

Course of Mind

Product Evaluation Guide

LEARNING MANAGEMENT SYSTEMS

COURSE
OF MIND



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How do you distinguish between edtech products that are built well vs. those that are not? Which products are built in a way that naturally aligns with how people learn best?

These questions are foundational in the edtech selection and buying process, and the need for valid, reliable methods of product assessment are universal across educational organizations at all levels.

Through Course of Mind, ISTE continues to help educators and leaders across the country find well-built digital products and see the best learning impacts. This evaluation tool is one resource to aid teachers and edtech decision makers in finding those “best” products.

About Course of Mind

Course of Mind is an evidence-based initiative that is transforming the educational landscape by leveraging learning sciences and educational technology hand-in-hand. Through the translation of proven learning science findings into practical strategies for both the classroom and edtech selection, Course of Mind continues to help educators optimize instructional time, and decision-makers approve the very best digital products for teachers and students.

About ISTE

ISTE inspires educators worldwide to use technology to innovate teaching and learning, accelerate good practice and solve tough problems in education by providing community, knowledge and the ISTE Standards, a framework for rethinking education and empowering learners.

Who is this guide for, and what does it do?

This product evaluation guide is designed to help school district leaders, administrators, and instructional technology specialists make decisions about edtech purchasing by providing a framework you can use to evaluate educational technology products against product design benchmarks that are based on current learning sciences research. In other words, this guide helps educational practitioners determine the degree to which an edtech product aligns with how we know humans learn best. Note that there are separate guides for each of three product types: digital curriculum products, formative assessment products, and learning management system (LMS) products. Make sure to review the guide that is designed for the type of product you're interested in reviewing because the evaluation criteria will differ by product type.

This evaluation guide includes four parts:

1. **Introduction** = Describes what's in the guide.
2. **Scoring instructions** = How to use the guide to score a product.
3. **Indicators** = A set of criteria that describe the essential features of a product based on the learning sciences. These indicators are what you'll evaluate a product against.
4. **Scoring sheet** = A sheet you can use to evaluate a product. You'll probably want to print several copies of just that sheet, and look at the completed example to get an idea of how to use the scoring sheet.

As you explore a trial version or sandbox account for a new product, score it against each indicator. When you're done scoring, you'll have a clear picture of how well the product's build and features align to rigorous, research-based practices about how people learn most effectively. You can then compare your ratings with those of colleagues to see where you agreed or disagreed, and use your ratings to guide conversations with product providers in ways that help you ensure that you get down to the most essential questions about a product's build and fit for the teachers and students in your schools.

What are the learning sciences?

The learning sciences make up an interdisciplinary field of research with the common goal of studying and understanding how people learn, and how to apply this understanding to the design and evaluation of learning experiences. Key fields that contribute to the learning sciences include cognitive psychology, educational psychology, human development, linguistics and social psychology. Knowledge from multiple fields helps us understand learning as an interaction between learners and their environment including peers, teachers, learning materials, and instructional products.

Other terminology that will be helpful in using this guide includes:

- **Product:** An educational technology (edtech) application that can be purchased by an educational organization or individual. Digital curriculum products provide content as well as other functionality (such as interactive activities). Digital curriculum products are distinguished from “platforms” that provide functionality but entirely lack content.
- **Content:** The information the product provides. Content can be any format or media type such as text, images, audio, simulation, or video. Digital curriculum products present informational content to learners while platforms do not.
- **Activities:** The assessments and/or interactive elements requiring student response and interaction. Distinguished from “content” here, although edtech curriculum products often quickly switch between or intertwine content and activities.
- **Digital curriculum products:** Products that provide content (usually academic instruction) as well as other functionality (such as activities). These curriculum products are distinguished from “platforms” that provide functionality but entirely lack content. If students are exploring a new topic with technology, they are probably using a digital curriculum product.
- **Platform products:** A type of educational technology product that does not include content. Instead, platforms only include functionality features. Examples of “platforms” include learning management systems, student information systems, and assessment applications that entirely rely on teachers (or other instructional support people) to input content.
- **Formative assessment product:** A formative assessment product is an edtech product that helps teachers create, distribute, and review interactive experiences to understand what learners know and don’t yet know; commonly thought of as a “quiz.”
- **Learning Management System:** Also known as an LMS, a learning management system is a product used to manage the creation, administration, delivery, and reporting of educational courses.

