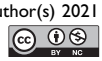
Check for updates

Research Review

ROE

ECNU Review of Education
1–24
© The Author(s) 2021

Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/20965311211007869
journals.sagepub.com/home/roe

Student Conceptions of Assessment: Regulatory Responses to Our Practices

Gavin T. L. Brown
The University of Auckland

Abstract

Purpose: Universities assess and evaluate students concerning competence in essential disciplinary knowledge and skills. Those assessments impact learners' attitudes, beliefs, and emotions. Negative impacts may be overcome if students regulate their responses to assessment and feedback.

Design/Approach/Methods: This article systematically locates research studies that cite three key early papers around student conceptions of assessment (SCoA). A narrative synthesis is based on 22 papers.

Findings: In addition to the SCoA, 11 different research inventories reveal a variety of regulatory responses that are enhanced when assessments are deliberately formative, fair, and trustworthy. There is broad interest in this phenomenon but little consistency in methods and even the SCoA has little consistency in factor structure across jurisdictions. Only one study provided an objective behavioral measure to validate self-reports, which are the dominant form of research.

Originality/Value: This review gives readers insights into how assessment influences student thinking and how student cognition can regulate success.

Keywords

Conceptions of assessment, higher education, learners, self-regulated learning

Date received: 28 February 2021; accepted: 16 March 2021

Corresponding author:
Gavin T. L. Brown, Learning, Development & Professional Practice, The Faculty of Education and Social Work, The University of Auckland, Private Bag 92019, Victoria Street West, Auckland 1142, New Zealand.
Email: gt.brown@auckland.ac.nz

Creative Commons Non Commercial CC BY-NC: This article is distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 License (https://creativecommons.org/licenses/by-nc/4.0/) which permits non-commercial use, reproduction and distribution of the work without further permission provided the original work is attributed as specified on the SAGE and Open Access pages (https://us.sagepub.com/en-us/nam/open-access-at-sage).

Introduction

A decade ago, it was remarked, in an early volume of studies on student conceptions and experiences of assessment, that student voice is "remarkably absent" in the literature on assessment (Brown, McInerney, et al., 2009, p. 5). More recently, McMillan's (2016) review of research into the student psychology of assessment identified three substantial lines of research on student experiences of assessment. These included (a) the student self-report inventory *Student Conceptions of Assessment* (SCoA; Brown, 2008), (b) the student self-report inventory of *Perceptions of Assessment Tasks Inventory* (PATI; Dorman & Knightley, 2006a, 2006b), and (c) student achievement emotions (Vogl & Pekrun, 2016). Much of the development work for both the PATI and SCoA was done with primary and secondary school students (Brown, Irving, et al., 2009; Dorman & Knightley, 2006a, 2006b).

Hence, there is a need to examine the psychology of assessment among higher education students which may be different to compulsory schooling. Higher education may engender different conceptions or perceptions because (a) evaluation practices are largely summative (Panadero et al., 2019) and high stakes and (b) students are legally adults and able to exercise considerable autonomy around assessment to achieve their own life goals (Harris et al., 2018). Thus, this review focuses on higher education students, exploiting McMillan's (2016) summary, by focusing on just one of the three core lines of research he identified. Thus, for scope limitation reasons, this review limits itself to work that cites or uses the SCoA inventory. This approach tests claims developed in K–12 contexts with a sample of 22 higher education studies that student experiences and beliefs about assessment can be self-regulatory and that contextual factors matter to student perceptions/conceptions of assessment.

Assessment in Higher Education

Before describing the SCoA inventory, an overview of assessment practices and purposes in higher education is provided. Assessment is used throughout higher education to assure stakeholders that graduates have mastered sufficiently the material taught in the program and have been awarded a certificate that attests to this performance. Societies expect evidence that the rewards (e.g., employment, scholarships, entry to programs) attached to success are justified. The summative function (Scriven, 1967) of assessment is found in the widespread and dominant function of generating a final grade (i.e., a letter from A to F or a mark from 100 to 0) as the sum of the activities performed by the student. These grades allow student performances to be compared and organized hierarchically to select the "best" students. This summative use of assessment has always been the primary function of evaluative processes. Administrators have to decide who should be awarded scholarships, prizes, and honors or select candidates for elite or restricted programs and opportunities. Usually, a wide variety of assessment processes (e.g., examinations, tests, quizzes, coursework, projects, theses, etc.) are used to assemble evidence that student scores, grades, or ranks are defensible. Without assessment, such decisions would be prone to nepotism, corruption, or collusion—hence, the global use of

competitive, invigilated, time-constrained, high-stakes examinations since the Han dynasty some 2–3,000 years ago (China Civilisation Centre, 2007).

Consequences attached to assessment processes are not inherent to assessment but rather reflect how societies use scores and grades. Such consequences are generally external to the learning process; consequently, some higher education researchers are concerned about the long-term effects on learners if assessments are always externally imposed. Removal of external accountability mechanisms (e.g., assessments) may contribute to better, not worse, learning (Boud & Falchikov, 2007). However, external accountability mechanisms exist in life (Lerner & Tetlock, 1999) and in life those processes may be more subjective and less structured (e.g., salary or wage review, recruitment, retention, and promotion discussions) than formal assessment mechanisms. There are few people whose lives are so self-contained that they are not under some sort of authority; hence, learning to cope with the accountability demands of higher education can be a valid preparation for the accountability demands and rewards of life. Indeed, self-regulation of learning requires coping with such expectations among other objectives.

A significant constraint on SCoA are environmental factors controlled by instructors and systems external to the individual learner (Fulmer et al., 2015). In some societies (e.g., Chinese mainland, Hong Kong SAR, Singapore, India), access to higher education is strongly limited (perhaps just as few as 20% of candidates) by performance on high-stakes university entrance examinations. In other societies (e.g., New Zealand), there are multiple paths to university entrance: (a) entry to elite programs (e.g., medicine, law, engineering) depend very much on high school examination performance and (b) open entry to all programs is given once adults reach the age of 20. Furthermore, provision is made in higher and tertiary education for all New Zealand students who qualify rather than just an elite few, as is seen in Hong Kong SAR, for example. These differences in material conditions create very different ecologies in which student conceptions are formed. Given that different societies have different incentives and mechanisms, it should not be surprising that conceptions of assessment are ecologically rational (i.e., make sense within the reward system; Rieskamp & Reimer, 2007).

Contemporary efforts to modify the importance of summative examinations have influenced some higher education jurisdictions. For example, in Europe, the Bologna Process (High Level Group on the Modernisation of Higher Education, 2013) prioritizes the development of teaching and learning in higher education as a shared process, with responsibilities on both student and teacher so that students engage in learning far beyond simply getting through assessment or exams. Similarly, the UK Assessment Reform Group (2002), in reaction to the prevalence of K–12 summative examinations, advocated formative assessment as a better assessment for learning. Similar notions were advocated for higher education because "students themselves need to develop the capacity to make judgements about both their own work and that of others in order to become effective continuing learners and practitioners" (Boud & Associates, 2010, p. 1).

