

Assessing Academic Strategies in College Learning Centers: Considerations for Scholarly Practitioners

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Abstract

As learning center professionals, we have much to gain by conducting assessment to understand how our services help college students develop their academic strategies. The type of data we collect makes a difference in the interpretations we can draw, however. An initial step in becoming a scholarly practitioner is to consider the strengths and limitations of different data sources for assessment purposes. This review article discusses how self-report questionnaires, interviews, think-alouds, and study diaries can contribute unique insights into students' academic strategies. Also, it suggests guidelines for evaluating the suitability of various methods in light of assessment contexts, questions, and goals.

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Academic strategies refer to the skills, tactics, and methods that students select and apply to attain learning goals. Martha Maxwell (1979), an early advocate of learning center research and practice, was among the first scholars in the area of college student learning to underscore the importance of ascertaining how students come to use academic strategies. This topic continues to hold relevance today as learning center administrators are called to account for the value of the services we provide. Collecting data for assessment purposes allows us to gauge students' initial academic strategies (to identify needs our centers can address) and to measure growth (to document the changes our centers foster). By making informed choices about what data to collect, learning center administrators work toward the goal of becoming scholarly practitioners, that is, those who conduct

scholarly work to understand and share the experiences of the students we serve (Hatfield & Wise, 2015). A first step in this process is to discern the trustworthiness, assumptions, and potential biases of the information we gather about students' academic strategies. This awareness equips us to be informed consumers of the assessments we review and thoughtful designers of the assessments we plan.

This article will review the purposes, strengths, and limitations of four distinct approaches to assessing academic strategies. It will begin with self-report questionnaires, the most commonly used approach in prior decades (Pike, 2011; Winne & Perry, 2000). It will then turn to three assessment methods that go beyond the questionnaire: interviews, think-alouds, and study diaries. To conclude, the article will provide guidelines for thoughtfully selecting a data collection method based on the purpose of the assessment.

Self-Report Questionnaires

Self-report questionnaires (e.g., surveys, scales, instruments, or inventories) are a commonly used quantitative measure of students' academic strategies. They can be used to demonstrate changes in strategies, as is often the case with educational interventions (Bail, Zhang, & Tachiyama, 2008), or to enhance theoretical understanding of academic strategies based on their connections to other beliefs or behaviors that are relevant to students' learning and motivation (Boekaerts & Corno, 2005). The two most commonly used measures are the Learning and Study Strategies Inventory (LASSI; Weinstein, Simmerman, & Palmer, 1988) and the Motivated Strategies for Learning Questionnaire (MSLQ; Pintrich, Smith, Garcia, & McKeachie, 1991). Both measure learning in terms of motivational, cognitive, metacognitive, and behavioral components (Zimmerman, 2008) and are recommended due to their high reliability and validity (Credé & Phillips, 2011; Griffin et al., 2012). Reliability refers to internal consistency and provides a way to gauge whether the items comprising a scale measure the same construct in the eyes of the respondents; validity refers to how well something measures what it purports to measure (Creswell, 2005).

The LASSI (Weinstein et al., 1988) is a questionnaire primarily used to identify strengths and weaknesses in students' approaches

to learning. The academic strategies assessed by the LASSI include information processing (i.e., connecting or organizing concepts), concentration, selecting main ideas, testing oneself, using study aids, and managing time. The LASSI has been administered to national samples and provides standardized norms (Weinstein & Palmer, 2002). The inventory has test-retest reliability of .88, and eight of ten subscales have coefficient alphas above .80, suggesting high internal consistency among the items (Weinstein & Palmer, 2002). The scales of the LASSI have acceptable concurrent validity with other scales measuring similar constructs (Weinstein et al., 1988), predictive validity of performance measures (e.g., GPA; Weinstein, 1994), and face validity with practitioners in the area of collegiate learning services (Weinstein & Palmer, 2002). The LASSI is considered an “excellent instrument” for these reasons (Pintrich & Johnson, 1990, p. 86) and is used primarily in practical, diagnostic settings.

