Enhancing Executive Function in Asynchronous Online Courses

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asynchronous online learning
executive function
Instructional Design
Learner feedback
Universal Design For Learning

Although asynchronous online courses offer enhanced flexibility and accessibility, they require planning, organization, time management, and self-regulation skills that challenge many learners. This chapter explores how intentional course design and evidence-based strategies can support executive function to facilitate learner success in asynchronous online learning environments. Grounded in Universal Design for Learning (UDL) principles, the chapter highlights practical methods, including digital planning tools, scaffolded assignments, self-reflective prompts, metacognitive exercises, targeted coaching, and inclusive multimodal instructional materials. Using concrete examples from Arizona State University's (ASU) Learning Design and Technology (LDT) graduate and undergraduate programs, the authors illustrate how structured course designs, effective project management strategies, clear communication, and responsive feedback systems enhance learner engagement, reduce cognitive load, and support executive function (EF) skills. The chapter also discusses the integration of Artificial Intelligence (AI) Mentors that offer

immediate, personalized support to bridge the gaps inherent in asynchronous settings. Importantly, ongoing refinement informed by learner feedback ensures that EF support remains responsive and effective. This holistic approach empowers educators and instructional designers to create humanistic online learning environments that support all learners in developing EF skills essential for academic achievement and lifelong learning.

Enhancing Executive Function in Asynchronous Online Courses

Maya, a newly admitted graduate learner, has been trying to find her rhythm, juggling a full-time job and being a mom to two kids. Diagnosed with ADHD in her teens, throughout high school and her undergraduate program, Maya found it very difficult to manage deadlines and stay on top of assignments. In addition to her existing responsibilities, she has decided to make a career change and pursue her master's degree in learning design and technology online, drawn to the program's flexible nature. However, being able to manage her time and stay on track were critical components of Maya's potential success. Fortunately, her first course was intentionally designed with scaffolded weekly modules, clearly articulated goals, and built-in reminders for upcoming assignments. Digital planning tools were integrated within the learning management system, allowing her to visualize deadlines and track her progress. Each module also included short reflective check-ins that prompted Maya to evaluate her progress and plan her next steps. These design features helped her to feel less overwhelmed and more in control of her learning. For the first time in her academic career, she submitted her assignments on time and felt more confident in her ability to manage her workload.

What changed was not Maya's motivation but how the course distributed the work of planning and follow-through. That work lives under the umbrella of executive function (EF). Executive function refers to higher-order processes that manage thoughts and actions toward goals, including planning, organization, working memory, cognitive flexibility, time management, self-monitoring, and emotion regulation (Diamond, 2013). Although asynchronous online learning offers tremendous flexibility and accessibility, it also requires a significant amount of EF from learners to be successful. EF encompasses a set of cognitive processes—including planning, organization, time management, self-monitoring, and emotional regulation—that are essential for academic success (Emmers et al., 2017a; Navayuth & Yurayat, 2022). Without the structure of synchronous class meetings, learners must independently exercise EF skills, which can pose a significant challenge, particularly for learners with EF difficulties. These challenges are especially pronounced for neurodiverse learners, including those with ADHD or autism, who may experience struggles in planning, organization, and cognitive flexibility (Emmers et al., 2017a). In the sections that follow, we examine how asynchronous course design can support EF and present concrete design strategies to better support learners like Maya.

Chapter Goals

This chapter examines how EF challenges can impact learner engagement and academic progress in asynchronous online courses, as well as how these challenges can be mitigated. Drawing on empirical research, we synthesize research-based strategies, course design principles, and project management approaches that support EF, grounded in the Universal Design for Learning 3.0 (UDL) framework (CAST, 2024). We provide practical examples that highlight how specific design choices and research-based strategies can be implemented to support all learners. Our chapter examines how these practices can improve and support learners' EF. We begin by discussing strategies to enhance EF, including the use of digital planning tools, scaffolded assignments, self-reflective prompts, and metacognitive exercises. Next, we examine how design can improve project management by integrating structured projects and instructional support to facilitate task management, time planning, and collaboration (Barz et al., 2024; James et al., 2020). We then turn to strategies that can enhance communication and collaboration within courses. Through practical examples from ASU's LDT online master's degree program in Learning Design and Technology (LDT) as well as our undergraduate concentration in LDT, our chapter illustrates how structured, inclusive course design elements can help foster metacognitive awareness and promote academic success. For reference, we have included course numbers and titles used as examples throughout this chapter. Courses at the 500 level are graduate, while those below the 500 level are undergraduate:

- LDT 301 Foundations of Instructional Design
- LDT 320: Digital Learning Theories
- LDT 484 Internship
- LDT 501 Foundations of Learning Design and Technology
- LDT 502 Design and Development of Instruction
- LDT 506 Evaluation of Learning Systems
- LDT 508 Design of Accessible and Inclusive Digital Learning
- LDT 523: Issues in Online and Distance Education
- LDT 593: Applied Project
- EDP 540: Learning Theories and Instructional Strategies

We aim to provide actionable guidance for educators and instructional designers tasked with creating productive and humanistic online learning environments that are not only accessible but also supportive of all learners. This chapter provides guidance in the following sections:

1. Research-based strategies to enhance EF,
2. Structure as a cognitive scaffold and designing online courses to support EF,
3. Project Management,
4. Communication and Collaborative Facilitation Strategies,
5. Assessment and Feedback Methods, and
6. Strengthening EF Supports through Learner-Informed Refinements Research-Based Strategies to Enhance EF

Research-Based Strategies to Enhance EF

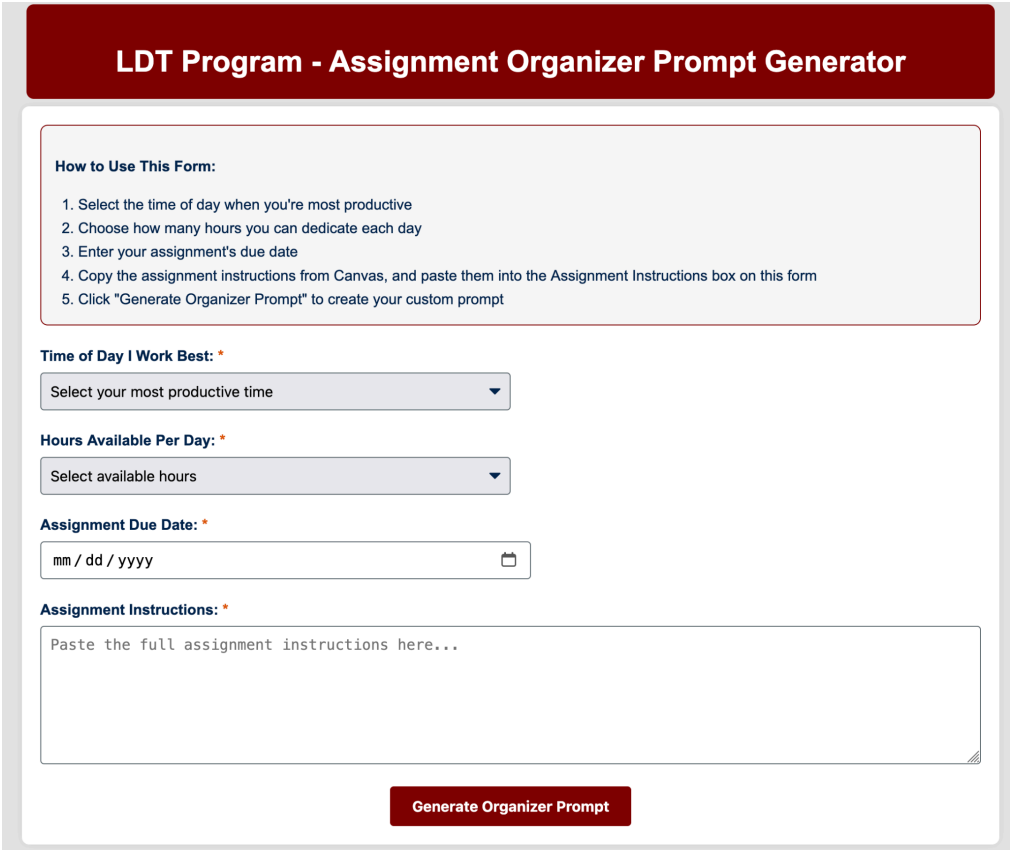
Asynchronous online learning environments often present unique challenges for learners with EF difficulties. These challenges are often magnified in self-paced, less structured learning environments where learners must independently manage their time, track assignments, and sustain motivation without the benefit of in-person cues and support available in traditional classrooms. While learners with attention-deficit/hyperactivity disorder (ADHD) and or autism may be particularly affected, EF deficits impact a wide range of learners. Implementing research-based strategies in course design and facilitation can help support all learners in navigating these demands more effectively. This section synthesizes four complementary strategy areas that the remainder of the chapter develops in detail.