Scoring Instructions

This evaluation guide includes a scoring sheet that can be used as a worksheet to evaluate or “rate” an edtech product as you explore a trial version, sandbox account, or even watch a demo video. **Here’s how to use it:**

- 1. Print the scoring sheet.** Print the scoring sheet included in this guide and keep it in front of you while you review the product. You may also want to print this entire guide, as it contains important details about each indicator for the product - it may be helpful to have those in front of you “on paper” as you explore a product.
- 2. Select a product sample.** Decide WHAT in the product you’re going to look at in order to evaluate it. If you’re working with colleagues who will all score the product, make sure that everyone is looking at the SAME PRODUCT PAGES so that you’re all scoring the same product sample. If different people are looking at different pages, you won’t know if your product evaluations (i.e. scores) should be lining up with each other or not because you will have looked at different parts of the product.
- 3. Score the product.** On your scoring sheet, write in the name of the product and your name, then use the scoring sheet to evaluate the product sample based on your best understanding of the criteria. To what degree does the product meet each indicator? Place an “X” on the “Rating” line to indicate the degree to which the product sample meets expectations set forth by the criteria.
 - a.** The central vertical line represents “meets minimal expectations” for the indicator, so mark an “X” on that line if the product generally meets your expectations based on the indicator description. Marking anywhere to the left of the central line indicates that the product does not meet the expectations articulated by the criteria. Marking anywhere to the right of the central line indicates that the product exceeds the minimally “adequate” expectations you see for any indicator.
 - b.** The “absence” and “exemplar” descriptions in this guide describe what to look for when you’re scoring the product. If the product meets most of the “look fors” described in the exemplar, then assign it a score of meets expectations. If the product does an exceptional job with most or all of the look fors listed in an exemplar, assign the product a score of exceeds expectations, marking to the right of the central line.
 - c.** Don’t be shy about assigning a rating of “does not meet” if you don’t see evidence that the product is meeting expectations for that indicator. There might be a tendency for you to think, “Oh, I guess this is good enough.” But if you don’t see evidence that the product is meeting the expectations set forth in the indicator, mark to the left of the vertical line, assigning a rating of does not meet expectations.

d. Scoring is necessarily subjective. Your goal is not to “score it perfectly” but rather, take a close look at the product, evaluate the product, and compare your ratings with those of your colleagues so that, as a team, you come to a rigorous conclusion about the product’s quality. So, your scoring doesn’t have to be “perfect” but, instead, informative.

4. **Summarize your assessment.** Once you’re done assigning ratings for each indicator, assign a score of -1 for each row (indicator) where the product does not meet expectations, 0 for meets expectations, and +1 for exceeds expectations. Enter those scores in the boxes on the far right, and sum them. A total score of less than 0 may indicate that the product isn’t built very well. In addition to the numerical scores, you may want to get a better sense of the product’s profile by connecting your rating X’s with lines and shading the area to the left of the connected line. This “jagged profile” can be a nice way to visualize where the product is strong, and where it’s weaker. See the (fictional) scoring sample provided at the end of this guide to get a sense of what that should look like.
5. **Talk about it!** Once your product assessment is done, use your results to inform conversations with colleagues and companies! Talk with other educators and leaders at your school or district about how they scored the product. You may even want to try sitting down and scoring a product at the same time in the same room. Scoring the product may raise questions for you that are worth asking a product provider - and this way you can be confident that your questions are grounded in proven research about how people learn. This can really take conversations with providers up to the next level!

Manageable Chunks

DEFINITION: LMS features highlight and prompt chunking, interleaving, and spacing content, so students can review previously learned concepts interspersed with other topics.

DESCRIPTION: LMS functionality encourages learning experiences to be segmented into meaningful chunks of work. This design supports students' effortful practice to improve learning, including spaced practice, interleaving, and active retrieval activities. This might also look like spiraling, if learning new content is threaded with old material as part of review activities.