A second common questionnaire is the MSLQ (Pintrich et al., 1991), which measures cognitive strategies (e.g., rehearsal, elaboration, organization, and critical thinking strategies), metacognitive self-regulation (i.e., the setting and monitoring of learning goals), and resource strategies (e.g., regulating effort, managing time, seeking help, and learning from peers). Developed over a three year period that included pilot testing, factor analysis, and gradual refinement of items (Winne & Perry, 2000), the MSLQ is a widely available instrument with an accompanying manual. A meta-analysis of the use of the MSLQ in 67 independent college-student samples from seven countries and in various subject areas revealed that five of the scales had high mean reliability across studies: elaboration, organization, critical thinking, metacognitive self-regulation, and time and study environment (Credé & Phillips, 2011).

The MSLQ is also a solid choice in terms of its concurrent and predictive validity. Researchers showed positive correlations between the academic strategies measured by the MSLQ and college students’ perfectionism (Mills & Blankstein, 2000), procrastination (Wolters, 2003), and levels of motivation over the semester (Zusho et al., 2003). In an early study describing the predictive validity of the MSLQ, Pintrich, Smith, Garcia, and McKeachie (1993) reported that the scales measuring resource strategies, elaboration, organization,

critical thinking, and metacognitive self-regulation had positive correlations with course grades, with correlation coefficients ranging between .17 and .30. Credé and Phillips (2011) concluded, “the MSLQ appears to capture many of the most important constructs that are central to self-regulated learning and should, therefore, be valuable for future investigations of self-regulated learning” (p. 344).

Strengths of Self-Report Questionnaires

One of the primary attractions of self-report measures, particularly when administered via survey research methods, is that they make relatively low demands on time and financial resources. They are straightforward to administer and interpret, and they lend themselves well to electronic distribution and nearly immediate transfer to statistical analysis software (Lavoie & Pychyl, 2001). Self-report questionnaires draw data from a large number of respondents and have fairly generalizable results, particularly when using random, representative, and clearly defined samples (Creswell, 2009). In such cases, self-report questionnaires make up for a lack of depth through their breadth and external validity; in other words, their results provide information regarding how students with similar characteristics to those in a given study would use academic strategies.

Self-report questionnaires lend themselves well to comparison across studies using meta-analysis (e.g., Credé & Phillips, 2011) and through the application of generally accepted criteria regarding reliability and validity (Creswell, 2005). These self-report measures enable scholarly practitioners to investigate specific relationships among various academic constructs (Hofer, 2004), examine differences between groups (Pike, 2011), and study individual differences (Bembenutty & Karabenick, 1998). Pike (2011) argues that self-report data are appropriate for research on college student learning when they are rooted in theory and subject to validity studies. The LASSI (Weinstein et al., 1988) and MSLQ (Duncan & McKeachie, 2005; Pintrich et al., 1991), for example, were developed based on self-regulated learning, information-processing, and motivation theories and research. Additionally, they have been created and tested by preeminent scholars in these areas. The constructs they purport to measure have undergone pilot testing and revision,

typically have acceptable levels of reliability, predict achievement fairly well, and are associated with related constructs yet distinct from dissimilar ones (Pintrich et al., 1991, 1993; Weinstein, 1994; Weinstein et al., 1988). Importantly, not all self-report measures of academic strategies have been tested or connected to theory in equally convincing ways (Wigfield & Eccles, 2000). In addition, researchers should keep in mind that reliability should be calculated for each sample and is a characteristic of the scale only in light of the sample being assessed (Wilkinson & The Task Force on Statistical Inference, 1999). Without these considerations, the limitations of self-report questionnaires can outweigh their benefits.

Limitations of Self-Report Questionnaires

Perhaps the most commonly heard critique of questionnaires is the absence of behavioral measures to corroborate the students' self-reports of the strategies they use. Calibration, "the match between students' self-reports about study tactics and their actual use of tactics," is often assumed but may be lacking (Winne & Jamieson-Noel, 2002, p. 553). Perfect alignment with actual behavior and perceptions cannot be expected from self-report questionnaires. Although some studies have reported alignment between self-reported learning and objective measures of learning (Carini, Kuh, & Klein, 2006; Pike, 2011), other research on self-report questionnaires shows that self-reported behaviors often fail to map onto actual behaviors (Bowman, 2010).