Planning and Time Management: Digital Tools and Scaffolded Assignments

Externalizing complex work into visible steps using calendars, checklists, milestone deadlines, and staged drafts supports task initiation, organization, and sustained effort in asynchronous settings. One effective strategy to support EF is the use of digital planning tools in combination with scaffolded assignments. These supports help learners break large tasks into manageable chunks and can improve their ability to organize their academic work. Such deficits are linked to academic difficulties, especially for learners with ADHD (Emmers et al., 2017a; Navayuth & Yurayat, 2022). In a comprehensive literature review, Emmers et al. (2017a) found that learners with ADHD often struggle to maintain attention, organize information, and initiate tasks, which could lead to poor academic performance. To address these areas, programs can provide structured support through tools such as course calendars, checklists, and interim assignment deadlines, utilizing scaffolded assignments that build up to more complex tasks in a gradual manner, allowing learners to receive feedback at each stage.

The ASU Learning, Design, and Technology (LDT) online master's program prepares its learners to create inclusive, research-informed, technology-enhanced learning experiences across diverse contexts. One specific example in the LDT program is our development of a digital planning tool, called the "LDT Program Assignment Organizer Prompt Generator" (Figure 1). This tool prompts learners to select the time of day when they are most productive, indicate how many hours they can dedicate each day, enter the assignment's due date, and the assignment instructions from Canvas. Learners then click on "Generate Organizer Prompt" to create a custom prompt that they can enter into ChatGPT, which will generate for them a custom daily plan for completing the assignment based on their specifications.

Figure 1
LDT Program Assignment Organizer Prompt Generator



In addition to helping learners utilize digital tools designed to break down complex tasks into smaller, more manageable parts, instructional designers, together with faculty, can also incorporate these aspects into course assignments. Navayuth and Yurayat (2022) emphasize that planning and organizing can be supported through intentional instructional design. This approach is used throughout the LDT program, where learners work on smaller assignments that build together to create a larger design program due at the end of a particular course. For example, in LDT 502 Design and Development of Instruction, learners complete the Content and Task Analysis assignment, which then builds to their Detailed Design Document (DDD), an assignment that provides a roadmap for developing instruction. The key function of the DDD is to provide an organizing structure that helps the planning process stay on track. Finally, at the end of the course, learners create a mock-up of the instructional program using their DDD as a foundation and provide a refined and completed version of the instructional module. By structuring the planning process and guiding learners through each step, instructors can promote task initiation and completion through intentional design. These findings motivate the structural use of visible milestones and consistent module patterns discussed in the next section on course architecture.

Metacognitive Self-Reflection and Monitoring

Brief, regular self-reflection prompts build metacognitive awareness and self-monitoring which are core processes for planning, adjusting strategies, and persisting through asynchronous work. Metacognitive strategies, such as self–reflective prompts and structured opportunities for learners to evaluate their own thinking, are powerful tools for enhancing EF. These strategies promote self-awareness and the ability to monitor and adjust learning behaviors – key components of self-regulated learning. Navayuth and Yurayat (2022) found that self-awareness is strongly correlated with EF in undergraduate learners. Their findings suggest that improving learners' self-reflective abilities can significantly enhance learners' EF and academic performance.

In asynchronous courses, self-reflection can be embedded through brief metacognitive prompts at the end of each module or assignment. For example, prompts might ask , "What strategy helped you the most this week?" or "What would you do differently next time?" Encouraging learners to reflect on their learning processes helps them become more intentional and adaptive in their approach. Navayuth and Yurayat (2022) advocate for instructional interventions that explicitly promote self-awareness as a means to develop EF. Regular engagement with these reflective activities cultivates learners' ability to monitor their progress, set goals, and modify ineffective strategies, ultimately leading to improved academic outcomes and greater independence. This metacognitive thread is reinforced by the feedback and assessment practices outlined later in the chapter.

Targeted Coaching and Mentoring

Light-touch, ongoing coaching helps learners plan, prioritize, manage time, and regulate emotions, areas commonly implicated in EF challenges that impede task completion in online courses. Coaching and mentoring offer personalized, ongoing support that can help learners with time management, organization, emotional regulation, and metacognitive awareness. Emmers et al. (2017a) noted that learners with ADHD frequently experience difficulty in these areas, which can significantly impact task completion and performance; coaching is among the most commonly recommended supports in higher education. Over time, coaching relationships can reduce academic anxiety, increase confidence, and support metacognitive growth as learners reflect on strategies that work and adapt their approaches accordingly.

The LDT program is fortunate to have academic success coaches who, in addition to instructors, provide this type of support. They check in with learners on an ongoing basis, connect them with resources as needed, and provide assistance with goal setting and attainment, as well as help with stress and time management. Instructors should also recognize the value of coaching and create opportunities for individualized guidance within their courses.

Coaching and mentoring not only bolster performance in specific classes but also help learners stay on track across the program. These interventions are beneficial for learners with ADHD as well as the broader population of learners who struggle with EF. Coaching may include weekly planning sessions, the development of personalized organizational systems, or the

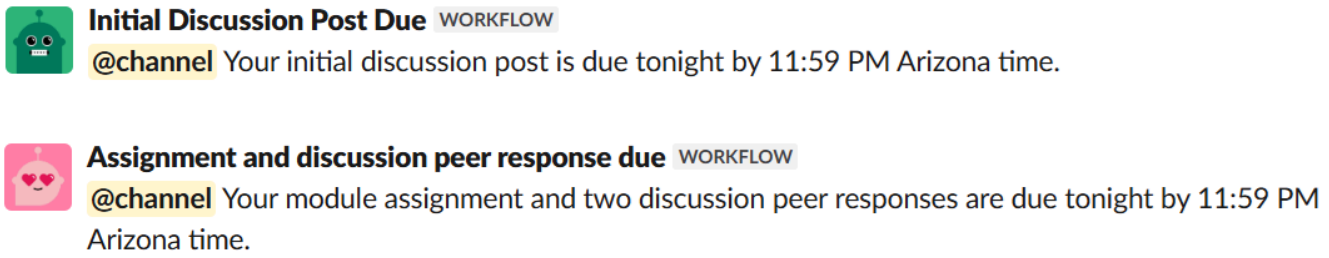
practice of emotional regulation strategies to manage academic stress effectively. Emmers et al. (2017a) included coaching among the most commonly recommended supports for college learners, particularly those with ADHD. Coaching complements course-level scaffolds by helping learners translate general strategies into personalized routines; the next section shows how course architecture makes these routines visible by default.

Inclusive Design Strategy Guided by Universal Design for Learning

Proactive UDL-aligned choices, multiple means of engagement, representation, and action/expression, reduce EF load by clarifying pathways, offering options, and minimizing extraneous processing in asynchronous courses. Applying the UDL framework is a proactive strategy that supports EF by offering flexible, accessible, and inclusive course design. UDL is grounded in the principles of providing multiple means of engagement, representation, and action and expression (CAST, 2024). This approach recognizes that learners vary widely in terms of how they access information, stay motivated, and express what they know, and that such variability includes differences and EF. UDL encourages instructors to present content in diverse formats, such as text, audio, video, and visual diagrams. It also provides learners with multiple ways to demonstrate their learning, such as written expressions (essays), multimedia presentations, and/or video. These options support learners in choosing the tools and formats that align with their strengths, reducing cognitive barriers.

Stefaniak et al. (2024) emphasize that UDL values every learner and explicitly addresses barriers created by instructional design. Wells (2024) similarly notes that UDL strategies enhance access and success for learners who struggle with EF by incorporating supports that address motivation, organization, and working memory. In practice, UDL-based supports in asynchronous courses might include visual course maps, assignment checklists, Slack automated reminders (Figure 2), and the integration of assistive technologies as needed. As CAST (2024) notes, minimizing complexity and offering choices not only support diverse learning needs but also foster independence and persistence for all learners. UDL's emphasis on clarity and choice aligns with the consistent navigation and layered scaffolds described in the following section on course structure.

Figure 2
Automated Reminders in Slack



Learner Feedback on Overall Strategies to Enhance EF

Across multiple courses in the LDT program, learners consistently reported that clear structure, explicit scaffolds, and predictable workflows enhanced their planning, self-monitoring, and emotional regulation. Learners described weekly modules, templates, and step-wise tutorials as instrumental in staying organized and sustaining effort, noting that these elements 'helped [them] stay on track and monitor progress.' Feedback from courses such as EDP 540 and LDT 508 highlighted that proactive design structures not only reduced cognitive load but also strengthened learners' confidence in managing complex tasks.

Together, these research-based strategies are most effective when situated within a coherent, predictable course architecture that reduces cognitive load and externalizes steps and timelines; the next section examines structure as a cognitive scaffold in asynchronous learning.