Despite these calls, university assessment practices have remained largely formal and terminal. In a recent analysis of 250 U.S.'s higher education grade syllabi, examinations accounted for 47% of grades, ranging from 16% in English to 63% in Psychology (Lipnevich et al., 2020). A survey of almost 1,700 Spanish university syllabi, a country participating in the Bologna Process, reported that final written examinations were present in 70% of all syllabi (Panadero et al., 2019), a state of affairs consistent with Spanish policy (i.e., Ley Orgánica de Educación (Organic Law for Education) 2006 and Ley Orgánica para la Mejora de la Calidad Educativa (Organic Law for the Improvement for Educational Quality) 2013). Earlier surveys of Spanish higher education instructors indicated that peer assessment was relatively infrequent ($M = 37\%$; Panadero & Brown, 2017) and that university teachers tended to view self-assessment more negatively and used less than K–12 teachers (Panadero et al., 2014). In the U.K., the home of the pro-formative Assessment Reform movement, Jessop and Tomas (2017) reported that the *Transforming the Experience of Students Through Assessment* project evaluation of 75 undergraduate programs in 14 universities found that students normally experience 43 summative assessments over a 3-year degree and just five formative assessments, and examinations ranged from nil to 87%, with a median of 20%. MacLellan's (2001) earlier survey of Scottish students in one university found similar results; essays and case notes were frequently experienced, while multiple-choice questions, short answer questions, presentations, tutorials, and lab/workshops were all present sometimes.

This summary of European, American, and British studies fits well descriptions of assessment practices in China (Davey et al., 2007; Gan et al., 2019) and Brazil (Matos et al., 2009). Higher education assessment is largely summative, depends heavily on written examinations, and is consequential to students' life chances. These circumstances are highly likely to color SCoA as being largely about student accountability and nonignorable because of the consequences attached to performance.

Understanding the psychology of learners under high-stakes and continuous assessment over a multiyear program of higher education has been a matter of considerable interest. McMillan (2016) provided an excellent overview of three major lines of research around student perceptions and experiences of assessment (i.e., Brown's SCoA, Pekrun's achievement emotions, and Dorman's perceptions of assessment tasks). McMillan (2016) indicated that Brown's work had been seminal and so to limit the scope of this review, it is restricted to empirical research in higher education that have either cited or made use of the SCoA. The goals are:

(a) to establish the breadth of research inventories and methods that cite the SCoA inventory,
(b) to establish the generalizability of the SCoA across higher education contexts,
(c) to provide a narrative summary of research into student perceptions, attitudes, beliefs, and experiences of assessment.

SCoA Inventory: Self-Regulatory Beliefs

Through a series of iterative studies, Brown developed a self-report survey questionnaire (Brown, 2008) over a number of years. The research with New Zealand secondary school students attitudes toward assessment has been reported in multiple studies and linked those beliefs to performance, interest, self-efficacy, assessment types, and levels of schooling (Brown & Harris, 2012; Brown & Hirschfeld, 2007, 2008; Brown, Irving, et al., 2009; Brown, Peterson, et al., 2009; Brown & Walton, 2017; Hirschfeld & Brown, 2009).

The SCoA has eight first-order factors that relate to four superordinate conceptions of assessment (i.e., assessment is for improved teaching and learning, assessment is irrelevant, assessment supports classroom climate and personal emotions, and assessment evaluates schools and individuals). These factors speak to the formative and summative purposes of assessment (i.e., improve learning and teaching vs. evaluate students and schools), as well as allowing students to identify a socioemotional impact or even reject the validity of assessment.

Pekrun's achievement emotions research (Vogl & Pekrun, 2016) has identified a wide range of emotional responses students experience around assessment events and processes. These emotions, despite being positive or negative, can have activating and deactivating consequences on effort and behavior. This means that sometimes negative emotions (e.g., anxiety) contribute positively to performance, while positive emotions (e.g., contentment) can be deleterious to performance. Enjoying assessment may not be very high on average, but lack of enjoyment may lead to positive performance consequences. The positive classroom climate factor speaks to the importance of collaboration and cooperation in contemporary higher education, which is associated with improved performance (Johnson, 1981). Nonetheless, the positive effects of peer collaboration can be undermined by free riding, social loafing, grandstanding, and other maladaptive interpersonal relational processes (Strijbos, 2016).

Originally, the SCoA was developed with a hierarchical structure (i.e., four correlated superordinate factors each predicting two subfactors; Brown, 2013), and when tested with New Zealand university students, it had marginal fit (Matos & Brown, 2015). By removing 2 items, a Farsi language version of the SCoA had good fit to the hierarchical model (Brown et al., 2014). However, because multiple models can fit the same data frame, that hierarchical model has been evaluated with different samples.

Bifactor analysis (Weekers et al., 2009) suggested that many of the items shared a strong general factor along with four unique factors for the four superordinate factors. A comparative study of multiple SCoA models using data from New Zealand and Brazilian university students concluded that a bifactor model (i.e., general plus unique factors for improvement, socio-emotion, and external attributes) was the best approach to understanding the structure of the inventory (Matos et al., 2019). This dominant general factor was found in a Filipino college student study

(Delfino & Magno, 2012). While Smith and ten Hove (2009) found multiple factors, the first factor (assessment is good and promotes accountability) took 8 items from five of the SCoA factors.

By ignoring the first-order factors, Zaimoğlu (2013) reported a four-factor principal component result (i.e., improvement, irrelevance, accountability, and affect) among 400 Turkish young adults in a university preparatory program. In contrast, the eight first-order factors of the SCoA without the hierarchical structure had good fit to Brazil and New Zealand students (Matos & Brown, 2015), and with the removal of 4 items, it fit a survey of Portuguese students (Flores et al., 2020).

These analyses suggest that there are likely to be stable item sets or factors in the SCoA despite differences in jurisdictions. The widespread use of the SCoA internationally suggests that it has been influential and a useful starting point for researching this topic. Nonetheless, no claim is made that only these factors exist in how students experience, conceive of, or react to assessment.

Brown (2011) has argued that responses to the SCoA are aspects of self-regulation of learning. Boekaerts' (1996) self-regulation model has a growth pathway which would suggest students treat assessment as a mechanism for improvement. On the other hand, her model has an ego-protective or self-enhancement pathway in which the pain of learning is avoided to protect the "self." Ignoring assessment because it is bad or seeing assessment as an indicator of school quality or a predictor of overall ability is construed as self-protective because these conceptions point to factors relatively outside the control of the student (i.e., a maladaptive external locus of control). Hence, a goal of this article is to establish if evidence of this claim has been reported.

Method

Because the scope of this review was to exploit research based on the SCoA, it was decided to conduct a systematic citation search of papers that cited three key publications.

- Brown, Irving et al. (2009) reported Version 5 of the SCoA and showed that conceptions of assessment meaningfully predicted how students defined assessment.
- Brown, Peterson, et al. (2009) replicated the Version 5 SCoA study and extended it to Version 6 with linkages to mathematics performance and definitions of assessment.
- Brown (2011) reviewed a raft of SCoA studies that showed the conceptions of assessment meaningfully related to self-regulated learning and academic performance in studies conducted in New Zealand, Brazil, Germany, and the U.S.

