these sessions take extra time out of class, there is more space for teachers to carry out some time-consuming activities that are unrealistic to embed in normal class, such as modelling the process of self-reflection, self-judgement and calibration and ask probing questions to help students reflect more deeply on their learning and develop strategies for improvement. Noteworthily, to make reflective activities and guided

reflection sessions more effective, encouraging student to set specific, measurable, achievable, relevant, and time-bound goals and providing regular and constructive feedback are essential pedagogical practices.

During the self-assessment process, feedback seeking is an enabling factor permeating the aforementioned three stages. Since interpreting and using feedback is a core element of assessment literacy, feedback seeking associated with the self-assessment process is obviously a venue for developing assessment literacy. When seeking feedback for the purpose of self-assessment, students are self-directed to take control of their learning. This process also allows students to refine their feedback skills, foster their sense of self-responsibility, and aid them in managing the social and emotional impacts of assessment so as to promote their assessment literacy. After all, feedback seeking is a social practice that involves information and emotion exchange with people or environment other than students themselves. In such a social practice, students are required to independently initiate and respond to interactions with others, thereby exposing themselves to experiences like how assessments influence their interactions with others and how it affects their emotional well-being. Such experience, at the social level, might assist to equip students with management skills to navigate the emotional ups and down associated with different feedback (could be either positive or negative). At the emotional level, it could also foster students' sense of resilience and adaptability through encouraging them to seek assistance when facing difficulties.

Positive reinforcement such as praising students after their effort to seek feedback could be a very simple way but effective to encourage students' practice afterwards. To make their feedback seeking practice more sustainable, teachers could promote feedback-friendly classroom through teaching students feedback skills (e.g., incorporation of relevant skills in their instruction and modelling constructive criticism), arranging regular peer interaction opportunities (e.g., practice for feedback giving and receiving, and handling the social-affective effect of assessment) (Hoo et al., 2022) and providing adequate support (e.g., office hours, tutoring sessions, or additional resources) to ensure that students have place to go for help when they encounter with difficulties.

3.4 Conclusion

This chapter underscores the dynamic interplay between self-assessment and student assessment literacy, highlighting the reciprocal relationship between the two. Alongside the recognition of the necessity of assessment literacy for conducting meaningful self-assessment practice, this chapter highlights that self-assessment can be utilised to develop student assessment literacy. Based on the critical analysis of the self-assessment process, it is argued that the self-assessment components (i.e., determining assessment criteria, self-reflection, self-assessment judgement and calibration, and feedback seeking) can provide students with sufficient opportunities for developing their assessment literacy. Engaging in self-assessment not only allows

students to evaluate their own work but also serves as a valuable tool for cultivating their understanding and competence in assessment practices. Teachers are encouraged to integrate meaningful self-assessment activities into their daily instruction as a means of enhancing students' assessment literacy. Through structured self-assessment experiences, students can develop a deeper understanding of assessment criteria, refine their self-reflection skills, strengthen their judgment and calibration abilities, and learn to seek and utilise constructive feedback effectively.

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Chapter 4

Peer Assessment: A Powerful Way to Cultivate Student Assessment Literacy



4.1 Introduction

Peer assessment is recognized as an assessment strategy that promotes learning, as it has been shown to yield significant improvements in student learning outcomes (Hoang et al., 2022; Kim & Ryu, 2013; Yan et al., 2022) and higher-order thinking skills such as critical thinking and creative thinking (Foo, 2021; Zhan et al., 2023). It is commonly defined as “a system in which individuals evaluate the quantity, level, value, worth, quality, or achievement of their peers’ learning products or outcomes, who share a similar status” (Topping, 1998, p. 250), as frequently referenced in existing research within this field. A variety of synonyms of peer assessment include peer feedback, peer review, peer evaluation, and peer grading (Panadero & Alqassab, 2019; Zhang et al., 2020). However, peer assessment is distinguished from these synonyms in that it provides both scoring-based evaluation and comments or suggestions for assessing their peers’ performance (Zhang et al., 2020). Peer assessment is traditionally conducted in a face-to-face mode. With the development of information communication technology, online peer assessment is increasingly used by teachers in classrooms.

Student assessment literacy encompasses a diverse and indispensable skill set that students must cultivate and utilise in order to achieve academic advancement through the assessment process. Assessment-literate students can monitor and improve their learning processes and outcomes and become effective life-long learners (Boud & Falchikov, 2006; Chan & Luo, 2021; Hannigan et al., 2022; Smith et al., 2013). For example, assessment-literate students make critical judgments on the received feedback and act on the feedback to make real progress in their learning (Carless & Boud, 2018; Han & Xu, 2020). Furthermore, assessment-literate students tend to have positive attitudes toward the value of feedback which can enhance their engagement and learning motivation (Aitken, 2011; Deeley & Bovill, 2017; Hannigan et al., 2022; Smith et al., 2013).

Peer assessment could be regarded as a powerful way to cultivate student assessment literacy (e.g., Ketonen et al., 2020; van Zundert et al., 2010). On one hand, when students take on the role of assessors, they are expected to analyze and assess their peers' work, identifying both their strengths and weaknesses based on predetermined criteria. This process provides valuable opportunities for students to deepen their understanding of discipline-specific knowledge and criteria (Tai et al., 2018). Meanwhile, as students assume the role of assessors, their motivation to actively participate in the assessment process and their responsibility for evaluating their peers' work will increase. On the other hand, when students act as assessees, they examine and reflect upon the feedback given by their peers, utilizing it to improve their own work (Li, 2017; Li et al., 2009). This provides valuable opportunities for students to enhance their evaluative and reflective skills as they make informed judgments based on the feedback received from their peers. In all, peer assessment not only enhances students' knowledge and skills to engage in assessment but also improves their positive tendency towards assessment, which is known as student assessment literacy.