It can be difficult for students to accurately report their academic strategies, and not for a lack of trying. Engaging in introspection for self-evaluation can be mentally taxing (Bowman, 2011) and can reduce the accuracy of self-report data due to "an inability to correctly introspect" (McIntyre & Munson, 2008, p. 238). Although errors can occur in either direction, the tendency is to be overly optimistic. With self-report measures, a factor that can skew students' estimation of academic strategy use is the halo effect (Bowman, 2011). The halo effect occurs when students who generally see their performance in a positive light overestimate their performance in specific areas.

Another possible explanation for miscalibration is that

students intentionally misrepresent their academic strategies. When some answers appear more in line than others with what “good” students do, social desirability bias may occur (Bowman & Hill, 2011). When students recognize certain patterns of strategy usage as desirable, they may report using these strategies frequently while underreporting the strategies they perceive as less desirable. Emphasizing to students that responses will be anonymous and that there are no right or wrong answers may somewhat lessen these sources of error (Norton et al., 2001). Additionally, administering a social desirability measure can aid researchers in determining whether this source of bias substantially changes results (Duncan & McKeachie, 2005).

Another critique of self-report questionnaires is that they have a limited range of responses and may thus only provide surface-level insight into which strategies students use. Boekaerts and Corno (2005) also caution that many questionnaires were developed based on the behaviors of successful students. They may have limited relevance to the strategies of less successful students, restricting what questionnaires can reveal about ways to help students become more successful. On a related note, it is important to acknowledge that most self-report measures begin by approaching the assessment or research question with a specific lens; they gather specific data and, ultimately, may only answer a limited range of questions (Eisner, 1998).

Studies primarily relying on self-report questionnaires have established much of what is known about students’ academic strategies, yet they have limitations about how accurately and deeply they portray how students perceive—and use—these strategies. Although self-report questionnaire data provide concrete and efficiently summarized insights, the numbers may not be telling the whole story, and the items in questionnaires may miss much of the nuance associated with the use of academic strategies (Hadwin et al., 2001).

Interviews, Think-Alouds, and Study Diaries

Qualitative methods that take us beyond the questionnaire enhance what is known about students’ academic strategies through

first-person accounts, real-time descriptions, and artifacts of learning. Interviews, think-alouds, and study diaries provide richness of detail and flexibility of response options. These methods have the potential to delve deeply into questions of how and why students use or fail to use certain strategies, as well as what meaning these decisions hold (Eisner, 1998). The following section will describe the purpose, strengths, and limitations of three methods that provide an alternative to questionnaires.

Interviews

Interviews are a dialogic approach used to gather insights into students' experiences and perspectives. Through carefully designed interviews, researchers can uncover patterns in students' approaches to learning, investigate students' stories of development, or focus on the perceptions students have about certain topics (Butler, 2006). Qualitative interviews allow researchers to take an inductive approach to generate ideas, patterns, and perceptions from the perspective of the student (Creswell, 2009). This is in contrast to the deductive approach associated with self-report questionnaires, in which researchers collect data to test theories and hypotheses (Cheek et al., 2004). Particularly when little is known about a concept or how a specific population experiences it, interviews provide a means to portray the voice of students and discover students' understanding of concepts (Suskie, 2009). Qualitative interviewing can be viewed as an approach that fills in the gaps about what is known about student learning (Suskie, 2009), particularly through the use of open-ended questions that allow researchers to uncover themes and patterns (Creswell, 2009).