A citation search was conducted in the Web of Science database and supplemented with a hand search of citations for the same sources in Google Scholar. A total of 108 papers were located using these protocols, which after deletion of duplicates left 77 papers (Figure 1). Studies were excluded if (a) the language was not English ($k = 3$), (b) the source was falsely linked ($k = 2$), (c) the study was with students in K–12, rather than higher education ($k = 23$), (d) the study was with teachers

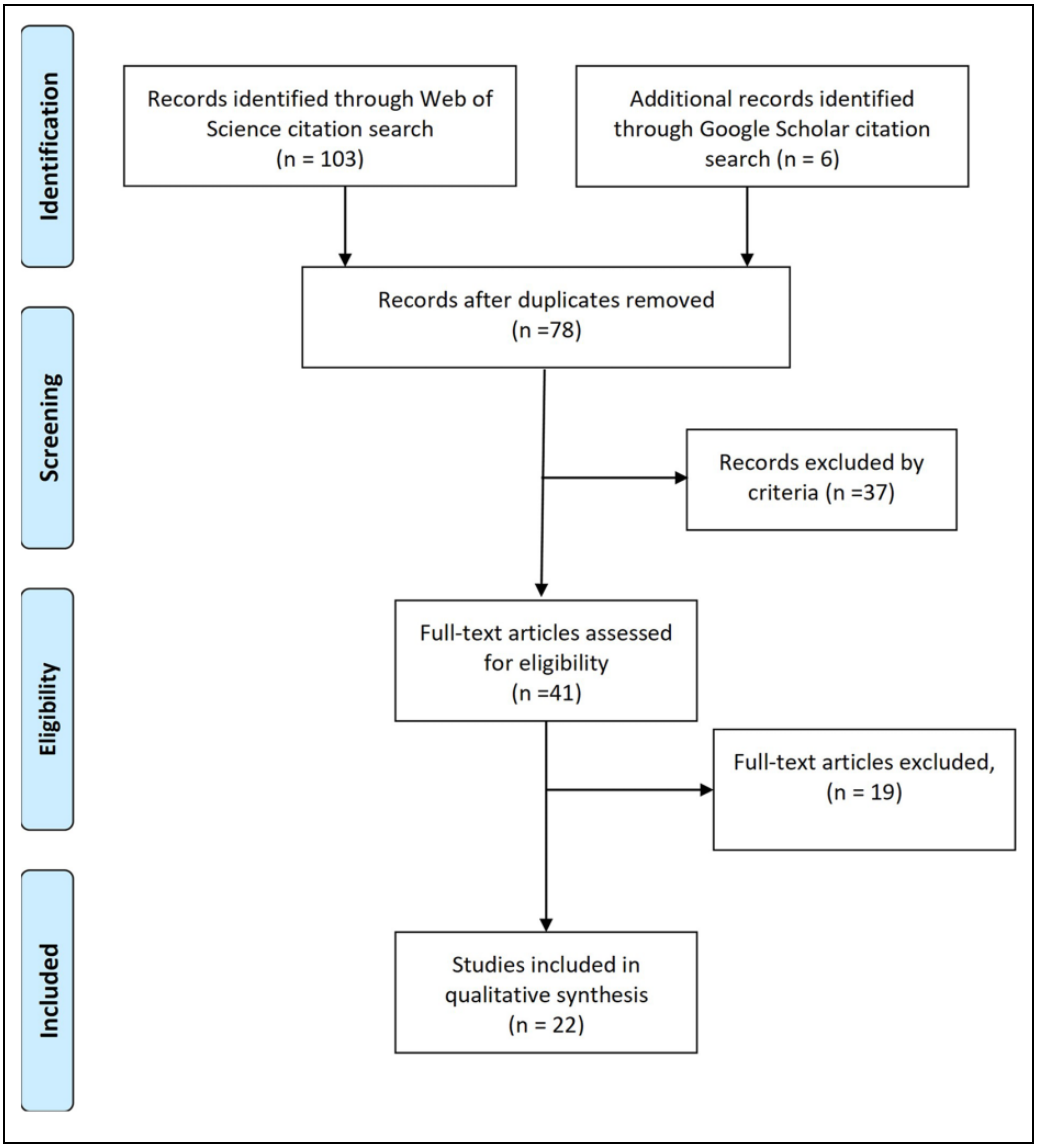


Figure 1. Prisma flow diagram of literature search.

rather than students ($k = 5$), or (e) the paper was an editorial or theoretical, rather than empirical ($k = 4$). This left a total of 41 papers.

Reading of the papers excluded seven papers that were reviews (Brown, 2011; Double et al., 2020; McMillan, 2016, 2019; Van der Kleij & Lipnevich, 2020; Vogl & Pekrun, 2016, Wise & Smith, 2016), five that had no measure of student perceptions of assessment (Babaii & Adeh, 2019; Chen & Lin, 2020; Gordienko, 2015; Natsis et al., 2018; Taghizadeh & Kazemzadeh, 2019), one

was a content analysis of syllabi (Panadero et al., 2019), two were qualitative analysis of student drawings (Brown & Wang, 2013; Wang & Brown, 2014), and two were qualitative analysis of student comments (Cleland, & Walton, 2012; Murillo & Hidalgo, 2017). Unfortunately, two studies cited the SCoA but instead used the Teacher Conceptions of Assessment inventory (Brown, 2003) to do comparative studies between faculty and students (Fletcher et al., 2012; Hodgson & Garvey, 2020). This left 22 valid papers.

Results

The 22 studies include those which used a version of Brown's SCoA inventory ($k = 9$), and 13 studies which used one of the 11 other attitudinal scales or inventories related to assessment, feedback, self-regulation, tests, written exams, classroom assessment practices, definitions of assessment, course activities, frequent assessment, and peer assessment. The vast majority ($k = 18$) of studies were surveys and the balance used full or quasi-experiments. Data were obtained from 11 jurisdictions, with multiple samples from New Zealand ($k = 5$, $n = 1{,}371$), Chinese mainland ($k = 4$, $n = 1{,}237$), Brazil ($k = 4$, $n = 2{,}862$), the Netherlands ($k = 4$, $n = 1{,}887$), Hong Kong SAR ($k = 3$, $n = 1{,}173$). Sample sizes were extremely variable with a range of 62–5,549 and a median of 341. Note that one sample from New Zealand was used in three studies and one Brazil sample was also used 3 times. All other samples were unique studies.

To focus on how student perspectives on assessment function, the results are organized around (a) the relationship assessment-related beliefs to self-regulatory processes, (b) how different assessment types affect students, and (c) student responses to assessment practices and purposes as shown in Table 1.

Self-regulatory role

Because the consequences attached to assessment matter for the quality of life (Wang & Brown, 2014), learners generally respond in productive ways by (a) using assessments to guide learning of course material, (b) engaging in greater diligence and effort, and (c) seeking or exploiting the information in assessment feedback to inform their subsequent learning. Students who do these things are regulating their own learning and understandably, those with greater control of learning, tend to do better (Boekaerts, 1996; Pintrich, 1995). Awareness of test consequences contributes to student value for doing well on a test (Chu et al., 2014).

Empirical evidence for this idea that ways of thinking about assessment relates to SRL has been independently reported. Using the *Beliefs About Assessment* inventory, Cho, Yough, et al. (2020) concluded from a structural equation model related to high-stakes test performance that "when students recognized the beneficial aspects of assessments, fairness of assessments, authentic aspects of assessments and consistency with learning objectives, they were more likely to utilize

Table 1. Summary description of retained studies.

Study	Measure of student perceptions, beliefs, attitudes, conceptions	Design	*N*
Self-Regulated Learning (SRL) and Assessment Practices and Purposes			
(1) Cho et al. (2020)	*Beliefs about Assessment Scale* (benefit for learning, authenticity, consistency with learning objective, fairness) *Situational Motivation Scale* (intrinsic, integrated, identified, introjected, external, and amotivated regulation) *Motivated Strategies for Learning Questionnaire* (self-regulatory, cognitive, metacognitive strategies)	Survey	321 Asian in U.S.
(2) Cho, Yough, et al. (2020)	*Beliefs about Assessment Scale* (benefit for learning, authenticity, consistency with learning objective, fairness) *Motivated Strategies for Learning Questionnaire* (metacognitive self-regulation, time and study environment management, effort regulation, peer learning, and help-seeking strategies)	Survey	230 International in English-speaking countries
(3) Chu et al. (2014)	*Test Attitude Survey* (effort, test anxiety, test consequences, lack of concentration, test validity, self-efficacy, value of test performance)	Experiment (two conditions)	206, Canada
(4) Froncek et al. (2014)	Muensteraner Fragebogen zur Evaluation von Klausuren [Muenster Questionnaire for Evaluating Written Exams] (Students' workload, transparency, exam composition)	Survey	688, Germany