This chapter aims to elaborate on how peer assessment can be used to enhance student assessment literacy by unveiling the theoretical mechanisms underlying peer assessment, reviewing the empirical studies of developing student assessment literacy via peer assessment, as well as summarizing its design elements and influencing factors, which have an impact on the effectiveness of peer assessment on student assessment literacy. As a result, practical recommendations to researchers and practitioners will be made to maximize the effects of peer assessment on student assessment literacy.

4.2 Theoretical Mechanism of Peer Assessment

To ensure the effectiveness of peer assessment, it is crucial for it to be interactive rather than a unidirectional process of transmitting information (Filius et al., 2018; Gikandi et al., 2011). In a recent study, Er et al. (2021) proposed a theoretical framework for collaborative peer assessment consisting of three interconnected stages. The first stage, "planning and coordination of the feedback activities" emphasizes the importance of establishing a shared understanding among students (both feedback givers and receivers) regarding the expected standards for the submitted work. Once this common ground is established, peers can plan their feedback activities, and organize and coordinate their efforts to maximize learning benefits. In the second stage, "discussion around the feedback" students engage in reflective thinking and discuss the feedback they have received with their peers. The third stage, "translation of the feedback into task engagement and progress" involves students following up on their peers' comments and iteratively adjusting their learning strategies by monitoring their revision progress over time. Each of these peer assessment stages serves specific purposes which should be realised by corresponding design elements.

A number of learning theories, including social constructivism (e.g., Topping, 1998; Villamil & de Guerrero, 2006), the socio-cultural model (e.g., Hu, 2019), socio-interdependence theory (Cheng & Tsai, 2012; van Gennip et al., 2009, 2010), the socio-cognitive viewpoint (Chong, 2021; Han & Hyland, 2019), activity theory (e.g., Yu, 2014; Zhu & Mitchell, 2012) and the socio-material approach (e.g., Gravett, 2022), have been employed to underpin peer assessment. These theories collectively agree that peer assessment is a social activity influenced by a range of factors that shape its process and impact its outcomes.

In the theories of social constructivism and socio-cultural approach, peer assessment is seen as a peer inter

action shaped by societal structures and discourses in the zone of proximal development (Hu, 2019; Villamil & Guerrero, 2006). The way students participate in the feedback process is determined by “culturally-dependent conversational styles” (Belz, 2003, p. 82). Peer assessment is recognized as a cooperative activity occurring within an interpersonal context, implying that interpersonal aspects like trust, psychological safety, and value diversity play a critical role in learning outcomes (Cheng & Tsai, 2012; van Gennip et al., 2009, 2010). The socio-cognitive perspective posits that the interplay between individuality and context shapes student engagement with feedback (Chong, 2021; Han & Hyland, 2019). Personal factors like attitudes, motivation, feedback experience, and abilities are thought to affect how students interpret and utilize feedback (Beaumont et al., 2011; Meek et al., 2017; Tsivitanidou & Constantinou, 2016). Activity theory also underscores student agency in the peer assessment process, with some studies using this theory to examine student attitudes and motivations in peer assessment (Yu & Lee, 2015; Zhu & Mitchell, 2012). Recently, Gravett (2022) expanded the social constructivist and socio-cultural methods to view feedback as a socio-material practice, meaning that the medium of feedback, its location, and timing can influence student interaction and engagement with feedback.

This chapter synthesizes the interactive processes of peer assessment and the influential factors from multiple theoretical perspectives. Figure 4.1 illustrates a theoretical mechanism of peer assessment. It shows that peer assessment goes through three stages from planning and coordination of peer assessment, discussion around the given peer feedback to uptake of peer feedback. This process is not linear but cyclical. To enhance the roles of each stage of the peer assessment process in prompting assessment literacy development, teachers need to think about how to design and coordinate each stage, which is illustrated in the section on effective peer assessment design elements in promoting student assessment literacy. As we know, peer assessment does not occur in a vacuum but is affected by social-cultural factors, interpersonal factors, material factors and individual factors. These factors can facilitate or inhibit students’ cognitive, affective and behavioural engagement in peer assessment, in turn, affecting their development of assessment literacy. These factors are elaborated in the section on “Factors mediating the impacts of peer assessment on student feedback literacy”.