PURPOSE: Germane cognitive load is an increased mental effort that can enhance learning. For example, interleaved practice (mixing up the types of problems used in a 10-item review session) may feel harder and is cognitively more taxing than blocked practice (practicing 10 items of the same type), yet research has shown that students are more likely to remember the material with interleaved retrieval practice. This type of cognitive load should be increased by the instructional design and balanced with the difficulty of the subject matter to consider the maximum capacity for a student's working memory and attention. (De Jong, 2010)

Absence: LMS does not facilitate or encourage revisiting previously learned content. There is no built-in functionality to encourage effectively chunking material, nor interleaving, spacing, or "spiraling" content.

Exemplar: LMS template facilitates chunking and interleaving through the default table of contents. Instructional episodes are presented as (at most) a few pages, and throughout the table of contents there are headers like "review past work" or "throwback lesson" to allow for spiraling of content. LMS includes reminders to "keep the content in manageable chunks" if a unit contains many long activities, or pages of long text and no other media.

Accurate & Variety

DEFINITION: LMS functionality helps teachers ensure that content is varied, accurate, and focused.

DESCRIPTION: The LMS should accommodate and prompt teachers to reflect on the lesson content - including examples, graphics, and assessments - to ensure they are accurate and do not include distracting or confusing information.

PURPOSE: Presenting information using relevant and accurate graphics as well as verbal elements can help reduce the overall extraneous cognitive load, increase the number of retrieval paths, and support deeper processing and encoding. Seductive detail is excluded from content. (Rey, 2012)

Absence: LMS does not easily allow a variety of examples, graphics, nor assessments. There are no prompts or tools to help teachers confirm the accuracy of content nor its alignment with learning objectives.

Exemplar: LMS provides many options for easily including examples, graphics, and assessments in each lesson. Where allowed, built-in tools (such as a self-reflection question or checklist) help teachers to ensure that content is accurate and aligned to learning objectives.

Pace and Place

DEFINITION: Opportunities and prompts facilitate students' ability to go through the content at their own pace and on their own path.

DESCRIPTION: LMS design helps students and educators understand where they are in the curriculum/lesson and allows them to control how they move through it to an appropriate degree. LMS features and prompts should offer students and teachers a clear sense of where they are within and across lessons (place) - this may also be known as "signposting." The design also enables students to (as appropriate) follow their interests by moving more quickly or slowly, or even skipping around, in order to control their engagement with content (pace), and easily return to where they left off previously in the lesson.

PURPOSE: Multimedia lessons should be user-paced and delivered in reasonably sized segments, so a student is not overwhelmed by too much content at once and can efficiently direct their attention while engaging with the material. (Clark & Mayer, 2016)

Absence: LMS templates feature a rigid number of pages per unit, no word limits, no suggestions to include multiple media types, and no way to bookmark or otherwise pause and return to a particular place in a lesson. Templates suggest or only allows linear progress through content.

Exemplar: LMS navigation includes easily accessible links back to an overview of the content, including bookmarks which can be set by students or teachers, along with topic and other interest tags for each lesson, so that a student can easily navigate across or between lessons intentionally and based on their own preferences. LMS makes suggestions to students about which topics to revisit and review based on assessment scores.

Content Alignment

DEFINITION: LMS interface presents aligned learning objectives and success criteria throughout a learning episode. It is easy for students to demonstrate what they have learned, and how it aligns with target learning objectives.

DESCRIPTION: LMS design supports clearly stated learning goals and objectives at the outset of a learning episode, as well as explanations of why this learning is relevant and important in the scope of a learning progression. A learning activity's success criteria should be clear and written in language that students understand. The LMS should remind students of the success criteria before they receive feedback. Ideally, there is also an opportunity for students to review and revise their work using the selection criteria before they submit it to others for feedback.

PURPOSE: Research has shown that reiterating learning goals during the lesson is beneficial, directing attention to key pieces of information (Sana et al., 2020). Clear success criteria are essential for informative learning experiences including feedback (Clarke, 2021). Additionally, self-awareness and self-management skills can be practiced through self-review, including consideration of learning objectives against work submitted (McMillan et al., 2017).