(continued)

Table 1. (continued)

Study	Measure of student perceptions, beliefs, attitudes, conceptions	Design	*N*
(5) Gan et al. (2019)	*Classroom Assessment Practices Questionnaire* (self-assessment, teacher scaffolding, interactive-informal assessment, in-class diagnostic assessment, subject performance assessment) *Students' English as a Foreign Language (EFL) Course Learning Motivation Questionnaire* (L2 classroom anxiety, linguistic self-confidence, attitude towards the English course, effort investment)	Survey	204, Chinese mainland
(6) Vaessen et al. (2017)	*Students' Perceptions of Frequent Assessment* (value, formative function, positive effects and negative effects) *Taking initiative* *Intrinsic motivation*	Survey	219, Netherlands
(7) Brown et al. (2016)	*Student Conceptions of Feedback* ((1) I actively use feedback and enjoy it, peer feedback helps, I ignore feedback, feedback tells me if I am meeting or exceeding expectations, tutor/marker comments are helpful and clear feedback) *Metacognitive self-regulation* *Academic self-efficacy*	Survey	278, New Zealand
(8) Strijbos, Narciss, et al. (2010)	*Feedback Perceptions Questionnaire* (fairness, usefulness, acceptance, willingness, affect)	Experiment (four conditions) + survey	71, Netherlands
(9) Strijbos, Pat-El, et al. (2010)	*Feedback Perceptions Questionnaire* (fairness, usefulness, acceptance, willingness, affect)	Survey (four conditions)	1,535, Netherlands

(continued)

Table 1. (continued)

Study	Measure of student perceptions, beliefs, attitudes, conceptions	Design	*N*
(10) Deneen et al. (2018)	*Student Conceptions of Assessment v6* (teacher improve, student improve, class environment, bad, ignore) *Technology Acceptance Model* (attitude, perceived utility, intent to use)	Survey	360, Hong Kong SAR
(11) Wise and Cotten (2009)	*Student Conceptions of Assessment v6* [English] (improvement, affect, irrelevance, external attribution) *Response-time effort* *Attendance at A-Day*	Survey + quasi-experiment	802, U.S.
Student Perspectives on Assessment			
(12) van Gennip et al. (2010)	*Conceptions of peer assessment*	Experiment	E = 45, C = 17, Netherlands
(13) Zou et al. (2018)	*Attitudes towards peer assessment* (positive attitude, interpersonal negative, procedural negative)	Survey	105, Chinese mainland
(14) Matos et al. (2009)	*Definitions of Assessment* (formal/teacher control, informal/teacher control, formal/student control, informal/student control)	Survey	702, Brazil
(15) Brown and Wang (2016)	*Chinese Student Conceptions of Assessment* (societal uses, class benefits, school quality, accuracy, negative aspects, teacher use, family effects, competition)	Survey	457, Chinese mainland; 370, Hong Kong SAR
(16) Brown (2013)	*Student Conceptions of Assessment v6* [Portuguese, Mandarin, Cantonese, English] (student improvement, teacher improvement, future, school quality, irrelevant, class atmosphere, enjoyment)	Survey	702, Brazil; 471, Chinese mainland; 443, Hong Kong SAR; 313, New Zealand

(continued)

Table 1. (continued)

Study	Measure of student perceptions, beliefs, attitudes, conceptions	Design	*N*
(17) Brown et al. (2014)	*Student Conceptions of Assessment v6* [Farsi] (student improvement, teacher improvement, future, school quality, irrelevant, class atmosphere, enjoyment)	Survey	760, Iran
(18) Delfino and Magno (2012)	*Student Conceptions of Assessment v2* [Filipino] (student accountability, school accountability, assessment is fun, assessment is ignored)	Survey	200, Philippines
(19) Flores et al. (2020)	*Student Conceptions of Assessment v6* [Portuguese] (student improvement, teacher improvement, future, school quality, irrelevant, bad, class atmosphere, enjoyment)	Survey	5,549, Portugal
(20) Matos and Brown (2015)	*Student Conceptions of Assessment v6* [Portuguese, English] (student improvement, teacher improvement, future, school quality, irrelevant, bad, class atmosphere, enjoyment)	Survey	756, Brazil; 313, New Zealand
(21) Smith and ten Hove, 2009	*Student Conceptions of Assessment v1* (assessment is good and promotes accountability, assessment enhances student support and learning, assessment improves motivation and effort, feedback, bad/useless, lecturers use assessment information, assessment helps students for the future, assessment relates to anxiety)	Survey	154, New Zealand
Psychometric Analyses			
(22) Matos et al. (2019)	*Student Conceptions of Assessment v6* [Portuguese, English] (general factor, improvement, external, affect)	Survey	702, Brazil; 313, New Zealand

Note: E, Experimental group; C, Control group.

metacognitive strategies such as planning, monitoring, and regulation" (p. 9). In a parallel study, self-determined motivation contributed to positive adaptive beliefs about assessment that again contributed to greater meta-cognitive strategies, which in turn predicted greater grade point average (GPA; Cho, Levesque-Bristol, & Yough, 2020).

Consistent with Pekrun's theory, greater value for performance on a test regressed positively on effort in a test, while anxiety and lack of concentration were reduced with greater self-efficacy for the content being tested (Chu et al., 2014). Strongly linked to personal emotions is the idea that assessment can stimulate positive cooperation among peers in or destructive competitive behaviors (e.g., hiding good material from classmates), which was found to associated with improved performance (Chu et al., 2014).

Feedback, whether grades or comments, arises from assessment and is an essential facet of assessment processes. A study of New Zealand university students' conceptions of feedback (Brown et al., 2016) found greater agreement with enjoying and actively using feedback to improve was associated robustly with greater GPA, self-regulated learning, and more weakly with academic self-efficacy. These results support the idea that self-regulating students are those who exploit the feedback they get for learning.

Assessment types

Unsurprising given the introductory data on university assessment practices, assessment is seen in a narrow traditional way as something controlled by and marked by the lecturer (Smith & ten Hove, 2009). A Brazilian study (Matos et al., 2009) reported assessment activities falling into four types according to type of assessment and who controlled the assessment processes (i.e., formal, teacher controlled; informal, teacher controlled; formal, student controlled; and informal, student controlled). Nonetheless, 9 of the 12 assessment practices evaluated by students could be classified as formal, test-like practices.

In higher education, assessments carry weight toward a final summative grade. Where they tend to differ is in the mixture of tests, exams, coursework, group work, oral work, participation, tutorials and labs, self- and peer assessment activities, and so on, that are present. A German study found that students positively evaluated written exams that were transparent, well-organized, and which did not impose too great a workload (Froncek et al., 2014). Strijbos, Narciss, and Pat-El (2010) reported from an experimental study of the *Perceptions about Feedback* (PAF) inventory that "students do not distinguish between fairness, usefulness and acceptance" (p. 300) of feedback and have a strong preference for elaborated specific feedback from a highly competent peer. The stability of the PAF was demonstrated in a large-scale survey replication (Strijbos, Pat-El, et al., 2010). Hence, an acceptable assessment needs to meet these requirements.

A study of student perceptions of frequent tests in an undergraduate statistics course (Vaessen et al., 2017) reported means above the mid-point on a 5-point Likert-type scale only for the value of

frequent tests. The formative function mean was close to but below the mid-point, while positive and negative emotions both were half-way between disagree and mid-point. Interestingly, belief in the formative function of frequent tests and positive consequences of tests had positive paths to intrinsic motivation, while negative paths were seen for value of tests and negative consequences on SRL.