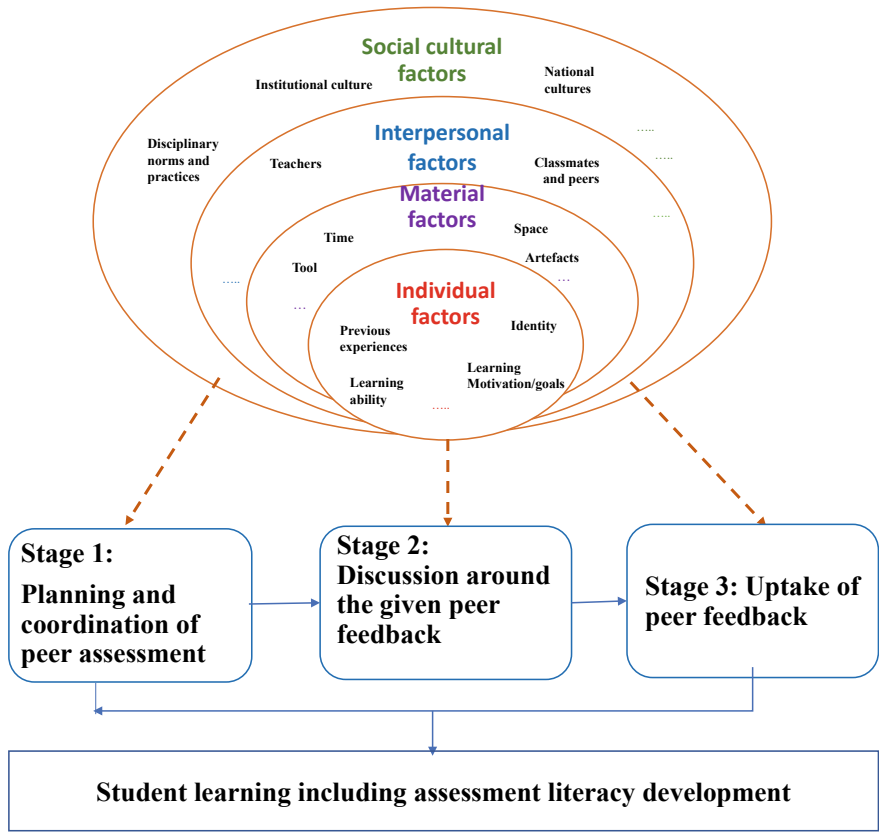


Fig. 4.1 Theoretical mechanism of peer assessment

4.3 Impacts of Peer Assessment on Student Assessment Literacy

Several studies have revealed that peer assessment positively impacts students’ development of assessment literacy (e.g., Karal & Sarialioğlu, 2022; Ketonen et al., 2020; Yeo, 2023). For example, in Chen et al.’s (2022) study, student assessment literacy was found to be improved by scaffolding self and peer assessment (SSPA) as evidenced by a quasi-experimental design. Students in the intervention group exhibited significant enhancements in feedback provision, better performance, and a more positive attitude towards SSPA. Similarly, Ho (2022) suggested that peer review can boost student assessment literacy and demonstrated how it can be integrated into the curriculum of undergraduate ESL English literature courses in a case study.

Student feedback literacy, a crucial aspect of assessment literacy, has been a primary focus in studies examining the impact of peer assessment on student assessment literacy. For example, in L2 college writing classroom, Zhang and Mao (2023)

explored the impact of peer feedback on student feedback literacy through analyzing pre-and-post surveys, interviews with students and their writing teachers, students' original and revised drafts, and classroom documents. They found that student feedback literacy was improved. This finding was corroborated by Yeo (2023), who posited that from teachers' perspectives, triadic peer assessment not only increases the quantity, variety, and reliability of feedback but also fosters a more conducive feedback environment and aids in the development of "soft" or "transferable" skills. In another study conducted by Deng et al. (2023), they found that students displayed a favorable perspective on peer evaluation of digital multimodal compositions (DMC) within subject-specific college English classes. Such activities were perceived to bolster their ability to self-reflect and self-regulate their learning, enhance the caliber of DMC results, foster a collaborative learning atmosphere, and broaden their understanding and skills in assessing multimodal tasks.

Studies on enhancing student feedback literacy through peer assessment extend beyond higher education and encompass school education as well. Ketonen et al. (2020), for instance, conducted a case study to explore how formative peer assessment impacts feedback literacy among secondary students. Their findings, based on a thematic analysis of diverse data sources such as lesson notes, audio recordings, student interviews, and students' written work and feedback, indicate that formative peer assessment does indeed enhance students' feedback literacy. However, the relevant studies in school contexts is scarce.

The utilization of technology in peer assessment activities is increasingly prevalent in classrooms and has a notably positive influence on student feedback literacy. For instance, Wu and Lei (2023) found that postgraduates' engagement with online peer feedback led to an enhancement in student feedback literacy in academic writing, specifically in developing strategies to resolve cognitive conflicts and fostering emotional resilience towards feedback. Similarly, Wood's (2022) research indicated that technology-mediated peer feedback, particularly online feedback dialogues, could bolster student feedback literacy by aiding in the comprehension and collaborative development of actionable feedback points, as well as managing the socio-affective and relational aspects of feedback engagement. In another study, Karal and Sarıalioğlu (2022) discovered that a 14-week process involving primarily asynchronous peer interactions in peer assessment could enhance student feedback literacy.

4.4 Effective Peer Assessment Design Elements in Promoting Student Assessment Literacy

The design elements of peer assessment are usually identified and categorized based on three stages of peer assessment (e.g., Er et al., 2021; Zhan et al., 2022; Zhang & Mao, 2023). 10 main design elements of peer assessment in promoting assessment literacy are summarized and presented in Table 4.1.

Table 4.1 The design elements at the three stages of peer assessment for student assessment literacy development

The stage of peer assessment	Design elements	Sources
Planning and coordination	Peer assessment training	Camarata and Slieman (2020); Chen et al. (2022); Han and Xu (2020); Ketonen et al. (2020); Wu & Lei (2023); Zhang and Mao (2023)
	Way of grouping	Camarata and Slieman (2020); Chen et al. (2022); Han and Xu (2020); Ketonen et al. (2020);
	Provision of supportive materials for assessment	Camarata and Slieman (2020); Chen et al. (2022); Deng et al. (2023); Fernández-Toro et al. (2021); Ketonen et al. (2020); Wu and Lei (2023)
	Content requirements of peer assessment	Chen et al. (2022); Fernández-Toro and Duensing (2021); Han and Xu (2020); Ketonen et al. (2020);
	Anonymity	Fernández-Toro and Duensing (2021); Wu and Lei (2023)
Discussion around peer feedback	Asynchronous or Synchronous discussion	Fernández-Toro and Duensing (2021); Han and Xu (2020); Wu and Lei (2023)
	Scaffolding of teacher feedback	Camarata and Slieman(2020); Han and Xu (2020); Zhang and Mao (2023)
Uptake of peer feedback	Evaluation of peers' comments	Camarata and Slieman(2020); Chen et al. (2022); Deng et al. (2023)
	Revision and reflection opportunities	Chen et al. (2022); Wu and Lei (2023); Zhang and Mao (2023)
	Visible revision process	Chen et al. (2022); Han and Xu (2020)

4.4.1 Design Elements at Stage 1: Planning and Coordination of Peer Assessment

During the planning and coordination phase of peer assessment activities, the most frequently employed design element is offering peer assessment training to students. The training content analysis revealed five primary objectives: acquiring specific peer assessment knowledge or skills (e.g., Camarata & Slieman, 2020; Ketonen et al., 2020), familiarizing with the assessment rubric (Zhang & Mao, 2023), learning how to effectively carry out peer assessment (Chen et al., 2022; Han & Xu, 2020; Zhang & Mao, 2023), understanding unique assessment requirements, such as using

track changes and margin comments in Microsoft Word (Zhang & Mao, 2023), and boosting students' recognition of the importance of peer feedback practice (e.g., Chen et al., 2022; Han & Xu, 2020). Multiple studies have presented empirical evidence backing the effectiveness of peer assessment training. For instance, Camarata and Slieman (2020) discovered that the feedback group that received training and performed an extra task of concept map peer review exhibited improved feedback quality and increased comfort in providing feedback, compared to the control group.