Structure as a Cognitive Scaffold: Designing Online Courses to Support EF

The following section explores how structural elements within digital learning environments, particularly Learning Management Systems, can be intentionally designed to reduce cognitive load, promote organization, and serve as an external framework to help all learners with the completion of complex learning tasks. An underlying premise in learning design is that structure and consistency serve cognition. Nowhere is this more evident than in asynchronous online courses, where the course architecture itself can serve as a scaffold for EF. Research indicates that well-structured online courses are characterized by clear navigation, organized content, and multimodal instructional materials designed to promote enhanced learner engagement and reduce cognitive load (Martin & Bolliger, 2018; Sweller, 1988). Learners enrolled in asynchronous online programs often navigate complex personal schedules that include family responsibilities and diverse work contexts. Additionally, many learners may face challenges with attention regulation and task persistence, making well-structured asynchronous courses essential (CAST, 2024).

Learning Management Systems and the Encapsulation of Learning Design Principles

As the relationship between learning design and technology has become increasingly intertwined over the past two decades, many of the structural principles that support EF have been integrated into the architecture of modern Learning Management Systems (LMSs). The Course → Module → Page framework commonly found in platforms like Canvas, Moodle, Blackboard, and Brightspace is aligned with core instructional design tenets, including content chunking, progressive disclosure of information, and alignment of learning activities with objectives.

This hierarchical layout is not arbitrary; it reflects decades of research on schema theory, self-regulation, cognitive load theory, and constructivist learning environments, which collectively emphasize the importance of breaking complex tasks into manageable components and providing clear signposts for navigation (Clark & Mayer, 2016; Zimmerman, 2002). When used effectively, the organizing structure imposed by an LMS can offer cues that help learners plan, monitor, and complete tasks more efficiently. For learners with EF difficulties, such as ADHD or anxiety, this built-in organization can be the difference between staying engaged and becoming overwhelmed.

These structural design elements have become fairly common and tend to include modules or units that feature a repeated structure or series of “pages, ” such as Overview → Readings → Lecture → Activities → Assignment designed to provide a consistent pattern that encourages cycles of productivity. To further reduce ambiguity within this consistent structure, pages and activities should be clearly and descriptively labeled. While other elements, such as collapsible menus, accordions, or tabs, can be used as an additional organizational structure, the efficacy of these methods is often dependent on the individual LMS and how that specific system manages these elements. Finally, offering calendars that list due dates and other visual indicators of progress can help learners plan ahead and track progress in the course. These design decisions minimize what Sweller (1988) referred to as extraneous cognitive load, which is defined as the mental effort spent dealing with the delivery of content rather than the content itself.

Structured Scaffolds and Layered Design Strategies

The built-in structural elements provided by an LMS can be thought of as the foundation and framing of a house, offering robust structural support, a somewhat predictable environment, and a means for navigating within the structure. By themselves, however, the structural elements of an LMS do not enable deep learning. Learning designers and faculty must make additional, purposeful design decisions to make asynchronous courses functional, welcoming, equitable, and effective. While the physical structure of courses becomes increasingly standardized and consistent across LMS platforms, purposeful "layered" design decisions require intentional instructional judgment.

Layered design strategies are not automatically embedded in courses; rather, they are contextually dependent and must be strategically managed and deployed. These layers are designed to help learners, particularly those with EF challenges, organize their thinking, manage tasks, and build confidence as they move through course requirements. Although seemingly simple, layered design strategies that include clear, step-by-step instructions, illustrative examples, supportive rubrics, and transparent expectations are too often underutilized. Emmers et al. (2017a) found that university learners with ADHD significantly benefit from such support, particularly when it reduces ambiguity and offers predictable, scaffolded pathways toward task completion.

The LDT graduate and undergraduate programs are practitioner-focused, and designed to emulate the conditions that emerging learning designers will encounter in their professional practice. During each course, learners must initiate academic tasks, interpret complex instructions, and organize deliverables, which are all core EFs. These are skills that learners with ADHD and related difficulties often find difficult to access without external support. In asynchronous environments, where guidance is often text-based and delayed, the absence of clarity and structure can result in disengagement, procrastination, and underperformance (Reddy & Andrade, 2010; Zimmerman, 2002).

While explicit instructions, detailed examples, and comprehensive rubrics are valuable in clarifying expectations, they are inherently static and not always self-explanatory. Even well-designed instructions can fall short if learners do not know how to interpret them.

Elevating EF Support with AI Mentors

To better address shortcomings in design and structural elements that are a by-product of the asynchronous environment, the LDT graduate program has integrated learner-facing AI Mentors (Figure 3) . Each of the six AI Mentors is contextually situated, and they "know" the structure of the course, understand the assignment expectations, are familiar with relevant rubrics, and can provide examples aligned with program norms. They are trained to respond in a supportive, non-evaluative tone, guiding learners through planning, task breakdown, and self-monitoring. Mentors can help learners interpret instructions, clarify criteria, identify next steps, and manage their time. Their design is grounded in principles of cognitive apprenticeship and EF support, serving as just-in-time learning partners that extend instructor intent into moments of learner uncertainty.

Figure 3.
AI Mentor Personas

Mentors

If your last name begins with an A, B, C, or D.



Samantha Rodriguez

If your last name begins with an E, F, G, H.



Mark Wilson

If your last name begins with an I, J, K, L.



Emily Chen

If your last name begins with a M, N, O, P.



Jasmine Patel

If your last name begins with a Q, R, S, T.



Michael Thompson

If your last name begins with a U, V, W, X, Y, Z.



Amanda Nguyen

In traditional asynchronous courses, delayed responses to questions can allow anxiety, uncertainty, and cognitive load to accumulate, potentially stalling learner progress. For learners with EF challenges, even minor delays can trigger disengagement and paralysis. The AI mentors can help bridge this gap by serving as real-time, conversational partners who make instructional supports immediately accessible. Rather than replacing the instructor, they extend and activate existing scaffolds built into each course by turning static materials into interactive guidance at the moment it is needed most.

Imagine a learner encountering a rubric that lists “alignment between learning outcomes and activities” as a grading criterion; for some learners, this language may be opaque. With an AI mentor in place, the learner can ask, “What does this criterion mean?” and receive an instant, personalized explanation. They might follow up with, “Can you show me an example?” or “How do I know if my assignment does this well?” These kinds of exchanges with mentors — casual, targeted, and immediate — are difficult to facilitate at scale using human-only support, especially in an environment where learners are geographically distributed across the world. Yet they are precisely the kinds of moments that help learners re-engage, clarify next steps, and persist through tasks they might otherwise abandon.

In this way, AI mentors function as on-demand coaches for these skills. They help learners break down large assignments into manageable components, generate timelines based on personal schedules, reframe confusing instructions, and prompt self-monitoring and self-regulatory behaviors, all without waiting for an email reply or navigating the cognitive friction of self-advocacy. For learners who struggle to organize, initiate, or follow through on complex academic work, this immediacy can be transformative.

Ethics and Use of the AI Mentor

The LDT program's AI Mentors operate within Arizona State University's secure OpenAI environment, a protected instance that ensures learner interactions remain confidential and are not used for model training purposes. All conversations between learners and AI Mentors are governed by ASU's data privacy policies and FERPA compliance standards. AI Mentors are carefully designed with bias guardrails to ensure equitable support for all learners. Each mentor undergoes iterative testing to identify and mitigate potential biases related to language use, cultural assumptions, and learning preferences. Instructors regularly review mentor interactions to ensure that responses align with the program's values of inclusivity and accessibility. Additionally, mentors are trained to recognize when a question exceeds their scope and to redirect learners to human support, such as instructors, the MLFC Coordinated Care Team, or accessibility services, when appropriate.

At the beginning of each course, learners receive explicit disclosure about the AI Mentors' capabilities, limitations, and appropriate use cases in the Getting Started module of their Canvas course. This disclosure includes:

- Clear identification of AI Mentors as automated tools, not human instructors
- Explanation of what AI Mentors can and cannot do, for example, they can clarify assignments but cannot grade work or make exceptions to policies
- Guidance on when to contact human instructors instead of relying on AI support
- Information about data privacy and how interactions are used or not used for training
- Acknowledgment that AI-generated responses may occasionally contain errors and should be critically evaluated

Importantly, AI Mentors complement rather than replace human instruction and support. They serve as a bridge to human interaction by helping learners formulate better questions, gain initial clarity, and build confidence before reaching out to instructors, which ultimately improves their professional communication skills and helps strengthen the instructor-learner relationship.

Learner Feedback on AI Mentors

Across several courses, learners highlighted that AI mentors substantially supported EF-related processes such as planning, idea generation, and clarifying next steps. In LDT 501 and LDT 506, learners described using AI mentors to break assignments into manageable components, troubleshoot uncertainties, and refine early drafts. These supports appeared to reduce cognitive load during unfamiliar tasks, enabling learners to maintain momentum and regulate frustration as they developed new technical or design skills.