Another novel assessment practice is the use of eportfolios as a course-based assessment. A survey study in Hong Kong SAR (Deneen et al., 2018) found that a positive attitude to eportfolio technology for assessment was strongly associated with three self-regulating SCoA beliefs: (a) teachers use assessment to improve teaching, (b) students use assessment to improve their own learning, and (c) assessment improves class environments.

Consistent with prior research on the importance of peer assessment interpersonal relations (Panadero, 2016), Zou et al. (2018) found that this factor was especially important for English majors rather than Engineering students. Greater concern for interpersonal relations contributed to doing more peer reviews and providing an evaluation of peer reviews received. They also reported that greater endorsement of positive attitudes toward peer assessment reduced the number of reviews completed and, sensibly, fewer reviews or review evaluations were done when students endorsed negative views of peer assessment procedures.

Assessment purposes

With a moderate-sized sample of New Zealand university students ($N = 313$), assessment for improved outcomes by the student had a mean close to mostly agreed, by teachers was above moderate agreement, the two negative scales of irrelevance and bad predictably elicited disagreement, personal enjoyment slight agreement, and the remaining scales had means between slight and moderate agreement (Brown, 2013). A Turkish study (Zaimoğlu, 2013) showed that university prep students endorsed improvement by substantial margins ($d > .68$) over accountability, irrelevance, and affect/benefit. A New Zealand study using the *Teachers' Conceptions of Assessment* inventory (Brown, 2003) found that university students agreed most assessment is for improved learning, that it described learning, and contributed to improved teaching (Fletcher et al., 2012). Smith and ten Hove (2009) reported small mean score differences in just two scales between ethnic and year groups (i.e., indigenous Māori students indicated less support and older students endorsed motivation and effort more) and no differences by sex.

Understandably, a weakness in self-report survey studies is the lack of control and behavioral measures. To address that, a study with students at one U.S. university that annually administers a low-stakes system evaluation test (Wise & Cotten, 2009) related SCoA responses to time taken to answer test questions on a computer-administered test (i.e., response time effort [RTE]) and attendance at the low-stakes testing day. Less guessing (i.e., longer response times) was associated with

greater belief that assessment leads to improvement, while more guessing was predicted by lower affective benefit and greater irrelevance of assessment. Attendance on the day of the low-stakes test was considerably higher for those who endorsed improvement and affect and rejected irrelevance. In other words, self-regulating learners espouse adaptive conceptions of assessment that support growth over ego-protection and it can be seen in their behavior. A similar SRL relationship between beliefs about assessment and performance was noted by Deneen et al. (2018) who reported that the more students agreed with ignoring assessment, the lower the self-reported GPA.

Extensive comparative research with the SCoA inventory has demonstrated that there are different structures in student thinking about assessment. Students in Hong Kong SAR agreed more than students in Chinese mainland that assessment was irrelevant, bad, and to be ignored, while students in Chinese mainland agreed more than students that in Hong Kong SAR assessment helped socially and affectively and that it contributed to improved teaching and learning (Brown, 2013). Brazil students in contrast had mean scores for irrelevance, improvement, personal future, and personal enjoyment factors indistinguishable from students in Chinese mainland, while having similar means to students in Hong Kong SAR for the social/affective construct. They differed to students in Hong Kong SAR, Chinese mainland, and New Zealand with much lower means for external school quality and class climate factors (Brown, 2013). These mean score differences suggest jurisdictional norms matter.

Working initially with university students in Hong Kong SAR (Brown & Wang, 2013; Wang & Brown, 2014), a new Chinese-SCoA inventory that was structured as a higher order factor (i.e., School Quality) with seven dependent factors (i.e., Societal Uses, Class Benefits, Accuracy, Negative Aspects, Teacher Use, Family Effects, and Competition) was developed (Brown & Wang, 2016). That model was found to be invariant among the two groups of students in Chinese mainland (i.e., postgraduate and pre-bachelor degree) but nonequivalent to students in Hong Kong SAR. In all but family effects and class benefit, students in Hong Kong SAR had higher means by moderate to large effect sizes compared to students in Chinese mainland. Given that entry to higher education is more restricted in Hong Kong SAR than Chinese mainland and is strongly based on examination results unlike Chinese mainland, it would seem that, despite the shared Confucian-heritage culture of Hong Kong SAR and Chinese mainland, the jurisdictional or institutional factors of each society contribute more to understanding the differences in responses.

Discussion

While this study began with the SCoA inventory as a requirement, 11 other inventories were discovered. These included measures of the quality of assessments (i.e., *Beliefs about Assessment*, *Muenster Questionnaire for Evaluating Written Exams*, and *Students' Perceptions of Frequent Assessment*), student attitudes toward assessment (i.e., *Test Attitude Survey, Classroom Assessment*

Practices Questionnaire, and *Definitions of Assessment*), attitudes toward feedback (i.e., *Student Conceptions of Feedback* and *Feedback Perceptions Questionnaire*), attitudes toward peer assessment (i.e., *Conceptions of peer assessment* and *Attitudes towards peer assessment*), and a culturally specific SCoA for Chinese mainland (i.e., *Chinese Student Conceptions of Assessment*). These different studies with different foci and samples clearly share the same interests as that of the SCoA, suggesting the importance of the topic.

This list indicates that there is a breadth of interest in terms of how a variety of assessment types and processes effect students. It also makes clear that there is no consensus or universal mechanism for studying this phenomenon. The SCoA itself has been reported in seven different languages or dialects (i.e., Brazilian Portuguese, Cantonese, English, Farsi, Filipino, Mandarin, and Portuguese) but with little consistency in factor structure, despite persistent consistency in item to factor relations. Understandably, a large number of the reviewed studies simply report psychometric statistical analyses of the SCoA so as to determine a factor structure and, consequently, do not report substantive results.

A second important result is how few of the studies report behavioral outcomes. Most rely on anonymous self-report surveys, a few provided an academic outcome measure (e.g., GPA or test score), and only one provided an objective behavioral measure (i.e., RTE; Wise & Cotten, 2009). Clearly, the various measures reviewed here need to be linked to behaviors that are independent of participants' potential ego-protective self-portrayals to achieve validation evidence beyond psychometric properties of the various scales.

The substantive results are of the review indicate that positive evaluations of the integrity, purpose, and function of assessment result in better performance and are associated with aspects of SRL. Adaptive beliefs about different kinds of assessment were associated with a number of positive self-regulatory behaviors and beliefs, such as greater self-efficacy, greater use of metacognitive strategies, stronger self-determined motivation, greater value for performance, greater effort, reduced anxiety, and less lack of concentration. These features of greater self-regulated learning interact with the type of assessment and the consequences attached to the assessment. Believing assessments and feedback are fair, honest, and trustworthy generates confidence in the process and information generated. When assessments are clearly formative, students seem to trust and exploit them more for their learning potential. As a bonus, the quality of classroom student–student interrelationships may be increased when assessment is formative rather than summative. Summative high-consequence assessments that rank students may reduce the incentive to be cooperative and supportive in classroom environments.

The overwhelming message of research with the SCoA points to the importance students place on assessment for improvement. When students believe assessment practices are educational, they seem to be much more pro-active in using the information arising from the process to increase learning. Achieving these goals requires that the types of assessment are educational rather than

simply summative. This will be difficult for higher education because the traditional written summative examination is still so entrenched in practice and policy. It is possible to imagine higher education that is completely assessment free (i.e., no grades, no scores, just feedback from tutors, with opportunities for resubmission) where the validity of student learning is determined by the external realities of professions, vocations, and employment post-graduation. This would still give a place for formative assessment which leaves open the possibility of failure to remember, understand, analyze, or synthesize, so that appropriate regulatory responses by learners and teachers is required (Brown & Hattie, 2012). Hence, for learners to learn, they must become aware of what it is they do and don't know or can/can't do. That is what formative educational assessment is capable of doing. Thus, totally removing assessment from higher education is unlikely to support greater learning.