The second design element focuses on grouping methods. The effectiveness of peer assessment on assessment literacy can be influenced by students' diverse cultural backgrounds and cognitive abilities (Ketonen et al., 2020), hence, the approach to grouping has been a vital consideration in the design of peer assessment activities. Grouping strategies are primarily based on various factors such as individual differences (Han & Xu, 2020; Ketonen et al., 2020), interpersonal relationships (Ketonen et al., 2020), and the objectives of the activities (Camarata & Slieman, 2020; Chen et al., 2022; Ketonen et al., 2020). Firstly, individual differences like personality traits and learning capabilities were taken into account in peer assessment design. For example, Ketonen et al. (2020) paired students who needed more support with empathetic classmates to prevent potential conflicts. Han and Xu (2020) grouped students with varying writing abilities together to promote exposure to diverse viewpoints. Secondly, for fairness, students were not paired with individuals with whom they had previously collaborated (Ketonen et al., 2020). Lastly, depending on varying purposes, students were grouped not just in pairs, but sometimes in larger groups. For instance, Chen et al. (2022) divided students into seven groups of three, with each group assessing three anonymous peer translations. Similarly, Camarata and Slieman (2020) organized students into groups of 4 to 6 for peer review activities, finding that group-level feedback had a discernible and significant effect on individual students.

The third design element involves supplying students with supportive materials for assessment. Several studies emphasized the importance of providing students with resources such as assessment criteria or rubrics (e.g. Camarata & Slieman, 2020; Chen et al., 2022; Deng et al., 2023; Fernández-Toro & Duensing, 2021; Ketonen et al., 2020), exemplars, checklists for each criterion (Fernández-Toro & Duensing, 2021), as well as guidance on how to provide feedback (Chen et al., 2022; Wu & Lei, 2023) before commencing their peer assessment activities. The integration of rubrics in the process is viewed as a support mechanism that can minimize assessor bias, provide specific feedback, and alleviate students' assessment-related anxiety (Camarata & Slieman, 2020). Furthermore, additional resources such as exemplars, criterion-specific checklists (Fernández-Toro & Duensing, 2021), and feedback prompts (Chen et al., 2022) are also provided to ensure a smooth assessment process and encourage more constructive feedback from students.

The fourth critical design element is the content requirements for peer assessment. The content primarily includes grading and feedback, but the exact requirements vary across different studies. For instance, Han and Xu (2020) only asked their students to provide feedback, whereas in Ketonen et al.'s (2020) study, students were required to grade their peers' work, with comments being optional. Both Chen et al. (2022) and Fernández-Toro and Duensing (2021) necessitated their students to give both

marks and comments. In fact, Fernández-Toro and Duensing (2021) even supplied a template that encouraged students to provide formative feedback, including the reasons for the given scores and the primary strengths and weaknesses of their peers' performance.

The fifth design element involves maintaining anonymity. Wu and Lei (2023) implemented blind peer evaluation in their studies to avoid issues related to saving face during peer feedback practices. In Fernández-Toro and Duensing's (2021) study, all marks from peer assessors were anonymously collected online. They found that this design element fostered a positive attitude among students towards peer marking, as it allowed them to comment freely without worrying about hurting anyone's feelings.

4.4.2 Design Elements at Stage 2: Discussion Around the Given Peer Feedback

Discussions on peer feedback are often structured in either asynchronous or synchronous formats. In the study by Wu and Lei (2023), both these forms of dialogue were incorporated to engage students in group discussion and review feedback from two different reviewers. In one hand, synchronous dialogue facilitated face-to-face communication, enabling students to clarify confusion, understand reviewers' comments, and develop ideas for revisions. On the other hand, asynchronous dialogues were also carried out in WeChat groups to continue discussions when in-class dialogues were insufficient for resolving issues. According to Wu and Lei's (2023) findings, such dialogue design is a crucial for enhancing student feedback literacy, as it assists in managing cognitive conflicts by providing opportunities for negotiating meanings and co-constructing new ideas. In Han and Xu's (2020) study, students were urged to interact with their peers to comprehend feedback and respond to it in an asynchronous way. In Fernández-Toro and Duensing's (2021) study, tutor-led forum discussions were conducted on line to invite students to comment on the peer grades on each assignment in an asynchronous way too.

To boost students' comprehension of peer feedback and their tasks, the role of teacher feedback as a form of scaffolding is crucial. Teacher feedback generally acts as an adjunct to peer assessments, often provided to students after they have amended their work based on peer evaluations (Zhang & Mao, 2023), or it can serve as a practical example to refine their feedback strategies (Camarata & Slieman, 2020; Han & Xu, 2020). As to its primary role, amalgamating peer and teacher feedback can aid students in gaining a deeper understanding and furthering their work's progression. For instance, in the study by Zhang and Mao (2023), peer feedback was offered on students' initial drafts, and teacher feedback (without grading) was given on the revised drafts. After two iterations of revisions, the third drafts were final submissions for grading. Both these feedback forms played distinct roles in student learning—peer feedback providing learning opportunities from fellow

students' work and comments, and teacher feedback guiding students to elaborate and clarify ideas in subsequent writing. Concerning its secondary role, teacher feedback, when used as a model for peer feedback, displayed potential benefits such as enhancing students' cognitive abilities (Camarata & Slieman, 2020; Han & Xu, 2020) and its socially-affective facilitating role. For example, Han and Xu (2020) posited that teacher-written feedback could exemplify an authentic model for students to refine their feedback strategies. This aligns with Camarata and Slieman's (2020) view that faculty-led modeling of constructive feedback, combined with peer review, enabled students to gain a robust understanding of specific constructive feedback. Additionally, Han and Xu (2020) also found that it not only improved students' assessment skills but also their eagerness to participate in peer feedback activities.