Absence: LMS templates do not support the clear inclusion of learning objectives or success criteria, nor students' use of these to demonstrate their learning. Learning objectives are rarely seen by students as they progress through instructional episodes.

Exemplar: LMS templates include functionality to feature learning objectives and success criteria throughout each lesson, and facilitate the inclusion of these in activities for students to demonstrate their learning. Learning objectives are front and center throughout instructional episodes.

Cultural Relevance

DEFINITION: LMS tools emphasize the importance of content being culturally relevant and reflecting a diverse set of student backgrounds and contexts without conveying stereotypes.

DESCRIPTION: The LMS should encourage and support teachers to reflect on lesson content - including examples, graphics, and assessments - to ensure they are relevant to students' interests and their lived experience, including their culture and community. Depictions of people should respect cultures and reflect diverse gender and racial/ethnic representation.

PURPOSE: Students are more likely to engage in the learning process when they feel motivated, and providing content that is meaningful and culturally relevant can increase motivation (Deci & Ryan, 1985; Ryan & Deci, 2000). Further, when students explicitly see how their learning is relevant to their interests and experiences (both in and outside of the learning environment) it fosters engagement in the learning process, which contributes to more motivated learning. (Bandura & Cervone, 1983; Ridley, 1992).

Absence: LMS does not prompt and support teachers to check that content, examples, graphics, and assessments are culturally relevant and reflect a diverse set of student backgrounds and contexts without conveying stereotypes. LMS does not provide user-friendly resources to support teachers checking for cultural relevance.

Exemplar: LMS displays prompts near content fields (especially examples, graphics, and assessments) or in rubrics that encourages checks for cultural relevance, including general diversity of examples, examples that are appropriate for a particular teacher's students, and absence of common cultural stereotypes. LMS provides resources to support teachers checking for cultural relevance that are easy to access and helpful.

Actionable Analytics

DEFINITION: Opportunities and prompts facilitate use of analytics to explore equity of access and performance within and across different groups of students..

DESCRIPTION: The LMS should help teachers use analytics to understand students' access and performance, individually and in groups, and reflect on whether or not performance metrics suggest that learners are being served equitably. Grouping options include stock as well as custom options not limited to race, gender, and performance trends.

PURPOSE: Data from formative assessments can illustrate where there are systematic gaps in learning for certain groups of students within a learning environment. In particular, attention to cultural relevance can produce formative assessments that yield more valid and reliable evidence of student learning and increase student engagement. (see for instance Gay, 2000)

Absence: LMS does not conveniently provide analytics in a way or at a level of detail that facilitates teachers' exploration of student access and performance, nor does it provide instructionally actionable next steps to support equitable access and performance.

Exemplar: LMS provides analytics about access and performance that helps teachers easily visualize and see patterns and trends across and within different groups of students so as to support instructionally actionable next steps for students.

Student Choice

DEFINITION: LMS design supports student choice throughout their learning, including prompts for teachers, navigational elements, topic and interest tags, and other features that help students direct their own learning.

DESCRIPTION: The LMS should encourage and facilitate students' feelings of ownership in the learning space. For example, it should allow students (and encourage teachers to help students) to make choices about topics and learning pathways.

PURPOSE: Self-determination theory, widely recognized as an important factor in the development of intrinsic motivation, is facilitated through feelings of autonomy (feeling supported to take charge of challenges), competence (being challenged and receiving prompt feedback), and relatedness (a feeling of connectedness to the challenge). Autonomy over learning improves student curiosity, desire for challenge, and sustained motivation (Ryan & Deci, 2002; Schwartz, et al., 2016).

Absence: LMS does not allow student choice about topics, learning pathways, or demonstration of their learning. The LMS only allows linear progress through content and static (non-adaptive) assessments.

Exemplar: By default, the LMS features include navigational elements, topic and interest tags, and other options to help students easily steer their learning journey. For example, features can offer learners the option to revisit topics that they struggled with, or that were especially interesting to them.

Student Voice

DEFINITION: LMS design encourages student input into their learning goals as appropriate.