However, society benefits when students have demonstrated competence and excellence, however that is assessed or evaluated. When we know that our graduates have the competencies expected of new graduates, this gives civil society confidence that its future is in good hands. An interesting consequence of attaching consequences to performance is that conforming to the expectations of the assessor is a recognized effect of accountability (Lerner & Tetlock, 1999). The expectation of higher education is not just performance but also real attested learning. This is the very situation in which self-regulation of learning is essential.

The major limitation of this review is that it was based solely on citations of three key articles (Brown, 2011; Brown, Irving, et al., 2009; Brown, Peterson, et al., 2009) related to the *SCoA* inventory. Clearly, a different search that began with a more general approach (e.g., student perceptions/experiences of assessment) would give a very different pool of studies. Based on this starting point and the restricted selection criteria, the sample of studies reviewed here is inherently small and highly likely not representative of all research into student cognition, emotions, and behaviors related to assessment. Qualitative studies that did not have systematic measures of student attitudes, beliefs, or perceptions were excluded; those studies are likely to be worth including in a future more narrative scoping review. As McMillan (2016) summarized, there are other lines of research into student experiences, beliefs, attitudes, and emotions of assessment independent of the SCoA inventory. Those have been excluded in this study, another matter for future research.

Conclusion

This review has demonstrated that there is global interest in the higher education student voice within assessment. Based on highly restrictive selection criteria, more than 20 studies were found which either used a version of the *SCoA* inventory or reported results from one of 11 other relevant scales or inventories. On the whole, those studies had robust results from relatively large samples

and demonstrate the diversity and strength of interest in this domain. This review draws the reader's attention to these many different measurement methods and techniques. Nonetheless, the review makes clear that only four studies reported an intervention; thus, research that demonstrates those who hold negative or maladaptive beliefs can be changed is missing. The field seems to be able to measure student voice around assessments, but it offers little in the way of direction for making a difference. Research that can help students themselves as they enter higher education or guides instructors to maximize self-regulatory responding to assessment practices is clearly a priority.

Equally important, this review establishes that there is consistency in results across methods, samples, and jurisdictions. It seems clear from this review that the best performing students are ones who use assessment and feedback to support improvement, no matter what the cost might be to their self-worth or self-perception. Strength in the face of adversity, the ability to overcome, and the skill of knowing how to regulate behaviors, emotions, and cognitive strategies to maximize desired outcomes are signs self-regulated learning and successful performance.

It is hoped that this review inspires work to be done by some of these researchers to integrate the measures as a way of cross-validating their own work and to remove possible "jingle-jangle" (Kelley, 1927; Murphy & Alexander, 2000) in the field. By that, I mean that there is likely to be considerable content overlap among the various inventories designed to measure student perceptions of the quality of assessments, their attitudes toward specific assessment formats, and their attitudes toward feedback practices and possible implications. Having been developed in different contexts and languages means that the opportunity to seek universal results is handicapped by the battery of instruments that have not been calibrated one to another. It is hoped that greater coherence in the field will be motivated by this review.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

ORCID iD

Gavin T. L. Brown https://orcid.org/0000-0002-8352-2351

References

*References marked with an asterisk indicate studies included in the meta-analysis.

Assessment Reform Group. (2002). Testing, motivation and learning. Retrieved from Cambridge, UK: http://www.assessment-reform-group.org/TML%20BOOKLET%20complete.pdf

Babaii, E., & Adeh, A. (2019). One, two, . . . , many: The outcomes of paired peer assessment, group peer assessment, and teacher assessment in EFL writing. Journal of Asia TEFL, *16*(1), 53–66. https://doi.org/10.18823/asiatefl.2019.16.1.4.53

Boekaerts, M. (1996). Self-regulated learning at the junction of cognition and motivation. European Psychologist, *1*(2), 100–112. https://doi.org/10.1027/1016-9040.1.2.100

Boud, D., & Associates. (2010). Assessment 2020: Seven propositions for assessment reform in higher education. Retrieved from Sydney, Australia: https://www.uts.edu.au/sites/default/files/Assessment-2020_propositions_final.pdf

Boud, D., & Falchikov, N. (Eds.). (2007). *Rethinking assessment in higher education: Learning for the longer term*. Routledge.

Brown, G. T. L. (2003). Teachers' conceptions of assessment inventory *(TCoA Version 3)* [Measurement instrument]. University of Auckland. https://doi.org/10.17608/k6.auckland.4284506.v1

Brown, G. T. L. (2008). Students' conceptions of assessment inventory *(SCOA Version VI)*. [Measurement instrument]. figshare. https://doi.org/10.17608/k6.auckland.4596820.v1

Brown, G. T. L. (2011). Self-regulation of assessment beliefs and attitudes: A review of the students' conceptions of assessment inventory. Educational Psychology, *31*(6), 731–748. https://doi.org/10.1080/01443410.2011.599836

*Brown, G. T. L. (2013). Student conceptions of assessment across cultural and contextual differences. In G. A. D. Liem & A. B. I. Bernardo (Eds.), *Advancing cross-cultural perspectives on educational psychology: A festschrift for Dennis McInerney* (pp. 143–167). Information Age Publishing.

Brown, G. T. L., & Hattie, J. A. (2012). The benefits of regular standardized assessment in childhood education: Guiding improved instruction and learning. In S. Suggate & E. Reese (Eds.), *Contemporary debates in childhood education and development* (pp. 287–292). Routledge.

Brown, G. T. L., & Hirschfeld, G. H. F. (2007). Students' conceptions of assessment and mathematics: Self-regulation raises achievement. *Australian Journal of Educational & Developmental Psychology*, *7*, 63–74.

Brown, G. T. L., & Hirschfeld, G. H. F. (2008). Students' conceptions of assessment: Links to outcomes. Assessment in Education: Principles, Policy & Practice, *15*(1), 3–17. https://doi.org/10.1080/09695940701876003

Brown, G. T. L., Irving, S. E., Peterson, E. R., & Hirschfeld, G. H. F. (2009). Use of interactive-informal assessment practices: New Zealand secondary students' conceptions of assessment. Learning and Instruction, *19*(2), 97–111. https://doi.org/10.1016/j.learninstruc.2008.02.003

Brown, G. T. L., McInerney, D. M., & Liem, G. A. D. (2009). Student perspectives of assessment: Considering what assessment means to learners. In D. M. McInerney, G. T. L. Brown, & G. A. D. Liem (Eds.), *Student perspectives on assessment: What students can tell us about assessment for learning* (pp. 1–21). Charlotte, NC US: Information Age Publishing.

Brown, G. T. L., Peterson, E. R., & Irving, S. E. (2009). Beliefs that make a difference: Adaptive and maladaptive self-regulation in students' conceptions of assessment. In D. M. McInerney, G. T. L. Brown, & G. A. D. Liem (Eds.), *Student perspectives on assessment: What students can tell us about assessment for learning* (pp. 159–186). Information Age Publishing.