4.4.3 Design Elements at Stage 3: Uptake of Peer Feedback

A crucial design element at stage 3 is evaluation of peer comments. Evaluating peers' comments involves assessing the quality of the feedback from peer reviews. Camarata and Slieman (2020) had their students judge their peers' feedback using a feedback assessment rubric. In the study by Deng et al. (2023), students were required to explain why they chose to disregard peer suggestions about their work following revisions. This is akin to the design in Chen et al.'s (2022) study, where peer assessments along with tracked changes were returned to students for them to respond to—either by accepting the changes or justifying their rejection.

The second design element in the final stage is the revision and reflection on work based on peer assessments, which aims to improve students' work or raise their awareness of the value of peer feedback for future learning (Zhang & Mao, 2023). In Chen et al.'s (2022) study, students were given the chance to respond to their peers' feedback, either by accepting the edition made by their peers or rejecting them based on their reflections and judgements. In Zhang and Mao's (2023) study, students were provided with a set of reflective prompts, like their emotions and evaluations of the feedback activities, to inspire reflection on their feedback experiences, thereby increasing the importance they place on peer feedback in future learning. In Wu and Lei's (2023) study, students were asked to compose a reflective journal about their revision process, including the significant changes they made in the final draft, their perceptions of their peers' comments, the assessors, the utility of the peer feedback practice, challenges, and recommendations for future enhancements.

Visible revision process is another design element considered by the researchers in their studies. It was exemplified through tracked changes in revisions. In Chen et al.'s (2022) study, students were asked to carry out translation revisions and justify their decisions using the Track Changes and Annotation features in Word software. Similarly, students in Han and Xu's (2020) study utilized their personal laptops to write comments and track changes in MS Word during each round of peer assessment.

4.5 Factors Mediating the Impacts of Peer Assessment on Student Assessment Literacy

In addition to the influence of peer assessment on student assessment literacy and the frequently cited design elements or features in peer assessment, the final point to be discussed is the factors that affect the growth of student assessment literacy through peer assessment. There are four types of influencing factors in the peer assessment process, including sociocultural, interpersonal, material, and individual factors (see Fig. 4.1).

4.5.1 Sociocultural Factors

Sociocultural factors such as face concern, social relationships, and the authority of teachers play a role in peer assessment. Face concern, which arises from the relatively equal status in peer assessment, impacts how students provide feedback. As pointed out in Deng et al.'s (2023) study, in a Chinese context, students often worry about whether their grades and comments could offend their peers. This concern leads them to avoid direct criticism and adopt a more moderate tone when giving feedback. Social relationships can also influence objective assessments. Students' ability to fairly and responsibly assess their peers (Cheng & Warren, 1997) can be influenced by their social relationships within the class. This finding is supported by Deng et al.'s (2023) study, which found that students were more likely to award higher grades to peers they were closer to, while being more objective with peers they were less familiar with. Another sociocultural factor is the perceived authority of teachers, as identified in Ketonen et al.'s (2020) study. They found that students, accustomed to teacher feedback, seemed to lack critical judgment towards peer feedback and expected clear, unambiguous feedback. Thus, an over-reliance on teachers in learning was identified as a barrier to enhancing student assessment literacy through peer assessment.

4.5.2 Interpersonal Factors

Interpersonal factors such as trust in peers and psychological safety can influence the effects of peer assessment on student assessment literacy. Students often take peer assessments less seriously than teacher feedback due to a lack of trust in their peers. For instance, in Deng et al.'s (2023) study, students suggested that the reliability of peer assessments was influenced by interpersonal relationships. Students' psychological insecurities also affect how effective peer assessments are in improving their assessment literacy. When students take on the role of assessors, worries about the quality of their own judgments and the emotional effects of these judgments on

others can cause anxiety about sharing their private judgments with peers (Fernández-Toro & Duensing, 2021). This aligns with Bharuthram and Van Heerden's (2023) finding that students expressed concerns about the accuracy of the information they provided to their peers due to a lack of confidence in their assessment skills. These negative emotions, such as anxiety and nervousness, can make students uncomfortable during the peer assessment process, which in turn diminishes their engagement and enthusiasm for assessment activities.

4.5.3 *Material Factors*

The third influencing factor involves material aspects such as technology and time. Many studies have noted the potential benefits of incorporating technology into peer assessment processes. For instance, Chen and Gao's (2022) study found that students appreciated online peer feedback more than traditional peer feedback as it allowed them to find their own voices through various stages of the reflective knowledge-building process, which could then be applied to subsequent revisions. This sentiment is supported by Wood's (2022) study, which found that technology-mediated dialogic peer feedback contributes positively to students' assessment literacy, particularly in their understanding of the feedback received and their appreciation for the engagement in feedback.

However, the effectiveness of peer assessment in fostering student assessment literacy can be limited by time constraints. Deng et al. (2023) indicated that students felt challenged by time restrictions which hindered their ability to complete follow-up revisions effectively. In contrast, Wu and Lei's (2023) study showed that when adequate time is given for students to interact with feedback and a collaborative learning culture is encouraged, it enhances students' sense of responsibility and their willingness to collaborate in meaning-making and understanding within peer assessment practices.

4.5.4 *Individual Factors*

Individual factors such as disciplinary knowledge (Deng et al., 2023; Han & Xu, 2020) as well as their attitudes towards peer assessment practices (Zhang & Mao, 2023) can impact the success of peer assessment. Deng et al. (2023), for example, found that students recognized the importance of English proficiency in the peer review process, and acknowledged the challenges of being observant reviewers due to insufficient English proficiency. Similarly, Han and Xu (2020) found that students with limited disciplinary knowledge struggled to understand assessment guidelines and teacher feedback, preventing them from effectively evaluating their peers' work based on established criteria, which resulted in low-quality peer feedback.