Designing for Support, Equity, and Momentum

Designing asynchronous online courses with EF in mind requires more than sound content; it requires intentionality at every level of course structure and learning design. Learning Management Systems provide a solid architectural base, but layered design decisions, such as clear instructions, well-constructed rubrics, and meaningful examples, transform that structure into a supportive learning environment. By integrating AI mentors as real-time, responsive partners, the LDT program has taken an additional step toward eliminating the communication delays that often derail learner momentum, a key element in promoting EF. Together, these elements function as a cohesive support system, reducing ambiguity and providing a clear path forward that empowers learners, especially those with challenges, to stay organized, engaged, and on track. With this framing in mind, the following section shifts from why support, equity, and momentum are essential to how they can be operationalized within any LMS platform.

Structure as a Cognitive Scaffold: Platform-Agnostic Implementation

- Use the native course hierarchy (Course → Module → Page) to present a repeated weekly/module pattern, such as Overview → Materials → Activities → Assessment
- Apply parallel, descriptive page titles, and surface timelines via the LMS calendar and visible checklists/progress indicators.
- If your LMS lacks a feature, pair it with approved tools that provide the same scaffold:
  - task boards and milestones (Microsoft Teams/Planner, Trello, Asana, ClickUp, or LMS-native checklists),
  - shared calendars (Outlook/Exchange or Google Calendar and LMS due dates),
  - document comments and rubrics (LMS rubrics/SpeedGrader, Microsoft/Google comments),
- Use course maps/blueprints or templates (LMS page templates).
- Maintain consistency in structure across modules,
- Minimize nested/hidden navigation
- Utilize accessibility checkers and alt-text

Practical Notes

- Note for higher education settings. Favor LMS-native features for FERPA compliance; disclose third-party tool use in the syllabus; provide accessible alternatives for all required materials
- Note for K–12 settings. Align structures with IEP/504 accommodations, such as extended time and simplified views, route family updates through district-approved portals, and avoid learner protected information in external tools without approval.
- Note for Workforce settings. Use employer-approved platforms, reflect shift/role variations in timelines and boards, and coordinate accommodations through established learning and development workflows.

Learner Feedback on Structure as a Cognitive Scaffold

Learner feedback underscores the pivotal role of structural scaffolds in sustaining EF skills over time. Learners in several courses noted that predictable pacing, assignment calendars, and transparent expectations supported time management and reduced stress. For example, learners in EDP 540 and LDT 301 pointed to structured weekly modules and clearly communicated deadlines as features that enabled them to plan ahead effectively. Conversely, feedback from LDT 593 revealed that compressed course timelines increased challenges related to planning and self-regulation, with learners recommending extended pacing or additional time-management supports.

While thoughtfully designed course structures and layered instructional scaffolds help individual learners manage cognitive load and support EF, these design elements must also extend into collaborative contexts. Asynchronous group projects introduce a new layer of complexity, requiring learners to co-regulate, manage time, and communicate effectively. The next section explores how project management frameworks, when integrated into online course design, can provide the necessary organizational tools and social structures to transform group work into a powerful context for practicing and strengthening EF skills in authentic, collaborative learning environments.

Project Management

Effective project management enhances group work by enabling better planning, organization, and role assignment (Yildiz Durak & Atman, 2023). While learners often struggle with focus and time management under deadlines, impairing their contributions, well-designed, structured projects and instructional support promote skills in task management, time planning, and collaboration (Barz et al., 2024; James et al., 2020). Integrating project management frameworks into courses provides learners with essential strategies for academic and professional success.

Group Project Management Strategies

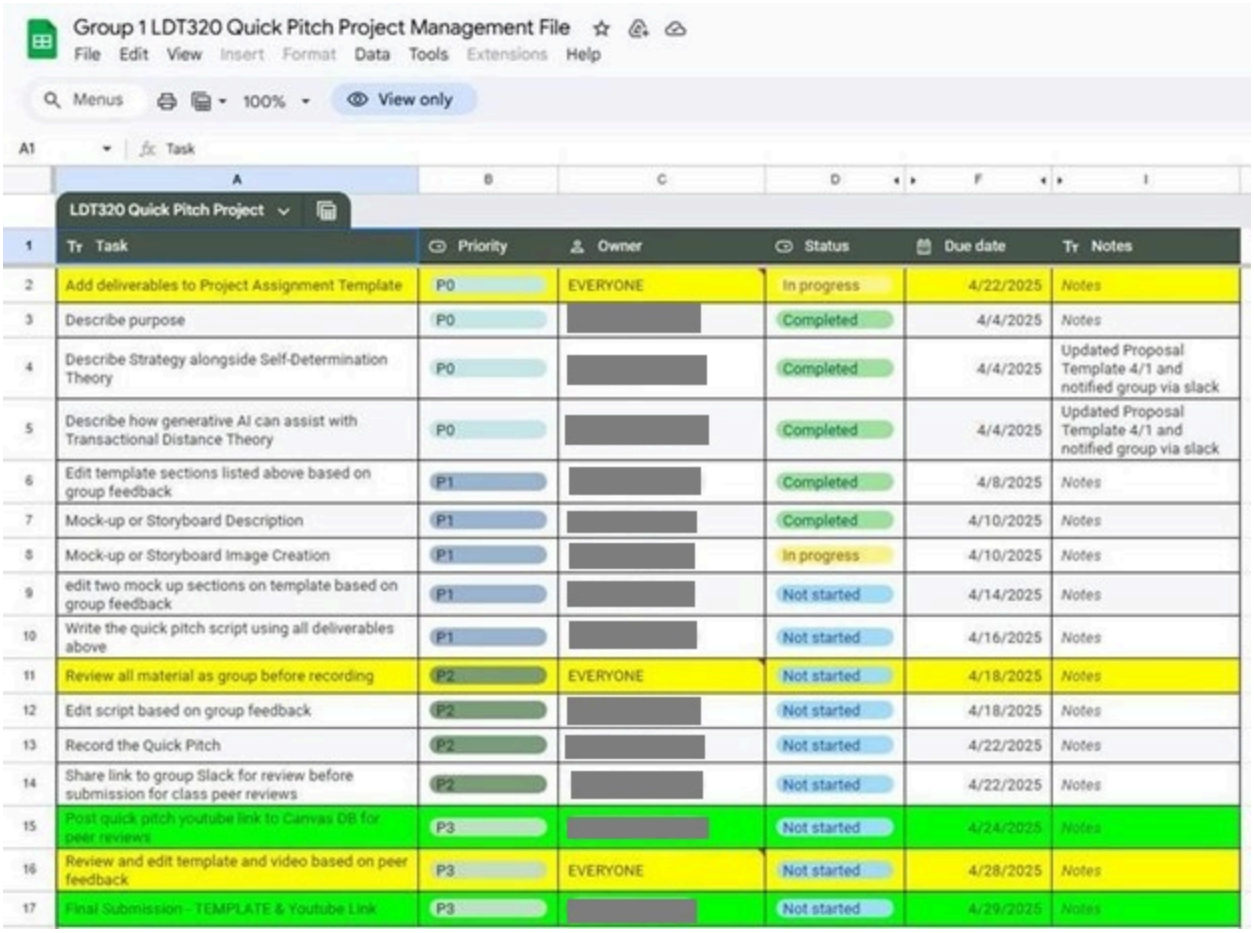
Managing group projects in asynchronous online courses requires careful planning to encourage teamwork and accountability. Group projects provide authentic learning experiences that enable learners to develop essential skills, including goal-setting, time management, cognitive flexibility, planning, and sustained attention. When learners work together to plan, share roles, and aim for shared goals, they not only improve their understanding of their own learning process but also develop professional skills (Donelan & Kear, 2023; James et al., 2020; Taghizadeh et al., 2024).

For group work to be successful, it must be structured with clear guidance, defined roles, and realistic timelines. Instructors can scaffold this process by encouraging learners to break large projects into smaller, manageable parts, assigning specific tasks to each group member, and setting deadlines for each step. These strategies help learners stay on track, understand their tasks, and work more effectively as a team. Assigning roles such as project manager, note-taker, and coordinator makes everyone responsible and ensures that each person contributes meaningfully (Donelan & Kear, 2023; Shen et al., 2023). Smaller, well-structured groups help learners stay interested and build trust, helping everyone feel valued and comfortable working together (Donelan & Kear, 2023).

Collaborative activities, such as providing peer feedback, help learners develop crucial skills, including evaluation, attention to detail, and constructive communication (Taghizadeh et al., 2024). However, to be truly effective, collaborative experiences must be intentionally designed with clear expectations, flexible timelines, and supportive communication channels. When these structural elements are thoughtfully implemented, collaboration becomes a meaningful opportunity for skill development rather than a logistical challenge.

In the LDT programs, learners use Google Workspace and Slack to support their group projects. Instructors provide Google Sheets templates for project tracking, where learners can list tasks, assign roles, and set deadlines collaboratively (Figure 4). Additionally, each group has a dedicated Slack channel for planning tasks, sharing updates, and asking questions in real-time (Figure 5). This dual-platform approach creates a comprehensive project management approach that supports both structured planning and dynamic communication throughout the project lifecycle.