DESCRIPTION: The LMS design supports student-directed learning by prompting student to draft their own learning goals aligned with stated learning objectives, and feeling comfortable being their whole, authentic selves throughout learning experiences.

PURPOSE: Every student must feel as though they have control of their progress and learning. They should be aware of when the lesson will begin and end. Knowing the task that needs to be done, the amount that they have completed, and the amount they have left increases feelings of autonomy. (Ryan & Deci, 2002; Gay, 2000)

Absence: LMS does not allow for any student input or documentation of their learning goals.

Exemplar: LMS supports student input in their learning goals, integration of those goals into learning activities, and advancement towards those goals as they demonstrate mastery of each lesson's learning objectives.

Elaboration Practice

DEFINITION: LMS design and prompts support using elaboration and self-reflection activities as formative assessments.

DESCRIPTION: The LMS should encourage teachers to promote elaboration (including concept mapping) and self-reflection by learners in regular (formative) assessment activities through prompts or built-in functionality. Elaboration and reflective activities help students deepen their understanding about their own learning.

PURPOSE: Elaboration practice - connecting new information to prior knowledge - is essential to deeper learning. When students explicitly see how much they know, and how it fits into their larger learning goals, they develop a sense of self-efficacy and autonomy over their learning. (Schwartz et al., 2016)

Absence: LMS does not easily allow for elaboration and self-reflection within a lesson, including through formative assessment activities. LMS does not present appropriate default options for such activities.

Exemplar: LMS default templates include prompts to include elaboration and self-reflection activities throughout each lesson, and facilitates the use of these as formative assessments by the teacher. LMS offers easy, helpful elaboration activity templates.

Whole Learner

DEFINITION: LMS functionality supports teachers understanding the “whole child,” i.e. students as people with multiple interests and needs.

DESCRIPTION: The LMS should encourage and support teachers’ learning about each student as a whole human being, including their physical and mental health, and their social-emotional, cognitive, academic, and identity development. Such data should be used in ways that abide by student data privacy laws that the LMS make accessible to teachers. Understanding student background, culture, and interests can help teachers ensure that lesson content is inclusive of and relevant to all students.

PURPOSE: Connecting school-based learning with students’ real lives creates a more impactful and inclusive educational experience. When students explicitly see how their learning is relevant to their interests and experiences (both in and outside of the learning environment) it fosters engagement in the learning process, which contributes to more motivated learning. (Bandura & Cervone, 1983; Ridley, 1992).

Absence: LMS does not provide easy access to instructionally relevant information about students’ physical, academic, and nonacademic health and development, or their culture, background, and interests. LMS does not prompt the teacher to collect and use this information as necessary and also within the bounds of applicable student data privacy laws and policies, which can be referenced through the LMS.

Exemplar: LMS templates allow for easy access to instructionally relevant information about students’ physical, academic, and nonacademic health and development, as appropriate. LMS templates include, by default, features like an emotional checkin to begin each student’s session, discussion activities (e.g. “introduce yourself” or “getting to know you” activity), or collaborative spaces to help students share about their own culture, background, and interests.

Student Belongingness

DEFINITION: Opportunities and prompts support spaces and means for teachers and students to develop a sense of belongingness with each other, the learning space, and the content by sharing about themselves.

DESCRIPTION: The LMS should include and encourage the use of spaces and means for teachers and students to share about themselves (e.g., customizable avatars/images/etc, and screen names), to understand their role within the learning environment, and to explore the value each person brings to the learning environment in order to develop a feeling of belonging. The LMS provides a place for teachers to discover and document their students' backgrounds, cultures, and lived experiences.

PURPOSE: When students feel a sense of belongingness and acceptance in learning environments, it leads to more motivated learning (Deans for Impact, 2015; Yeager et al, 2013).

Absence: LMS does not offer features (e.g. avatars) or functionality (e.g. engaging spaces like user-friendly discussion boards) to help students and teachers express themselves and feel like they belong in a learning community.

Exemplar: By default, LMS templates include engagement spaces (e.g. friendly discussion boards), features (e.g. avatars and screen names), and other means for students and teachers to share about and be themselves. These mechanisms help each person better understand their role and place within the learning experience and develop a sense that they belong.