Student attitudes towards peer assessment was also found to influence the impact of peer assessment on student feedback literacy. Zhang and Mao (2023) noted that while some students initially doubted the usefulness of peer feedback, their perspectives changed over the course of a semester. After dedicating time and effort to feedback practices, they gradually recognized and appreciated its benefits, suggesting that students' positive attitudes towards peer assessment could facilitate student feedback literacy development.

4.6 Implications for Practitioners

Gaining insight into the mechanisms and design components that shape peer assessment can lead to actionable strategies for improving student assessment literacy. Drawing on foundational theories like social constructivism, the socio-cultural approach, social interdependence, and self-regulated learning, educators are encouraged to cultivate a learning environment characterized by interaction and cooperation. Such an environment empowers students to develop their assessment literacy, as they actively engage with their peers and learn from one another throughout the peer assessment process. A crucial aspect of this approach involves transitioning from teacher-centered instructional strategies to student-centered ones. This shift places the responsibility of the assessment process in the students' hands, fostering a stronger sense of ownership and accountability. Consequently, this enhances their positive attitudes towards learning and bolsters their sense of responsibility, further enriching their educational experience.

Prior research offers examples of peer assessment designs that aid in developing student assessment literacy. Educators can adapt these designs to their teaching scenarios and critically reflect on these design elements. During the planning and coordination phase of peer assessment, it is beneficial to offer training to students so they can acquire the necessary knowledge and skills, and foster positive attitudes towards such assessment activities. Furthermore, when deciding on grouping methods for peer assessment, the cultural backgrounds and cognitive levels of students should be considered to ensure a supportive and comfortable learning environment. Providing supportive assessment materials and outlining peer assessment content requirements can also help to facilitate a smooth procedure and encourage students to provide more constructive feedback. In the phase of peer feedback discussion, incorporating teacher feedback into peer assessment can enhance the process, providing an authentic example for students and highlighting the teacher's supportive role. Implementing both synchronous and asynchronous discussions around feedback can deepen students' understanding of their feedback and criteria, and help them apply what they've learned from peers into practice. Lastly, during the phase of incorporating peer feedback, teachers should allow students the autonomy to decide whether to use peer feedback, make their revisions visible, and reflect on their changes.

It's important to acknowledge that peer assessment does not occur in isolation but in a specific context, with particular individuals, and within a definite time-frame. As such, teachers implementing peer assessment must be cognizant of the factors that can influence its efficacy, including socio-cultural, interpersonal, material, and individual elements. For instance, timely teacher guidance on providing feedback can effectively steer students and aid in generating more constructive feedback when students don't trust their peer's assessment (Foo, 2021; Zhang et al., 2014). Implementing anonymity can help reduce peer pressure and increase student comfort levels during peer assessment, thereby promoting student engagement and improving academic performance (Li, 2017; Li et al., 2009; Zhao, 1998).

In conclusion, peer assessment serves as a potent instrument that markedly enhances the growth of student assessment literacy. It accomplishes this by championing student agency and nurturing a culture of collaboration among peers. The role of teachers is vital in this context; they are responsible for the strategic design and effective implementation of peer assessment, ensuring it is utilized in a manner that maximizes its educational benefits. In essence, peer assessment is a catalyst for educational growth, promoting a dynamic, cooperative learning environment where students are drivers of their own assessment journey.

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Chapter 5

Moving Student Assessment Literacy Scholarship Forward



5.1 Introduction

In this concluding chapter, we summarise the key themes regarding student assessment literacy (SAL) that are discussed in the preceding chapters, offer practical implications for educators and practitioners to foster SAL in their students, discuss the limitations of this book, and propose future developments for advancing SAL research and practice.

5.2 Key Themes About Understanding and Developing SAL

In this book, we have first presented in Chap. 1 a reconceptualisation of SAL to highlight it as a significant strand of assessment literacy (AL) in line with the increased attention to the students' central role in learning, teaching, and assessment (Sun et al., 2023). Acknowledging the multi-faceted nature of SAL (Butler et al., 2021; Chan & Luo, 2021) and echoing the paradigm shift from an examination-focused view towards a learning-focused perspective on AL that prioritises students' agency in making assessment and learning decisions (Engelsen & Smith, 2014; Lee & Butler, 2020; Leirhaug et al., 2016), we have proposed a framework of SAL that contains four key components: (1) knowledge about assessment, (2) skills for managing assessment/feedback processes, (3) awareness of impacts of assessment, and (4) self-responsibility and self-confidence to take charge of learning during the assessment process. We have argued that these SAL components are essential for aiding students' proactive and critical engagement in the assessment process with a view to accomplishing their learning goals and supporting their lifelong learning. To make the SAL framework a practical vehicle for educators and practitioners in developing SAL among students, we have further suggested three common approaches, which include: (a) building a synergy between SAL and TAL through student–teacher

partnerships in assessment design, (b) encouraging student self-assessment, and (c) engaging students in peer assessment. These approaches have been discussed in Chaps. 2, 3, and 4 in detail.

Our discussions of research themes and empirical evidence in existing AL studies in Chap. 2 have provided critical insights for advancing SAL scholarship. Through a two-phase scoping review, Chap. 2 has unveiled a shortage of SAL studies, which echoes our call in Chap. 1 for further development of SAL scholarship. The scoping review has synthesised key themes of five review papers on AL studies, capturing the key features of AL, which can be summarised as *knowledge, skills, principles, concepts, procedures, standards, and quality of assessment that assessors (particularly teachers) should master to accurately and ethically measure student achievements, critically interpret assessment results, and take appropriate actions*. These features represent the core aspects of AL knowledge base for teachers as assessors.