Figure 4.
Google Sheets for Group Project Management



Group 1 LDT320 Quick Pitch Project Management File

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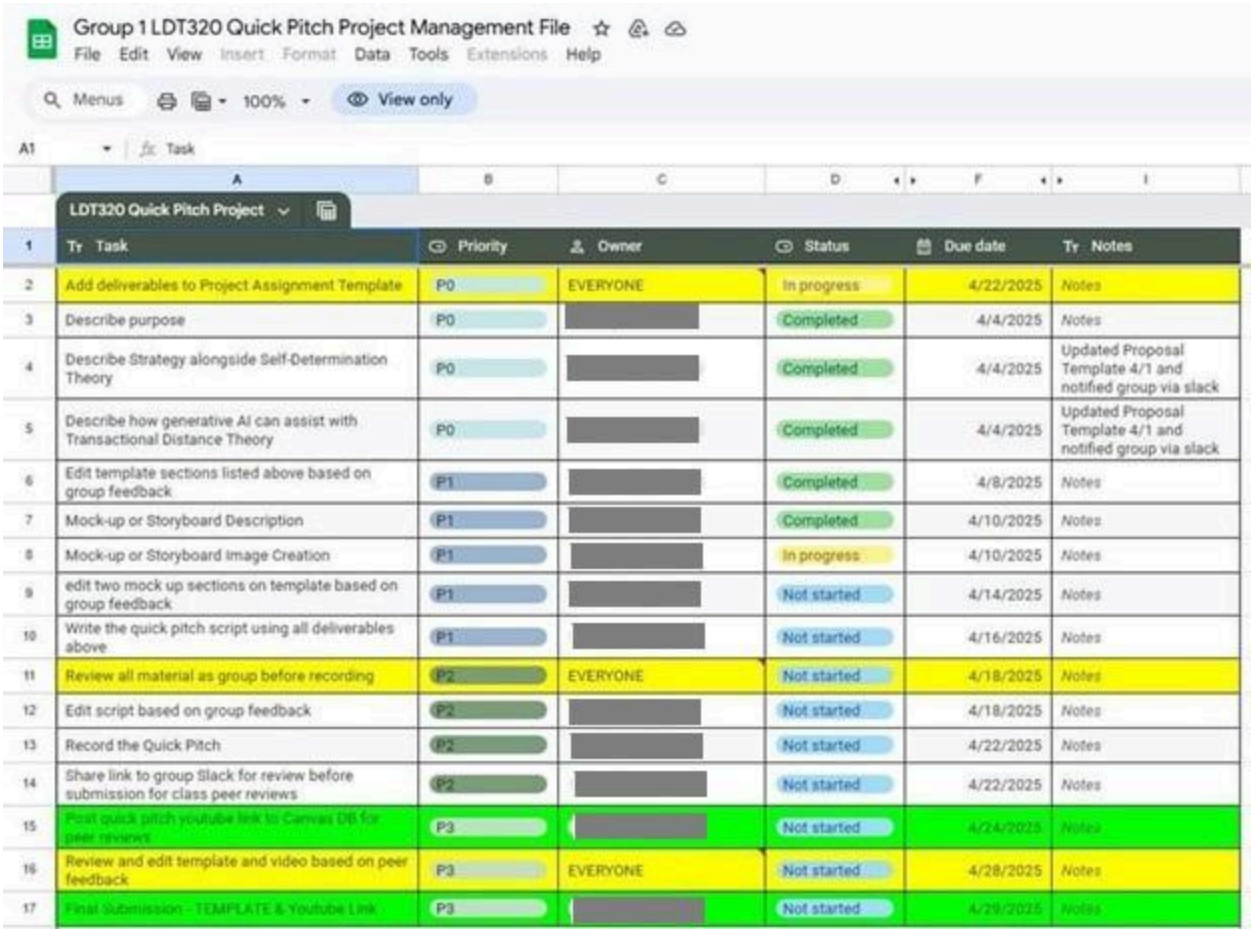
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LDT320 Quick Pitch Project

	Task	Priority	Owner	Status	Due date	Notes
2	Add deliverables to Project Assignment Template	P0	EVERYONE	In progress	4/22/2025	Notes
3	Describe purpose	P0		Completed	4/4/2025	Notes
4	Describe Strategy alongside Self-Determination Theory	P0		Completed	4/4/2025	Updated Proposal Template 4/1 and notified group via slack
5	Describe how generative AI can assist with Transactional Distance Theory	P0		Completed	4/4/2025	Updated Proposal Template 4/1 and notified group via slack
6	Edit template sections listed above based on group feedback	P1		Completed	4/8/2025	Notes
7	Mock-up or Storyboard Description	P1		Completed	4/10/2025	Notes
8	Mock-up or Storyboard Image Creation	P1		In progress	4/10/2025	Notes
9	edit two mock up sections on template based on group feedback	P1		Not started	4/14/2025	Notes
10	Write the quick pitch script using all deliverables above	P1		Not started	4/16/2025	Notes
11	Review all material as group before recording	P2	EVERYONE	Not started	4/18/2025	Notes
12	Edit script based on group feedback	P2		Not started	4/18/2025	Notes
13	Record the Quick Pitch	P2		Not started	4/22/2025	Notes
14	Share link to group Slack for review before submission for class peer reviews	P2		Not started	4/22/2025	Notes
15	Post quick pitch youtube link to Canvas DB for peer reviews	P3		Not started	4/24/2025	Notes
16	Review and edit template and video based on peer feedback	P3	EVERYONE	Not started	4/28/2025	Notes
17	Final Submission - TEMPLATE & Youtube Link	P3		Not started	4/29/2025	Notes

Figure 5.
Slack Project Tracker



Group 1 LDT320 Quick Pitch Project Management File

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A1 Task

LDT320 Quick Pitch Project

	Task	Priority	Owner	Status	Due date	Notes
2	Add deliverables to Project Assignment Template	P0	EVERYONE	In progress	4/22/2025	Notes
3	Describe purpose	P0	[redacted]	Completed	4/4/2025	Notes
4	Describe Strategy alongside Self-Determination Theory	P0	[redacted]	Completed	4/4/2025	Updated Proposal Template 4/1 and notified group via slack
5	Describe how generative AI can assist with Transactional Distance Theory	P0	[redacted]	Completed	4/4/2025	Updated Proposal Template 4/1 and notified group via slack
6	Edit template sections listed above based on group feedback	P1	[redacted]	Completed	4/8/2025	Notes
7	Mock-up or Storyboard Description	P1	[redacted]	Completed	4/10/2025	Notes
8	Mock-up or Storyboard Image Creation	P1	[redacted]	In progress	4/10/2025	Notes
9	edit two mock up sections on template based on group feedback	P1	[redacted]	Not started	4/14/2025	Notes
10	Write the quick pitch script using all deliverables above	P1	[redacted]	Not started	4/16/2025	Notes
11	Review all material as group before recording	P2	EVERYONE	Not started	4/18/2025	Notes
12	Edit script based on group feedback	P2	[redacted]	Not started	4/18/2025	Notes
13	Record the Quick Pitch	P2	[redacted]	Not started	4/22/2025	Notes
14	Share link to group Slack for review before submission for class peer reviews	P2	[redacted]	Not started	4/22/2025	Notes
15	Post quick pitch youtube link to Canvas DB for peer reviews	P3	[redacted]	Not started	4/24/2025	Notes
16	Review and edit template and video based on peer feedback	P3	EVERYONE	Not started	4/28/2025	Notes
17	Final Submission - TEMPLATE & Youtube Link	P3	[redacted]	Not started	4/29/2025	Notes

Instructors facilitate group collaboration using dedicated Slack channels where learners define roles and responsibilities at the start of the project. Groups use a customized version of Slack's project tracker template to help monitor task completion and maintain transparency. Figure 6 shows part of a course live session wherein the instructor demonstrates how learners join the Slack channel, select roles, and align tasks with project milestones. In their final discussion post, learners reported that clearly defined roles, weekly goals, and the tracker enhanced organization and collaboration. Many appreciated the project's authenticity in simulating real-world instructional design work. Some learners suggested a more balanced distribution of tasks and spending extra time at the beginning to set clear expectations and strengthen team relationships. These insights highlight the importance of ongoing process refinement and practical, adaptable group support. The success of these project management strategies depends not only on clear structure and appropriate tools but also on designing inclusive experiences that accommodate different learning needs and collaboration styles.

Figure 6.
Live session video clip showing Slack group project setup, roles, and milestone task planning

Slack group project introduction



Differentiation and Inclusive Practices

Effective group project management in asynchronous courses requires a differentiated, inclusive approach that supports these cognitive differences and varying levels of teamwork readiness. Without proper scaffolding, embedding teamwork risks reinforcing poor collaboration habits (James et al., 2020). Designing group projects with clear learning objectives, such as project and sponsor management, promotes skill development through experiential learning (James et al., 2020). Adaptive supports like co-regulation and targeted strategies further strengthen participation (Durak & Uslu, 2023; Navayuth & Yurayat, 2022). Flexible design accommodates both learner needs and real-world project demands (Lowell & Moore, 2020). Tools like ChatGPT and digital whiteboards like Miro can enhance self-regulation, organization, and communication in asynchronous settings (Kim & Adlof, 2024; Rauf, 2023). Finally, multimodal engagement strategies, such as pairing asynchronous content with breakout room options, encourage self-paced participation and promote learner ownership (Shen et al., 2023).