Interviews can take several formats, ranging from structured to unstructured. On one end of the spectrum, unstructured interviews are a narrative approach to interviewing, in which students present their stories and the interviewer plays a minimal, unobtrusive role (Boekaerts & Corno, 2005). For instance, DeGroot (2002) used an unstructured approach in interviews that invited students to "tell me how you go about learning things for school" (p. 42). This approach offered the benefit of not constraining students' responses to any particular category, enhancing the likelihood of reflecting students'

actual academic strategies. It “allowed students to tell their own stories in their own way, yielding rich descriptions of themselves and their experiences that...could not have been obtained in any other way” (p. 50). However, unstructured interviews rely heavily on a skilled interviewer who can refrain from directing the interview and who does not make assumptions regarding shared understandings (De Groot, 2002). Another limitation can be the difficulty in comparing strategies across students or not uncovering details that a student would have shared if prompted.

On the other end of the spectrum, structured interviews involve a specific list of predetermined, ordered questions that build upon one another (Boekaerts & Corno, 2005). Structured interviews have been used to investigate the critical thinking strategies that students use when writing research papers, with the intent of understanding specific aspects of how students choose data sources and progress in their research processes (Whitmire, 2003). The use of standardized questions permits relatively efficient analysis related to specific areas of interest, and less intensive training is required for this method (De Groot, 2002). A drawback is that the strict order of the protocol can lead to unnatural shifts in topics that forestall in-depth exploration of a topic or the natural unfolding of understanding. Additionally, the predetermined list of questions limits the areas that can be addressed (De Groot, 2002). Van Meter, Yokoi, and Pressley (1994) worked around this limitation in their investigation of students’ perceptions of note-taking by conducting multiple phases of interviews, with each phase informing the questions that would be asked in the subsequent phase.

Semi-structured interviews provide a middle ground between structured and unstructured interview approaches. Interviewers have a list of possible questions and follow-up prompts, and each interview may take a different direction depending on the information a student reveals (Boekaerts & Corno, 2005). The questions an interviewer asks typically focus on thoughts, feelings, and strategies related to specific facets of a learning environment (Boekaerts & Corno, 2005). For instance, in a study of engineering students’ approaches to learning, interviewers asked open-ended questions such as “Can you tell us about the way you have been

studying in this class?” and “What have you really been trying to achieve in terms of learning in this class?” (Gynnild, Holstad, & Myrhaug, 2008, p. 150), allowing students, in their own words, to describe a range of strategies and the intentions behind them. With a list of potential questions and prompts, there is more flexibility in semi-structured interviews as compared with structured interviews; there is also a clearer area of focus, though less possibility of coming across unanticipated insights, than with unstructured interviews.

Focus group interviews extend the characteristics of individual interviews to a group setting. When facilitating focus groups, researchers typically employ a semi-structured protocol to address specific topics of interest while using follow-up questions extensively to gauge the level of consensus and seek out differing viewpoints (e.g., Gullifer & Tyson, 2010). Focus groups are especially well suited to assessing student needs and opinions, and the data gathered can inform practice and policy (e.g., Collier & Morgan, 2008). A primary benefit of the group format is that it enables students to respond to and build upon other students’ remarks. Because the quality of information gathered will depend greatly on the group dynamics, however, researchers must exercise special care to invite multiple perspectives into the conversation and to sequence introductions and questions in a way that builds rapport and trust (Bogdan & Biklen, 2003).

Think-Alouds

Think-alouds are a method in which a student articulates their thinking while performing an academic behavior, such as reading or studying. Action and reflection occur at the same time in an attempt to externalize the thoughts and feelings that accompany academic strategies. The thinking occurs at the same time as the event, rather than being retrospective or hypothetical, unlike most other self-report measures (Schraw, 2010). As a concurrent report, think-alouds provide “more accurate and valid indicators of mental activity than retrospective reports” (Schraw, 2010, p. 262). With a focus on students’ verbalized thoughts, Pressley (2000) studied the strategies students used while reading, and Hofer (2004) examined students’ critical thinking strategies and activation of epistemological beliefs

as they conducted online searches for information for a simulated research paper. Such studies have been used to gain insight into what students do when they are learning and what their related thought processes are.