The review of SAL and TAL studies in Chap. 2 has uncovered a rich array of research themes, ranging from relationships between TAL and teachers' assessment beliefs and practice, through the ways to measure/benchmark TAL, to the use of assessment innovations (e.g., self-assessment, peer assessment, genre-based pedagogy) for enhancing SAL, as well as the examination of SAL components. Some SAL studies included in the review highlighted SAL as active agents in making assessment decisions (e.g., Butler et al., 2021; Chan & Luo, 2021; Deneen & Hoo, 2023; Hannigan et al., 2022). Though not exhaustive, these themes reveal the many facets of AL scholarship. Chapter 2 has also presented a comparison between the SAL components in our framework in this book and SAL components or domains in two other SAL models (Chan & Luo, 2021; Hannigan et al., 2022) to offer fresh insights into future developments of SAL scholarship. Examples of future developments include expanding the research repertoire for investigating SAL, using a longitudinal design to examine the effects of SAL and TAL on student learning outcomes over time. These recommended future developments can potentially contribute to our first common approach for promoting SAL—constructing a SAL-TAL synergy in assessment design—by providing educators and practitioners with a robust research evidence base to inform assessment practice in their local contexts.

Following the scoping review in Chap. 2, our discussion and analysis of the theoretical and empirical foundation of self-assessment and peer assessment practices in Chaps. 3 and 4 have explicated the ways in which assessment innovations that support SAL development in students can be designed and implemented by teachers. Although previous studies have acknowledged the use of these two approaches as powerful tools to enhance students' learning outcomes (e.g., academic performance, emotional well-being, and knowledge and skills about assessment and feedback) (c.f., Panadero et al., 2019; Sridharan & Boud, 2019; Yan et al., 2022; Zhu et al., 2023), these existing studies rarely explicitly discussed how the two approaches can be designed and executed to enhance SAL in its full scope such as the four SAL components proposed in this book.

Specifically, Chap. 3 has advanced a critical examination of self-assessment as a learning process. Self-assessment is conceived as a three-step self-directed process whereby students (1) construct assessment criteria, (2) use the criteria to self-reflect

on learning, and (3) self-evaluate their work (Yan & Carless, 2021). Feedback seeking via monitoring and inquiry—an enabling factor in these self-assessment steps—facilitates and enriches each self-assessment step throughout the whole process. Chapter 3 also draws meaningful linkages between self-assessment literacy (Guo et al., 2021) and SAL, and offers a range of classroom strategies by which teachers can purposefully scaffold students' SAL development through self-assessment. For example, by encouraging peer discussion around assessment criteria and giving support during feedback seeking, students' self-responsibility and self-confidence can be improved. Designed in this way, self-assessment is not a solitary act of students working on assessment tasks on their own, but a collective endeavour enhancing students' ability for independent learning as lifelong learners (Menéndez-Varela & Gregori-Giralt, 2018; Sadler, 2013).

Chapter 4 has discussed peer assessment as a collaborative and interactive process. In a three-stage peer assessment process described in Chap. 4, students collaborate to (1) gain new knowledge regarding assessment standards (*planning and coordination*), (2) apply this new knowledge to giving and discussing peer feedback for one another (*discussion around feedback*), and (3) use peer feedback in adapting learning strategies and making revisions (*uptake of feedback*) (see also Er et al., 2021). Analysing the literature about peer assessment through multiple theoretical lenses and reviewing empirical evidence, Chap. 4 has offered a comprehensive analysis of its positive and negative impacts on students as well as its multiple influencing factors, which together highlight the importance of considering peer assessment as a contextualised phenomenon that should be examined within local cultures and concrete learning environments, and by taking individual and material factors into account (Engelsen & Smith, 2014; Lee & Butler, 2020; Yan et al., 2018). From a practical perspective, Chap. 4 has offered classroom strategies for teachers in the form of design features of optimal peer assessment for SAL development among students as they are guided by teachers to undertake collaborative activities in the different stages of peer assessment.

The classroom strategies proposed in Chaps. 3 and 4 require students collaborating with their peers and teachers during these activities, which is in accord with our suggestion for building student–teacher partnerships in fostering SAL. For sure, these and similar classroom strategies can also be adapted flexibly in a combination of self-assessment and peer assessment as well, where teacher guidance and feedback are indispensable (e.g., Deneen & Hoo, 2023). Furthermore, successfully adapting these strategies to suit students' learning needs would require teachers to develop and exercise their own assessment literacy (DeLuca et al., 2018)—which points towards a need to pay attention to the interplay between students' and teachers' assessment literacies or what we call a SAL-TAL synergy (Butler et al., 2021; Deneen & Hoo, 2023; Yan & Brown, 2021). Although previous studies have reported the strategies and outcomes of constructing student–teacher partnerships in assessment and feedback innovations (c.f., Deeley & Bovill, 2017; Lorber et al., 2019; Marquis et al., 2017), most of these studies have not explicitly analysed how such partnerships can promote SAL in its full scope in terms of its core components or major facets. Chaps. 2 and 3 have provided refreshing ideas in this respect.

To give a succinct overall picture of the key themes discussed in this book, we offer a visual presentation of the themes below (see Fig. 5.1). Figure 5.1 shows that Chap. 1 (the conceptual chapter) has laid a conceptual basis of SAL and outlined the structure of the book. Building on this conceptual basis, Chap. 2 (the review chapter) has examined current development of SAL research and suggested its future development directions by drawing insights from existing SAL and TAL studies. Then Chap. 3 (the self-assessment chapter) and Chap. 4 (the peer assessment chapter) have illuminated the nature and process of self-assessment and peer assessment and suggested classroom strategies of supporting students' active and critical engagement in such learning-focused assessment activities to foster SAL. Finally, in this chapter (the concluding chapter) has summarised and interpreted the key themes discussed in the preceding chapters with a view to inferring key lessons learned from these themes for educators and practitioners. Connecting the discussion throughout the book is our use of the four-component SAL framework for gaining an in-depth understanding of SAL and for deriving evidence-based approaches to promoting it as a core student academic literacy in the 21st Century. Furthermore, the three common approaches (i.e., creating a SAL-TAL synergy through student–teacher partnerships, encouraging students' self-assessment, and engaging students in peer assessment) for promoting SAL are interwoven and run through all the five chapters. The arrows in Fig. 5.1 indicate these conceptual and practical linkages revolving around SAL, which have brought unity to the key themes being discussed across the chapters.