In the LDT programs, group projects are designed with flexibility in mind. Supportive practices include technology tutorials, optional breakout sessions, and flexible role assignments based on learners' preferences. Learners with formal accommodations may complete the project individually with an adjusted scope while still participating in peer review activities. These practices reflect a commitment to accessibility and differentiation within authentic team-based learning.

Project Management: Platform-Agnostic Implementation

- Shared project management tools:
- Task boards for visibility and role clarity (Microsoft Teams/Planner, Trello, Asana, ClickUp, or LMS-native checklists),
- Timelines and milestones (Outlook/Exchange or Google Calendar; simple Gantt in Sheets/Excel),
- Persistent team spaces for updates and decisions (LMS groups, Microsoft Teams channels, Slack),
- Version-controlled documents for plans, briefs, and feedback (OneDrive/SharePoint or Google Drive).
- Provide lightweight templates, such as a project brief, roles, weekly progress notes, risk/issues log, and a retrospective guide, and keep groups small with rotating facilitator/timekeeper roles.

- Standardize a simple workflow: scope → break work into tasks → assign owners/due dates → weekly check-in → mid-project retrospective → final handoff, with all artifacts linked from a single “Team Hub” page in the LMS.
- Note higher education settings. Favor LMS groups and institution-approved tools for FERPA; document role assignments and deadlines in shared spaces; use rubrics that assess both product and process.
- Note for K–12 settings. Use district-approved platforms; avoid learner protected information in third-party tools; communicate progress via parent portals as appropriate; consider smaller teams and clearer role scripts.
- Note for Workforce settings. Align with employer platforms (Teams/Planner, Jira/Confluence); follow data/security policies; map tasks to real stakeholders and deliverables; capture accommodations through learning and development workflows.

Learner Feedback on Project Management

Learners frequently emphasized the value of project-management supports such as Slack, check-in meetings, and progress trackers. Learners in LDT 593 and LDT 301 remarked that consistent communication channels fostered accountability and co-regulation, especially during long-term projects. Many described Slack as a hub for coordinating tasks, monitoring progress, and sharing resources, though some also noted that maintaining communication across diverse schedules could be challenging. These reflections point to the importance of pairing project-management tools with explicit routines and norms that scaffold task initiation and sustained attention.

Project Management Key Takeaways

Effective group project management in asynchronous online courses requires three interconnected elements: intentional design, inclusive practices, and strategic technology integration. Success relies on clear frameworks that balance structure and flexibility through defined roles, milestones, and adaptive, co-regulation strategies for diverse learners. Digital tools like Slack, Google Workspace, and project trackers enable, but do not replace, effective implementation and human support. Most critically, group projects must connect to authentic professional contexts and incorporate continuous feedback loops to ensure all learners develop both collaborative skills and these capabilities. When these elements align, group work transforms from a course requirement into meaningful preparation for real-world teamwork and project management.

While effective project management lays the groundwork for structured, goal-oriented group work, its success in asynchronous learning environments depends heavily on the communication and collaboration systems that support it. In addition to poor planning, group projects can falter due to unclear expectations, disjointed communication, or a lack of emotional and social engagement. The following section explores how intentional communication structures and facilitation strategies can reinforce accountability, foster connection, and promote the development of key EF skills such as planning, sustained attention, and emotional regulation within collaborative contexts.

Communication and Collaborative: Structures and Facilitation

EF skills are especially important in asynchronous online courses, where learners often work independently and must manage their own schedules and learning tasks.

Common challenges in asynchronous learning, such as isolation, procrastination, disorganization, and distraction, are often related to these difficulties (Levin, 2021; Chere & Kirkham, 2021). Learners may struggle with initiating tasks, sustaining concentration, or organizing and acting on instructions when they are not supported with clear strategies. These issues are more pronounced for neurodiverse learners or learners with attention and emotional regulation difficulties (Emmers et al., 2017b; Wells, 2024).

Research indicates that effective communication and collaboration strategies can enhance cognitive processes in online environments (Martin & Bolliger, 2018; Navayuth & Yurayat, 2022). Clear and consistent communication helps learners plan ahead, manage their time effectively, and monitor their progress. Collaborative activities, such as peer discussions and group projects, offer opportunities to practice self-regulation, perspective-taking, and cognitive flexibility.

Social interaction in online learning can enhance learners' emotional engagement and motivation, which is crucial because emotional regulation and social presence are closely linked to the development of EF (Chere & Kirkham, 2021; Diamond, 2013). As a result, designing communication structures and collaborative tasks is not only about keeping learners informed or engaged. It is also a way to build these skills that are critical for success in asynchronous learning.

Designing Communication Structures to Support EF

In asynchronous online learning, effective communication is a crucial component in supporting learners. Well-designed communication strategies can reduce confusion, increase motivation, and help learners manage their learning (Vilhunen et al., 2024; Yao et al., 2024).

Planning and organization are particularly important. Learners need to know what to do and when to do it. Clear weekly schedules, checklists, and regular reminders can help learners plan ahead and stay on track. For example, course announcements that summarize tasks at the beginning of each week provide learners with a sense of structure and routine. These reminders serve as external supports, reducing the mental effort required to keep track of multiple deadlines.

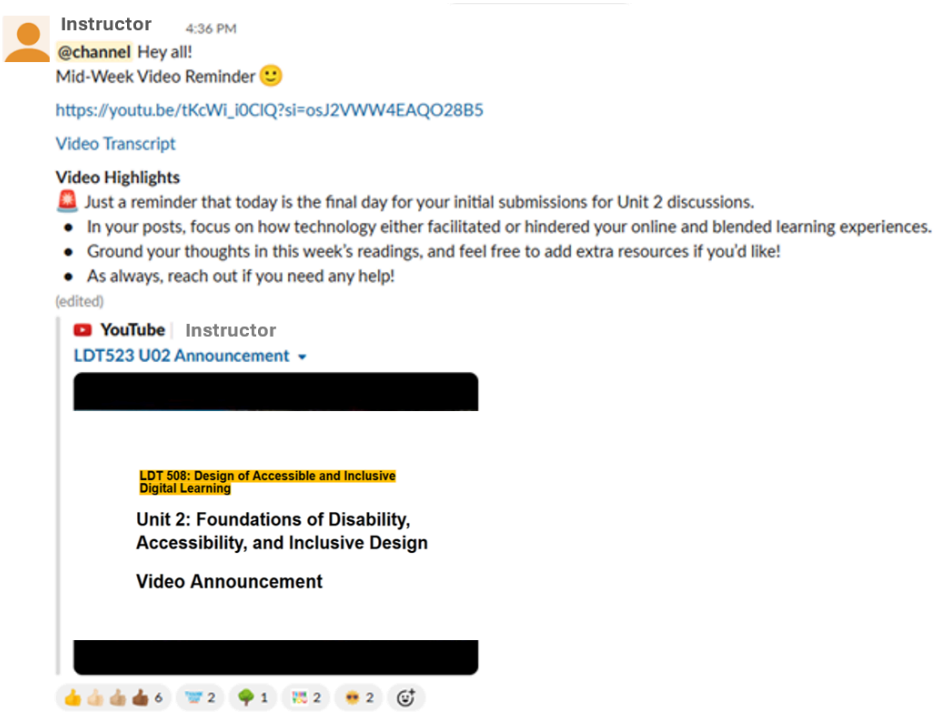
Sustained attention is another key area. Long blocks of reading or unclear navigation can overwhelm learners. Breaking instructions into smaller, manageable parts helps reduce cognitive load. Using bullet points, headings, and visual icons can make online content easier to follow. Including short videos or audio messages can also support attention by offering variety in how information is presented.

Time management is a common challenge in online learning. Without real-time meetings, learners may delay getting started or underestimate the time required for tasks. Instructors can support time awareness by setting consistent due dates, offering suggested timelines, and embedding progress indicators in the course site. These tools help learners develop internal pacing strategies and monitor their own progress.

Motivation and emotional regulation also depend on clear and encouraging communication. When learners feel overwhelmed or unsure, short, supportive messages from instructors can make a difference. Even a simple weekly check-in message can increase learners' sense of connection and reduce anxiety. Feeling connected to the course and instructor supports emotional engagement, which in turn improves self-regulation and persistence (Chere & Kirkham, 2021).

In the LDT programs, Slack channel messages may take the form of short video announcements, accompanied by closed captions, transcripts, and video highlights (see Figure 7). Providing multiple formats supports diverse learner needs by allowing learners to engage with the content in ways that suit their preferences and accessibility requirements.