Flexible Communication

DEFINITION: Opportunities and prompts support relationship building through communication mechanisms.

DESCRIPTION: The LMS should have built in mechanisms for building the relationship between teachers and students, including feedback mechanisms, as well as communication templates and prompts (e.g., "It's been a week since your student(s) have heard from you, send a message to let them know how they are doing in this class").

PURPOSE: Good communication (including about performance) is essential to belongingness, agency, and organization. When students feel a sense of belongingness and agency in learning environments, it leads to more motivated learning (Deans for Impact, 2015; Yeager et al., 2013).

Absence: LMS only allows limited, one way, general communications from teachers to students and does not allow students to interact with each other at all.

Exemplar: The LMS offers many features for building the relationship between teachers and students as well as among students including "shout outs", "likes", or "stars" for a learning achievement or activity, and/or a variety of communication templates and types.

Effective Feedback

DEFINITION: Opportunities and prompts support actionable, safe, timely, constructive feedback, from teacher to student and from student to student.

DESCRIPTION: The LMS should facilitate a safe space for feedback, encourage feedback that conveys both high expectations and the teacher’s belief that the student can meet those expectations, and enable feedback, regardless of medium or format, to be provided to students as immediately as possible and with the fewest clicks possible. Likewise, it should be obvious and seamless to students when feedback is available to them and how to access it.

PURPOSE: A cycle of feedback provides students with opportunities to correct their mistakes and achieve the confirmation and satisfaction of getting the correct answer, which builds their sense of competence and intrinsic motivation to learn (Ryan & Deci, 2002). Additionally, providing “wise” feedback within an Identity-Safe learning environment can combat stereotype threat. (Hammond, 2014; Yeager et al., 2014)

Absence: LMS supports only very limited feedback. Feedback templates are static, not customizable, or are solely quizzes with numerical grades.

Exemplar: LMS contains multiple mechanisms and formats for providing and receiving feedback that is timely, relevant, permanent, and multi-directional, including fields and prompts that encourage teachers to include opportunities for self- and peer-feedback that is explicitly tied to learning objectives and success criteria.

References

- Bandura, A., & Cervone, D. (1983). Self-evaluative and self-efficacy mechanisms governing the motivational effects of goal systems. *Journal of Personality and Social Psychology, 45*(5), 1017-1028.
- Clark, R. & Mayer, R. (2016). *E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning* (4th ed.). Wiley.
- Clarke, S. (2021). *Unlocking learning intentions and success criteria: Shifting from product to process across the disciplines*. Corwin.
- De Jong, T. (2010). Cognitive load theory, educational research, and instructional design: some food for thought. *Instructional Science, 38*(2), 105-134.
- Deans for Impact (2015). *The science of learning*. Deans for Impact. <https://deansforimpact.org/resources/the-science-of-learning/>
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. Plenum.
- Gay, G. (2000). *Culturally responsive teaching: Theory, research, and practice*. Teachers College Press.
- Hammond, Z. (2014). *Culturally responsive teaching and the brain: Promoting authentic engagement and rigor among culturally and linguistically diverse students*. Corwin.
- McMillan, J. H., Andrade, H.L., & Heritage, M. (2017). *Using formative assessment to enhance learning, achievement, and academic self-regulation*. Routledge.
- Rey, G. D. (2012). A review of research and meta-analysis of the seductive detail effect. *Educational Research Review, 7*(3), 216-237.
- Ridley, D. S. (1992). Self-regulated learning: The interactive influence of metacognitive awareness and goal-setting. *Journal of Experimental Education, 60*(4), 293-306.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), 68-78.
- Ryan, R. M., & Deci, E. L. (2002). Overview of self-determination theory: An organismic-dialectical perspective. In E. L. Deci & R. M. Ryan (Eds.), *Handbook of self-determination research* (pp. 3-33). University of Rochester Press.
- Sana, F., Forrin, N. D., Sharma, M., Dubljevic, T., Ho, P., Jalil, E., & Kim, J.A. (2020). Optimizing the efficacy of learning objectives through pretests. *CBE—Life Sciences Education, 19*(3).