Think-alouds also can be used to determine which strategies relate to effective comprehension. For instance, Greene and Azevedo (2007) found that students' descriptions of the use of certain academic strategies when learning anatomy (e.g., making inferences, creating analogies, connecting ideas across sources) were positive predictors of their comprehension, as reflected in a model of the circulatory system each student produced. With the think-aloud method, researchers study academic strategies "as an activated situated aspect of cognition" (Hofer, 2004, p. 44). What is more, think-alouds provide access to thinking strategies and processes that may be difficult to ascertain through questionnaires (Hofer, 2004).

That the think-aloud method occurs in real-time means that it is less susceptible to poor memory or inaccurate predictions of how a student would act (Boekaerts & Corno, 2005). But the cognitive load of think-aloud research can be quite high. Schraw (2010) notes this concern as stemming from the approach's nature as an "obtrusive measure ... [that] potentially may interfere with information processing because it competes for limited resources" (p. 259). In other words, verbalizing thoughts and feelings can interfere with using the actual strategies, and bringing thoughts and feelings to the forefront may interfere with the direction academic strategies might otherwise take (Boekaerts & Corno, 2005). This tendency is less of a concern for experts than for novices; in this sense, the think-aloud method may be more effective for studying the academic strategies of successful students who consistently use effective cognitive and metacognitive strategies than it is for students who do not tend to intentionally use these sorts of strategies. A concern pointed out by Winne and Perry (2000) is that "there is little ... standard information about measurement properties of the think-aloud protocol" (p. 550). This is not to say that think-alouds lack reliability and validity, only that more care must be taken to ensure these qualities than with established methods.

Study Diaries

Study diaries provide an objective record of students' study behaviors and often combine behaviors with associated reflections. Having students keep records of their study methods provides an alternative measure of behavior that may be more accurate and thorough than questionnaires, as it allows students to provide details that may not be accounted for with closed-ended items.

One way to utilize study diaries is as a record of the activities in which students engage. During a specific period (e.g., a week, a semester), students provide information regarding the timing and duration of specific study activities (Vacha & McBride, 1993). Another option is for students, daily, to record the amount of time on study-related behaviors and leisure behaviors (Hensley et al., 2018). Although this information is self-reported by students, the minimal delay between behavior and its measurement makes such methods more conducive to accurate self-observation than self-report questionnaires are. Researchers can then use this information to quantify students' strategies as being reflective of a certain time usage pattern, such as cramming (Vacha & McBride, 1993). Used in this manner, study diaries lend themselves to categorization and analysis. As time passes between the behavior and when it is recorded, though, accuracy can dwindle. Regularly updated time diaries (e.g., for multiple 24-hour periods) are likely to offer the best chance of accurate reporting, but they may involve extensive and time-consuming translation into a data set (Porter, 2011). Coding for core patterns (e.g., consistent wake time, consistent weekday studying) provides a more efficient method of comparing the tendencies among students, but a tradeoff of this approach is that it may not account for the full range of unique attributes in students' time use (Hensley et al., 2018).

With the more reflective form of study diary, students can describe which study strategies they used, as well as the thoughts and feelings they had about these methods (Boekaerts & Corno, 2005). Study diary data may be captured in either written or audio form. In a study of the development of self-regulated learning in a problem-based curriculum (Evensen et al., 2001), six medical students recorded 15-20 minutes of audio diary entries a minimum of three

times per week during a semester. In these entries, they described their plans for studying and their actual study behaviors, as well as reflections about the effectiveness of their strategies.

Reflective study diaries have several key benefits. They allow students to express their experiences in their own words, provide insight into metacognition, and present minimal time-lag between action and recollection (Boekaerts & Corno, 2005). The act of externalizing thoughts brings thoughts to the surface to “extract meaning from them” (Boud, 2001, p. 9), which may be particularly helpful for gaining insight into why, how, and when students use certain strategies. A drawback, however, is that some students may provide more or less extensive details than other students due to their differing levels of verbal fluency or writing efficacy, which may give the appearance of differences in strategies when the actual differences relate to communication skills (Boekaerts & Corno, 2005). An additional limitation is that the act of recording behaviors can influence them, causing them no longer to be a reflection of students’ typical academic strategies (McLaughlin, 1976).