*Brown, G. T. L., Peterson, E. R., & Yao, E. (2016). Student conceptions of feedback: Impact on self-regulation, self-efficacy, and academic achievement. British Journal of Educational Psychology, *86*(4), 606–629. https://doi.org/10.1111/bjep.12126

*Brown, G. T. L., Pishghadam, R., & Shayesteh Sadafian, S. (2014). Iranian university students' conceptions of assessment. Assessment Matters, *6*, 5–33. https://doi.org/10.18296/am.0115

Brown, G. T. L., & Walton, K. F. (2017). The effect of conceptions of assessment upon reading achievement: An evaluation of the influence of self-efficacy and interest. Interdisciplinary Education and Psychology, *1*(103). https://doi.org/10.31532/InterdiscipEducPsychol.1.1.003

Brown, G. T. L., & Wang, Z. (2013). Illustrating assessment: How Hong Kong university students conceive of the purposes of assessment. Studies in Higher Education, *38*(7), 1037–1057. https://doi.org/10.1080/03075079.2011.616955

*Brown, G. T. L., & Wang, Z. (2016). Understanding Chinese university student conceptions of assessment. Social Psychology of Education, *19*(1), 151–173. https://doi.org/10.1007/s11218-015-9322-x

Brown, G., & Harris, L. (2012). Student conceptions of assessment by level of schooling: Further evidence for ecological rationality in belief systems. *Australian Journal of Educational and Developmental Psychology*, *12*, 46–59.

Chen, Y.-H., & Lin, Y.-J. (2020). Revalidating the Taiwanese Self-regulation Questionnaire (new TSSRQ) and exploring its relationship with college students' psychological well-being. *Frontiers in Psychology*, *11*(1192). doi:10.3389/fpsyg.2020.01192

China Civilisation Centre. (2007). *China: Five thousand years of history and civilization*. City University of Hong Kong Press.

*Cho, H. J., Levesque-Bristol, C., & Yough, M. (2020). International students' self-determined motivation, beliefs about classroom assessment, learning strategies, and academic adjustment in higher education. Higher Education. https://doi.org/10.1007/s10734-020-00608-0

*Cho, H. J., Yough, M., & Levesque-Bristol, C. (2020). Relationships between beliefs about assessment and self-regulated learning in second language learning. International Journal of Educational Research, *99*. https://doi.org/10.1016/j.ijer.2019.101505

*Chu, M.-W., Guo, Q., & Leighton, J. P. (2014). Students' interpersonal trust and attitudes towards standardised tests: Exploring affective variables related to student assessment. Assessment in Education: Principles, Policy & Practice, *21*(2), 167–192. https://doi.org/10.1080/0969594X.2013.844094

Cleland, J., & Walton, G. (2012). Online peer assessment: Helping to facilitate learning through participation. Journal of Learning Development in Higher Education, (4). https://journal.aldinhe.ac.uk/index.php/jldhe/article/view/124

Davey, G., De Lian, C., & Higgins, L. (2007). The university entrance examination system in China. Journal of Further and Higher Education, *31*(4), 385–396. https://doi.org/10.1080/03098770701625761

*Delfino, R. W. C., & Magno, C. (2012). Filipino college students' conception of assessment. *The International Journal of Educational and Psychological Assessment*, *12*(1), 34–42.

*Deneen, C. C., Brown, G. T. L., & Carless, D. (2018). Students' conceptions of eportfolios as assessment and technology. Innovations in Education and Teaching International, *55*(4), 487–496. https://doi.org/10.1080/14703297.2017.1281752

Dorman, J. P., & Knightley, W. M. (2006a). Development and validation of an instrument to assess secondary school students' perceptions of assessment tasks. Educational Studies, *32*(1), 47–58. https://doi.org/10.1080/03055690500415951

Dorman, J. P., & Knightley, W. M. (2006b). Initial use of the perceptions of assessment tasks inventory (PATI) in English secondary schools. Educational Studies, *32*(1), 47–58. https://doi.org/10.1080/03055690500415951

Double, K. S., McGrane, J. A., & Hopfenbeck, T. N. (2020). The impact of peer assessment on academic performance: A meta-analysis of control group studies. Educational Psychology Review, *32*(2), 481–509. https://doi.org/10.1007/s10648-019-09510-3

Fletcher, R., Meyer, L., Anderson, H., Johnston, P., & Rees, M. (2012). Faculty and students conceptions of assessment in higher education. Higher Education, *64*(1), 119–133. https://doi.org/10.1007/s10734-011-9484-1

*Flores, M. A. C., Brown, G. T. L., Pereira, D., Coutinho, C., Santos, P., & Pinheiro, C. (2020). Portuguese university students' conceptions of assessment: Taking responsibility for achievement. Higher Education, *79*(3), 377–394. https://doi.org/10.1007/s10734-019-00415-2

*Froncek, B., Hirschfeld, G., & Thielsch, M. T. (2014). Characteristics of effective exams-development and validation of an instrument for evaluating written exams. Studies in Educational Evaluation, *43*, 79–87. https://doi.org/10.1016/j.stueduc.2014.01.003

Fulmer, G. W., Lee, I. C. H., & Tan, K. H. K. (2015). Multi-level model of contextual factors and teachers' assessment practices: An integrative review of research. Assessment in Education: Principles, Policy & Practice, *22*(4), 475–494. https://doi.org/10.1080/0969594X.2015.1017445

*Gan, Z., Leung, C., He, J., & Nang, H. (2019). Classroom assessment practices and learning motivation: A case study of Chinese EFL students. TESOL Quarterly, *53*(2), 514–529. https://doi.org/10.1002/tesq.476

Gordienko, Y. V. (2015). Theoretical training in physical education of higher educational establishments' girl students. Physical Education of Students, *19*(4), 3–9. https://doi.org/10.15561/20755279.2015.0401

Harris, L. R., Brown, G. T. L., & Dargusch, J. (2018). Not playing the game: Student assessment resistance as a form of agency. Australian Educational Researcher, *45*(1), 125–140. https://doi.org/10.1007/s13384-018-0264-0

High Level Group on the Modernisation of Higher Education. (2013). Improving the quality of teaching and learning in Europe's higher education institutions. Retrieved from Luxembourg: https://op.europa.eu/en/publication-detail/-/publication/fbd4c2aa-aeb7-41ac-ab4c-a94feea9eb1f

Hirschfeld, G. H. F., & Brown, G. T. L. (2009). Students' conceptions of assessment: Factorial and structural invariance of the SCOA across sex, age, and ethnicity. European Journal of Psychological Assessment, *25*(1), 30–38. https://doi.org/10.1027/1015-5759.25.1.30

Hodgson, Y., & Garvey, L. (2020). Conceptions of assessment in students and staff teaching biomedical sciences: A pilot study. Journal of Further and Higher Education, *44*(6), 818–828. https://doi.org/10.1080/0309877x.2019.1612045

Jessop, T., & Tomas, C. (2017). The implications of programme assessment patterns for student learning. Assessment & Evaluation in Higher Education, *42*(6), 990–999. https://do.org/10.1080/02602938.2016.1217501

Johnson, D. W. (1981). Student-student interaction: The neglected variable in education. Educational Researcher, *10*(1), 5–10. https://doi.org/10.2307/1175627

Kelley, T. L. (1927). *Interpretation of educational measurements*. World Book Company.

Lerner, J. S., & Tetlock, P. E. (1999). Accounting for the effects of accountability. Psychological Bulletin, *125*(2), 255–275. http://dx.doi.org/10.1037/0033-2909.125.2.255

Lipnevich, A. A., Guskey, T. R., Murano, D. M., & Smith, J. K. (2020). What do grades mean? Variation in grading criteria in American college and university courses. Assessment in Education: Principles, Policy & Practice, *27*(5), 480–500. https://doi.org/10.1080/0969594X.2020.1799190

MacLellan, E. (2001). Assessment for learning: The differing perceptions of tutors and students. Assessment & Evaluation in Higher Education, *26*(4), 307–318. http://dx.doi.org/10.1080/02602930120063466

*Matos, D. A. S., & Brown, G. T. L. (2015). Comparing university student conceptions of assessment: Brazilian and New Zealand beliefs. In C. Carvalho & J. Conboy (Eds.), *Feedback, identidade, trajetórias escolares: Dinâmicas e consequências* (pp. 177–194). Universidade de Lisboa, Instituto de Educação.