References

Schwartz, D. L., Tsang, J. M., & Blair, K. P. (2016). *The ABCs of how we learn: 26 scientifically proven approaches, how they work, and when to use them*. W W Norton & Co.

Yeager, D., Walton, G., & Cohen, G. (2013). Addressing achievement gaps with psychological interventions. *Phi Delta Kappan*, 94, 62-65.

Yeager, D. S., Purdie-Vaughns, V., Garcia, J., Apfel, N., Brzustoski, P., Master, A., Hesse, W. T., Williams, M. E., & Cohen, G. L. (2014). Breaking the cycle of mistrust: wise interventions to provide critical feedback across the racial divide. *Journal of Experimental Psychology: General*, 143(2), 804-824.

Label	Definition	Rating	Score
Manageable Chunks	LMS features highlight and prompt chunking, interleaving, and spacing content, so students can review previously learned concepts interspersed with other topics.		
Pace and Place	Opportunities and prompts facilitate students' ability to go through the content at their own pace and on their own path.		
Content Alignment	LMS interface presents aligned learning objectives and success criteria throughout a learning episode. It is easy for students to demonstrate what they have learned, and how it aligns with target learning objectives.		
Accurate & Variety	LMS functionality helps teachers ensure that content is varied, accurate, and focused.		
Cultural Relevance	LMS tools emphasize the importance of content being culturally relevant and reflecting a diverse set of student backgrounds and contexts without conveying stereotypes.		
Actionable Analytics	Opportunities and prompts facilitate use of analytics to explore equity of access and performance within and across different groups of students.		
Student Choice	LMS design supports student choice throughout their learning, including prompts for teachers, navigational elements, topic and interest tags, and other features that help students direct their own learning.		
Student Voice	LMS design encourages student input into their learning goals as appropriate.		
Elaboration Practice	LMS design and prompts support using elaboration and self-reflection activities as formative assessments.		
Whole Learner	LMS functionality supports teachers understanding the "whole child," i.e. students as people with multiple interests and needs.		
Student Belongingness	Opportunities and prompts support spaces and means for teachers and students to develop a sense of belongingness with each other, the learning space, and the content by sharing about themselves.		
Flexible Communication	Opportunities and prompts support relationship building through communication mechanisms.		
Effective Feedback	Opportunities and prompts support actionable, safe, timely, constructive feedback, from teacher to student and from student to student.		

Label	Definition	Rating	Score
Manageable Chunks	LMS features highlight and prompt chunking, interleaving, and spacing content, so students can review previously learned concepts interspersed with other topics.		-1
Pace and Place	Opportunities and prompts facilitate students' ability to go through the content at their own pace and on their own path.		0
Content Alignment	LMS interface presents aligned learning objectives and success criteria throughout a learning episode. It is easy for students to demonstrate what they have learned, and how it aligns with target learning objectives.		0
Accurate & Variety	LMS functionality helps teachers ensure that content is varied, accurate, and focused.		-1
Cultural Relevance	LMS tools emphasize the importance of content being culturally relevant and reflecting a diverse set of student backgrounds and contexts without conveying stereotypes.		1
Actionable Analytics	Opportunities and prompts facilitate use of analytics to explore equity of access and performance within and across different groups of students.		1
Student Choice	LMS design supports student choice throughout their learning, including prompts for teachers, navigational elements, topic and interest tags, and other features that help students direct their own learning.		0
Student Voice	LMS design encourages student input into their learning goals as appropriate.		1
Elaboration Practice	LMS design and prompts support using elaboration and self-reflection activities as formative assessments.		1
Whole Learner	LMS functionality supports teachers understanding the "whole child," i.e. students as people with multiple interests and needs.		-1
Student Belongingness	Opportunities and prompts support spaces and means for teachers and students to develop a sense of belongingness with each other, the learning space, and the content by sharing about themselves.		0
Flexible Communication	Opportunities and prompts support relationship building through communication mechanisms.		-1
Effective Feedback	Opportunities and prompts support actionable, safe, timely, constructive feedback, from teacher to student and from student to student.		1