Figure 7.
Slack Announcement Message



Supporting EF through communication means going beyond simply sharing information. It requires providing clear, timely, and multimodal messages that help learners plan, focus, and stay engaged.

Facilitating Collaborative Engagement to Enhance EF

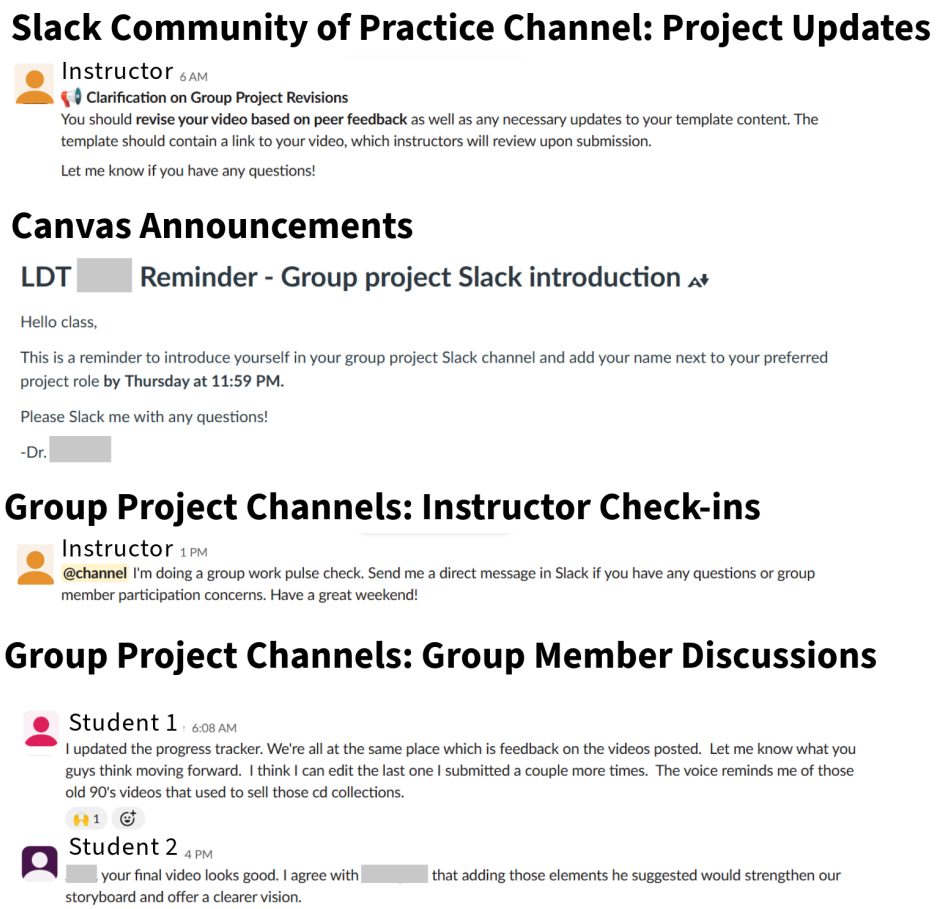
Collaborative learning activities in asynchronous online courses enable learners to practice essential skills, including planning, organizing, self-monitoring, and adapting to feedback. Well-structured collaboration also helps learners stay engaged and feel connected, which supports emotional regulation and motivation (Chere & Kirkham, 2021). Structured online discussions promote thoughtful collaboration. By responding to specific prompts or building on peer ideas, learners engage in flexible thinking and perspective-taking. Clear guidelines and deadlines help learners manage time and break larger tasks into manageable steps (Miao & Ma, 2022).

Communication and Accountability Mechanisms

Consistent and structured communication is critical to maintaining accountability and momentum in asynchronous online group work. Learners benefit from regular LMS announcements and email reminders that reinforce expectations and keep them oriented to deadlines (Martin & Bolliger, 2018). Posting weekly due date checklists and guided discussion prompts fosters task completion and helps learners stay engaged. Personalized messages, timely responses, and reference to learners by name contribute to a sense of social presence and reinforce group cohesion (Martin & Bolliger, 2018).

Instructors guide group project progress through structured peer discussions and regular check-ins that outline key deadlines and deliverables. A sample collage of Slack messages, Canvas announcements, and group member discussions illustrates the layered communication system in place to support group accountability and shared awareness (Figure 8). Research shows that visible instructor facilitation and consistent feedback loops contribute to learner satisfaction and project success (Martin & Bolliger, 2018). Clear communication channels serve not only as accountability tools but also as cognitive support for learners with these challenges.

Figure 8.
Screenshot collage of Slack and Canvas messages used for group project communication



Communication & Collaboration: Platform-Agnostic Implementation

- Use an LMS “rhythm” to externalize EF supports—weekly overview → task checklist → due-date reminder—paired with persistent team spaces for updates and decisions (LMS Groups, Microsoft Teams channels, Slack, or Google Chat/Spaces).

- Standardize your message cadence (such as Monday overview, mid-week nudge, week-end recap), keep navigation shallow, and mirror key dates in the LMS calendar.

- For collaboration, provide light templates: discussion prompt scaffold (purpose → prompt → expected moves → due windows), meeting notes/stand-up doc, roles/rotation (facilitator, timekeeper, scribe), and peer-feedback guide.

- Encourage concise, multimodal messages (short text and optional video/audio) with captions/transcripts and descriptive subject lines; use @mentions sparingly for accountability and post summaries/decisions after each thread or meeting to reduce ambiguity.
- Note for higher education settings. Favor LMS announcements and institution-approved platforms for FERPA; disclose third-party tools in the syllabus; ensure captions, alt text, and accessible document formats.
- Note for K–12 settings. Route updates through district-approved portals; align messages with IEP/504 accommodations (simplified views, extended windows); coordinate caregiver communication cadence; avoid learner protected information in external tools without approval.
- Note for Workforce settings. Use employer-approved channels (Teams/Channels); follow data and retention policies; document decisions in shared spaces; map team communication to real deliverables, shifts, and roles; record

accommodations via learning and development workflows.

Learner Feedback on Collaboration Supports

Learner feedback across the programs reinforced that collaborative structures meaningfully influence co-regulation, cognitive flexibility, and emotional regulation. Learners in LDT 523 and LDT 508 emphasized that peer review, group problem-solving, and exposure to varied perspectives strengthened their ability to adapt thinking and manage complex tasks. At the same time, feedback from LDT 506 and LDT 301 indicated that uneven group participation and unclear collaboration guidelines can impede these benefits, suggesting the need for more explicit role definitions and early communication norms to support equitable group functioning.

Communication and Collaboration Key Takeaways

To be effective, collaborative activities must be designed with intention. Clear expectations, flexible timelines, and supportive communication channels help learners focus on learning rather than struggling to coordinate their tasks. When these structures are in place, collaboration becomes more than just a requirement; it becomes a tool for building EF.

Intentional communication and collaboration structures lay the groundwork for meaningful assessment and feedback practices. In asynchronous learning environments, where real-time support is limited, assessment becomes a key opportunity to guide learners in planning, self-monitoring, and reflecting. The following section explores how assessment strategies and feedback loops, when designed with clarity, structure, and responsiveness, can further reinforce EF by helping learners stay organized, persist through challenges, and take ownership of their learning trajectory.

Assessment and Feedback Methods

Assessment and feedback are essential components of online learning. They guide learners in setting goals, tracking progress, and adjusting their efforts. These processes are essential in asynchronous courses, where learners often work independently. When assessments are clearly structured and feedback is timely and specific, they can support the development of EF skills (Williams, 2024).

Asynchronous learning environments require learners to regulate their learning without real-time guidance. Therefore, assessment and feedback must be designed to promote autonomy and self-regulation (Panadero et al., 2017). This section will describe assessment and feedback strategies that support these cognitive processes in asynchronous courses. It will also share examples from the LDT programs, including the use of peer reviews, structured grading, and generative AI tools for assignment planning.