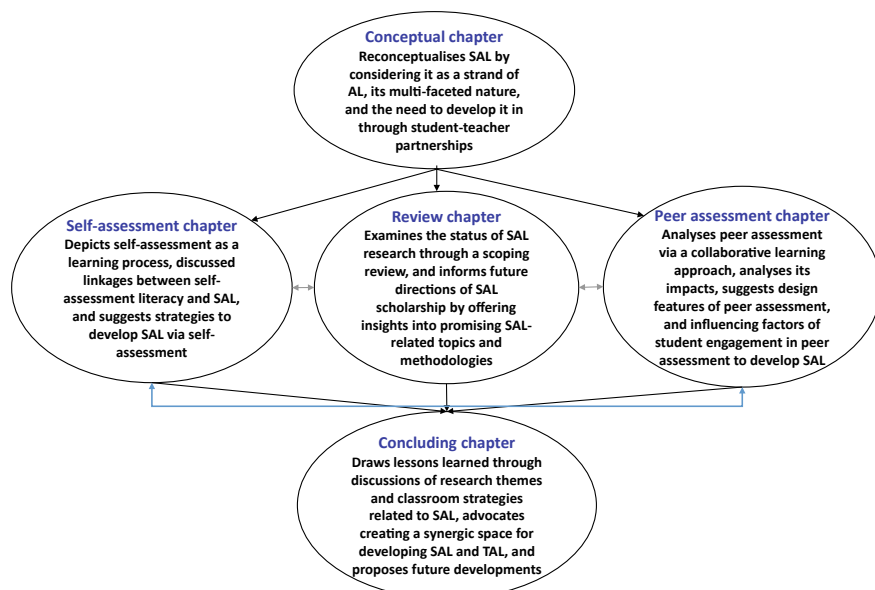


Fig. 5.1 Key themes of the five chapters in this book

5.3 Limitations and Future SAL Research and Practice Development Agendas

Despite the contribution of this book to advancing SAL scholarship as delineated in the preceding section, there are at limitations of this book. We discuss these limitations and propose future directions for advancing SAL research and practice to fill existing knowledge gaps in the remainder of this section.

First, due to the limited space of this short book, we have not unpacked the inter-relationship between SAL and TAL more fully. Having acknowledged that SAL and TAL share a common conceptual root stemming from the notion of AL (Lee & Butler, 2020), and that students' role in shaping learning should be strengthened through assessment innovations (e.g., self-assessment, peer assessment, student-designed tests) (Chen et al., 2023; Guo et al., 2021), we are also aware that teachers' role remain important as students' guide, collaborators, and co-learners who support students in such innovations (Brown et al., 2023). How students and teachers can co-develop their SAL and TAL through reciprocal partnerships and how such partnerships can be sustained over time will need to be further explored and investigated. Furthermore, as findings of existing studies show, there are conceptual and practical barriers for teachers, students, and school and institutional administrators in successfully achieving the objectives of assessment innovations, in particular student–teacher partnership initiatives (Deeley et al., 2019; Doyle et al., 2019; Marquis et al., 2017; Quesada et al., 2019). For example, these stakeholders might lack prior experience of self-assessment and peer-assessment, which might lead to their suspicion regarding the efficacy of such assessments in enhancing student learning. They might also be constrained by insufficient time, resources, and external support that are needed for re-designing and implementing alternative assessment for promoting SAL. Thus, another promising avenue of future SAL research is investigating such barriers for stakeholders in assessment innovations that aim to promote SAL through student–teacher partnerships.

Second, in this book we have discussed SAL research and practice to benefit students in general, but have not specifically focused on students whose learning needs are more diverse, such as those with special education needs, or students studying in a culturally diverse learning environment. As far as we are aware, no existing studies have focused on this aspect of SAL development in schools, universities, or other educational institutions. Thus, we envisage that an important direction for future SAL research and practice is by adapting and examining the proposed common approaches to promoting SAL to suit diverse student learning needs.

Third, although we have discussed how teachers should do to develop SAL, we did not discuss how other stakeholder groups (e.g., school or university administrators, test-makers, policy-makers, and parents) could contribute to promoting SAL. Previous studies mostly explored ways of understanding and promoting AL among such stakeholders (Kremmel & Harding, 2020; Stiggins, 2014). Thus, investigating the strategies and actions by which these diverse stakeholders can help students develop SAL would be a promising future research direction.

Fourth, the provision of professional development or training opportunities for teachers for the purpose of promoting SAL among students is also out of the scope of this book. We would suggest this to be an important future direction for educators, practitioners, and researchers to pursue in advancing SAL scholarship in relation to AL for other stakeholders of assessment (Kremmel & Harding, 2020).

Fifth, given the unprecedented development of digital technologies, especially the recent upsurge of use of generative AI tools such as ChatGPT in assessment, learning, and teaching, it is necessary for assessment researchers to address research problems related to the development of SAL under the new normal. One such problem is: how can students and teachers capitalise on the benefits (e.g., personalised and adaptive feedback) of digitalised assessment (Dai et al., 2023) while mitigating its potential challenges (e.g., threats to authentication, fairness, and equity) (Kimber & Wyatt-Smith, 2014) on SAL development? Research problems like this related to the new norm of technology-enhanced or digitalised assessment need speculation and further investigation to guide educators and practitioners' efforts in re-formulating their classroom strategies to promote SAL.

5.4 Concluding Remarks

In this book, we have discussed the significance of SAL as a major driver for students' development as self-regulated and lifelong learners, and its implications for teachers' and practitioners' continuous support for students towards this end. We have also noted that to foster SAL among students, the extent to which teachers can exercise TAL is crucial, since students should not be expected to become assessment literate automatically but should be assisted by their teachers in acquiring this academic literacy. Therefore, we conclude this book by reinforcing the importance of cultivating a learning-focused assessment culture where students work with their teachers and peers in building partnerships of learning through innovative assessment practices, so that they become assessment literate stakeholders who can actively take part and gain ownership in their own learning.

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