*Matos, D. A. S., Brown, G. T. L., & Gomes, C. M. A. (2019). Bifactor invariance analysis of student conceptions of assessment inventory. Psico-USF, *24*(4), 737–750. https://doi.org/10.1590/1413-82712019240411

Matos, D. A. S., Cirino, S. D., & Brown, G. T. L. (2009). Assessment practices in higher education in Brazil from the students' point of view. In D. M. McInerney, G. T. L. Brown, & G. A. D. Liem (Eds.), *Student perspectives on assessment: What students can tell us about assessment for learning*. (pp. 235–253). Information Age Publishing.

McMillan, J. H. (2016). Section discussion: Student perceptions of assessment. In G. T. L. Brown & L. R. Harris (Eds.), *Handbook of human and social conditions in assessment* (pp. 221–243). Routledge.

McMillan, J. H. (2019). Discussion of part I: Assessment information in context. In S. M. Brookhart & J. H. McMillan (Eds.), *Classroom assessment and educational measurement* (pp. 79–94). Routledge.

Murillo, F. J., & Hidalgo, N. (2017). Students' conceptions about a fair assessment of their learning. Studies in Educational Evaluation, *53*, 10–16. https://doi.org/10.1016/j.stueduc.2017.01.001

Murphy, P. K., & Alexander, P. A. (2000). A motivated exploration of motivation terminology. Contemporary Educational Psychology, *25*(1), 3–53. https://doi.org/10.1006/ceps.1999.1019

Natsis, A., Papadopoulos, P. M., & Obwegeser, N. (2018). Research integration in information systems education: Students' perceptions on learning strategies, skill development, and performance. Journal of Information Technology Education-Research, *17*, 345–363. https://doi.org/10.28945/4120

Panadero, E. (2016). Is it safe? Social, interpersonal, and human effects of peer assessment: A review and future directions. In G. T. L. Brown & L. R. Harris (Eds.), *Handbook of human and social conditions in assessment* (pp. 247–266). Routledge.

Panadero, E., & Brown, G. T. L. (2017). Teachers' reasons for using peer assessment: Positive experience predicts use. European Journal of Psychology of Education, *32*(1), 133–156. https://doi.org/10.1007/s10212-015-0282-5

Panadero, E., Brown, G. T. L., & Courtney, M. G. (2014). Teachers' reasons for using self-assessment: A survey self-report of Spanish teachers. Assessment in Education: Principles, Policy and Practice, *21*(4), 365–383. https://doi.org/10.1080/0969594X.2014.919247

Panadero, E., Fraile, J., Fernandez Ruiz, J., Castilla-Estevez, D., & Ruiz, M. A. (2019). Spanish university assessment practices: Examination tradition with diversity by faculty. Assessment & Evaluation in Higher Education, *44*(3), 379–397. https://doi.org/10.1080/02602938.2018.1512553

Pintrich, P. R. (1995). *Understanding self-regulated learning*. Jossey-Bass.

Rieskamp, J., & Reimer, T. (2007). Ecological rationality. In R. F. Baumeister & K. D. Vohs (Eds.), *Encyclopedia of social psychology* (pp. 273–275). SAGE.

Scriven, M. (1967). The methodology of evaluation. In R. W. Tyler, R. M. Gagne, & M. Scriven (Eds.), *Perspectives of curriculum evaluation* (Vol. *1*, pp. 39–83). Chicago, IL: Rand McNally.

*Smith, L. F., & ten Hove, K. H. (2009). A multimethod examination of university students' views of assessment. In D. M. McInerney, G. T. L. Brown, & G. A. D. Liem (Eds.), *Student perspectives on assessment: What students can tell us about assessment for learning* (pp. 207–231). Information Age Publishing.

Strijbos, J. W. (2016). Assessment of collaborative learning. In G. T. L. Brown & L. R. Harris (Eds.), *Handbook of human and social conditions in assessment* (pp. 302–318). Routledge.

*Strijbos, J. W., Pat-El, R. J., & Narciss, S. (2010, May). Validation of a (peer) feedback perceptions questionnaire. In L. Dirckinck-Holmfeld, V. Hodgson, C. Jones, M. d. Laat, D. McConnell, & T. Ryberg (Eds.), Proceedings of the 7th international conference on networked learning (pp. 378–386). Aalborg University.

*Strijbos, J.-W., Narciss, S., & Duennebier, K. (2010). Peer feedback content and sender's competence level in academic writing revision tasks: Are they critical for feedback perceptions and efficiency? Learning and Instruction, *20*(4), 291–303. https://doi.org/10.1016/j.learninstruc.2009.08.008

Taghizadeh, M., & Kazemzadeh, F. (2019). Comparing male and female engineering students' reading ability through level-specific tasks and CEFR- and DIALANG-based self-assessment. Iranian Journal of Comparative Education, *2*(1), 79–94. https://doi.org/10.22034/ijce.2019.191884.1020

*Vaessen, B. E., van den Beemt, A., van de Watering, G., van Meeuwen, L. W., Lemmens, L., & den Brok, P. (2017). Students' perception of frequent assessments and its relation to motivation and grades in a statistics course: A pilot study. Assessment & Evaluation in Higher Education, *42*(6), 872–886. https://doi.org/10.1080/02602938.2016.1204532

Van der Kleij, F. M., & Lipnevich, A. A. (2020). Student perceptions of assessment feedback: A critical scoping review and call for research. Educational Assessment Evaluation and Accountability. https://doi.org/10.1007/s11092-020-09331-x

*van Gennip, N. A. E., Segers, M. S. R., & Tillema, H. H. (2010). Peer assessment as a collaborative learning activity: The role of interpersonal variables and conceptions. Learning and Instruction, *20*(4), 280–290. https://doi.org/10.1016/j.learninstruc.2009.08.010

Vogl, E., & Pekrun, R. (2016). Emotions that matter to achievement: Student feelings about assessment. In G. T. L. Brown & L. R. Harris (Eds.), *Handbook of human and social conditions in assessment* (pp. 111–128). Routledge.

Wang, Z., & Brown, G. T. L. (2014). Hong Kong tertiary student conceptions of assessment of academic ability. Higher Education Research & Development, *33*(5), 1063–1077. https://doi.org/10.1080/07294360.2014.890565

Weekers, A. M., Brown, G. T. L., & Veldkamp, B. P. (2009). Analyzing the dimensionality of the students' conceptions of assessment inventory. In D. M. McInerney, G. T. L. Brown, & G. A. D. Liem (Eds.),

Student perspectives on assessment: What students can tell us about assessment for learning (pp. 133–157). Information Age Publishing.

*Wise, S. L., & Cotten, M. R. (2009). Test-taking effort and score validity: The influence of student conceptions of assessment. In D. M. McInerney, G. T. L. Brown, & G. A. D. Liem (Eds.), *Student perspectives on assessment: What students can tell us about assessment for learning* (pp. 187–205). Information Age Publishing.

Wise, S. L., & Smith, L. F. (2016). The validity of assessment when students don't give good effort. In G. T. L. Brown & L. R. Harris (Eds.), *Handbook of human and social conditions in assessment* (pp. 204–220). Routledge.

*Zaimoğlu, S. (2013). Teachers' and students' conceptions of assessment in a university EFL preparatory school context. Unpublished master's thesis, Çağ Universitesi, Mersin, Turkey. https://hdl.handle.net/20.500.12507/241

*Zou, Y., Schunn, C. D., Wang, Y., & Zhang, F. (2018). Student attitudes that predict participation in peer assessment. Assessment & Evaluation in Higher Education, *43*(5), 800–811. https://doi.org/10.1080/02602938.2017.1409872