Selecting an Assessment Method

As scholarly practitioners prepare to assess academic strategies, it is important to consider the suitability of potential data-collection methods for a given purpose and context. For self-report questionnaires, perhaps the greatest benefit is their practicality, as they can be administered with relatively low cost and time investments and can be analyzed in established ways. However, it is important to consider reliability, validity, and design when using self-report questionnaires to avoid drawing conclusions that may not be warranted (Creswell, 2005). Particularly when multiple researchers are involved in multiple rounds of coding data and interpreting meaning (Jones et al., 2014), interviews, think-alouds, and study diaries can be analyzed in a rigorous manner that yields trustworthy findings. Accordingly, though, administrators must account for the time-consuming transcription, scoring, or coding processes that qualitative analyses often require (Porter, 2011; Schraw, 2010).

To have confidence in our assessments, scholarly practitioners also need to take care in discerning the quality of measurement. For

self-report questionnaires, researchers can measure and interpret overlap with, distinctness from, and prediction of other measures, guided by theory and existing research (Hofer, 2004; Pike, 2011). For interviews, think-alouds, and study diaries, reliability is often gauged by employing inter-rater or inter-coder agreement related to coded text segments. Although qualitative measures provide insights that can go beyond the scope of self-report questionnaires, those who use these approaches must be deliberate and transparent about what they do with the data once they gather them (Schraw, 2010; Winne & Perry, 2000). When evaluating qualitative evidence, scholarly practitioners must consider coherence, insight, and usefulness (Eisner, 1998), as well as credibility, plausibility, and applicability (Jones et al., 2014), to gauge the believability of the interpretations and evidence used to support them. Human interpretation and judgment, though imperfect, are important aspects guiding theory and research.

With any method, scholarly practitioners must be cautious about the potential for bias. For example, bias may occur when students have trouble describing their past or hypothetical behaviors accurately or intentionally skew responses to present themselves in a certain manner. Questionnaires may have one advantage in that researchers can account for social desirability through the inclusion of a narcissism scale or social desirability index (Bowman & Hill, 2011). Yet these methods still make assumptions about students' abilities to respond accurately when given pre-determined response options and are limited by the fact that they ask learners to juggle and consider all of the if-then possibilities about a certain academic strategy to choose a single response (Winne, 2010). Using qualitative methods, scholarly practitioners can uncover students' personal, subjective, detail-rich perspectives related to the use of academic strategies, which can be a benefit over self-report questionnaires with limited response options. However, intrusive measures such as the think-aloud approach and reflective methods such as study diaries may modify how students naturally engage in learning.

Conclusion

Eisner (1998) noted that “the questions we ask, the categories

we employ, [and] the theories we use guide our inquiry; indeed, what we come to know about the world is influenced by the tools we have available” (p. 28). It is important that we, as scholarly practitioners, acknowledge this point while making conscious decisions about both what insights we seek to gather and what questions, theories, and tools we will use to acquire these insights. Using a specific tool is not inherently better or worse than using another; it depends on the questions we seek to answer; the limitations we are willing to accept; and how we choose to connect findings to theoretical frameworks, draw inferences, and suggest practical significance based upon findings.

Determining the appropriateness of a given method is tied to whether the existing theory and research guide us to investigate specific hypotheses or to seek meaning more inductively (Pike, 2011; Pintrich, 2004). In terms of how useable a certain measure might be, Winne and Perry (2020) acknowledge that “measurements have varying degrees of utility for particular purposes” (p. 561). Ultimately, scholarly practitioners must ask questions such as: Why am I seeking to use this measure? What can, and can’t, it tell me? What restraints and resources do I have? Each data collection method has a set of strengths and limitations that make it more suitable for answering certain questions and providing different kinds of insights than others. As such, we must ask what we want to accomplish when selecting measures and again when interpreting the data gathered by them. With this approach, we can strengthen the credibility of our learning centers’ assessments as we contribute to the scholarly life of our institutions and profession.

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