Structuring Assessments to Support EF

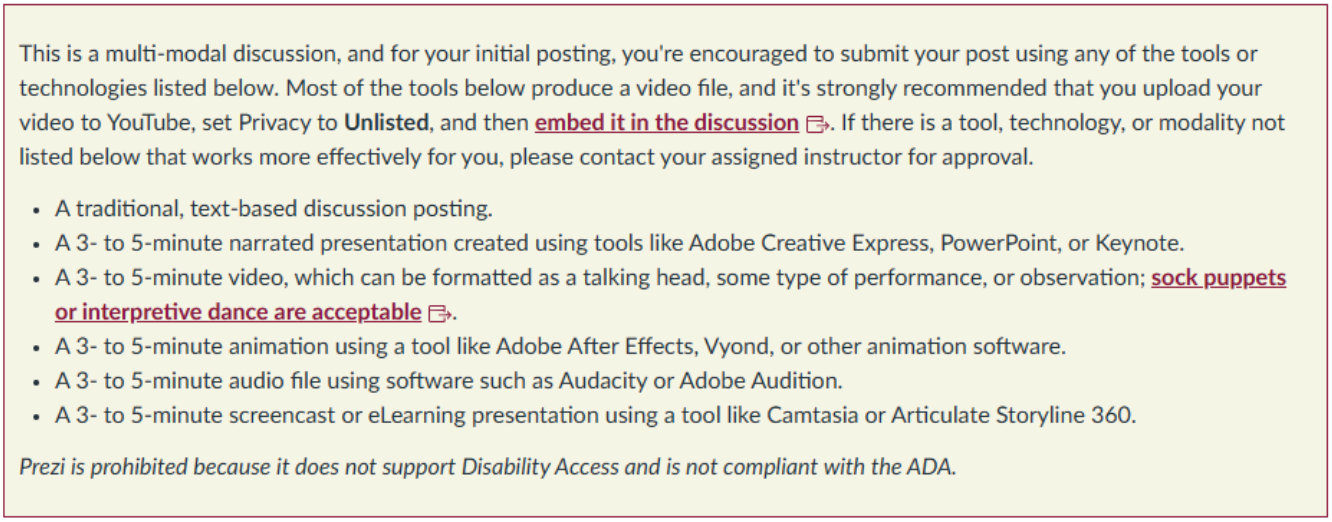
Well-structured assessments can help learners strengthen these skills. When expectations are clear, learners are more likely to understand what is required and plan their work accordingly. Providing detailed instructions, timelines, and examples reduces ambiguity and supports task initiation (Ossenberg et al., 2018).

Breaking complex tasks into smaller, manageable parts helps learners stay organized and focused. Chunked assignments support sustained effort and reduce cognitive overload. In asynchronous courses, where learners must manage their own schedules, scaffolding is especially important. Offering step-by-step guidance or checkpoints can help learners monitor their progress and adjust their efforts over time. In LDT programs, assessments are designed to build EF through scaffolding and iteration. For example, in the LDT 508: Design of Accessible and Inclusive Digital Learning course, learners gradually create an educational website. Each week, they focus on a specific element, starting with the site structure in Week 1, then progressing

through accessible textual content (Week 2), visual elements (Week 3), and audio/video content (Week 4). Learners use audit templates to evaluate their own work and receive weekly, detailed, actionable feedback from the instructor. In Week 5, they assess a peer's website for accessibility and inclusivity and write a formal evaluation report. This gradual, feedback-rich approach supports planning, monitoring, and revision. As discussed earlier, the LDT Assignment Organizer Prompt Generator also supports planning during major assessments. It should be noted that , the standalone organizer prompt has since been evolved into KondoBot, which is further described in Mishra's (2025) blog post Prompts vs. Principles: Contrasting OpenAI's Study Mode to Real Educational AI.

In line with the UDL framework, assessments should offer learners multiple means of engagement, representation, and expression (CAST, 2024). For example, Figure 9 illustrates how discussion assignments are designed to support flexibility and learner autonomy. Multi-modal prompts allow learners to choose how they respond, such as traditional text, narrated presentations, animation, audio, or video, provided they meet accessibility expectations. Creative formats such as sock puppets or interpretive dance are also welcome. This approach reduces barriers related to planning and task initiation, while fostering EF skills such as goal setting and self-regulation. By allowing learners to select tools aligned with their strengths, the assignment exemplifies UDL-aligned design that promotes both accessibility and autonomy.

Figure 9.
Multi-modal discussion prompt


This is a multi-modal discussion, and for your initial posting, you're encouraged to submit your post using any of the tools or technologies listed below. Most of the tools below produce a video file, and it's strongly recommended that you upload your video to YouTube, set Privacy to **Unlisted**, and then **embed it in the discussion**. If there is a tool, technology, or modality not listed below that works more effectively for you, please contact your assigned instructor for approval.

- A traditional, text-based discussion posting.
- A 3- to 5-minute narrated presentation created using tools like Adobe Creative Express, PowerPoint, or Keynote.
- A 3- to 5-minute video, which can be formatted as a talking head, some type of performance, or observation; **sock puppets or interpretive dance are acceptable**.
- A 3- to 5-minute animation using a tool like Adobe After Effects, Vyond, or other animation software.
- A 3- to 5-minute audio file using software such as Audacity or Adobe Audition.
- A 3- to 5-minute screencast or eLearning presentation using a tool like Camtasia or Articulate Storyline 360.

Prezi is prohibited because it does not support Disability Access and is not compliant with the ADA.

Feedback as a Tool for EF Development

Feedback plays a key role in developing these skills. When feedback is timely, specific, and actionable, it enables learners to reflect on their thinking, regulate emotions, and stay motivated. These are essential components of metacognition and self-regulated learning (Ossenberg et al., 2018).

Learners benefit most when feedback not only addresses current performance but also provides guidance for future improvement. These feedforward strategies help learners monitor their progress and adjust their learning strategies over time (Sadler et al., 2022). This process builds self-awareness and supports flexible thinking. When learners receive ongoing input, rather than just a final grade, they are more likely to revise their work, manage frustration, and view challenges as opportunities for growth.

In the LDT programs, rubrics are designed to support this kind of growth. Assignments use a three-tiered feedback system: Meets Expectations, Minor Revisions Needed, and Major Revisions Needed (Figure 9). For submissions requiring revision, learners receive individualized, constructive, and actionable feedback that clearly explains the strengths of their work and

outlines the necessary steps for improvement. They are also given the opportunity to revise their work and improve their grades. This practice not only fosters self-monitoring and perseverance but also mirrors real-world practices in the instructional design field, where feedback, iteration, and refinement are essential parts of the design process. This feedback structure encourages learners to take ownership of their learning, evaluate their own progress, and build the confidence to improve their work independently.

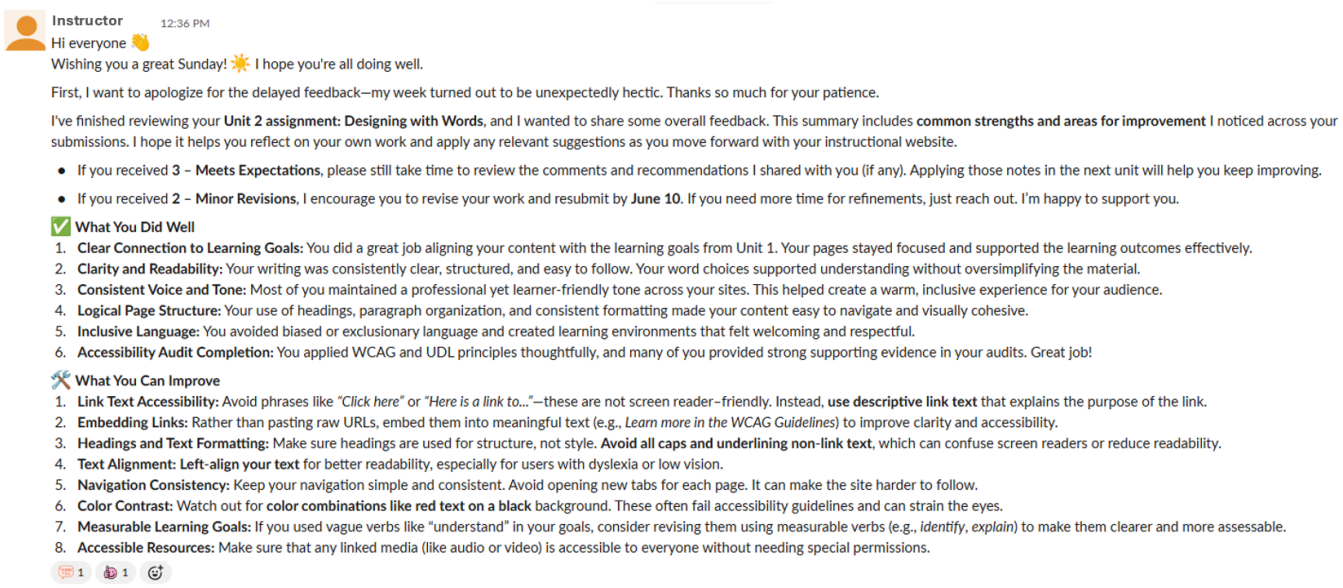
Figure 9.
Rubric with three-tiered feedback system

LDT 523: Case Study Paper Rubric	You've already rated students with this rubric. Any major changes could affect their assessment results.		
Criteria	**Ratings**		
Depth of Analysis	**Meets Specifications** The paper provided an in-depth and insightful analysis with detailed examples. The analysis demonstrated a deep understanding of online and blended learning.	**Minor Revision** The paper provided an adequate analysis with sufficient examples and showed an understanding of key concepts.	**Major Revision** The paper provided a poor or incomplete analysis with few examples and demonstrated a lack of understanding of the core principles of online and blended learning.
Organization and Structure	**Meets Specification** The paper was very well-organized and included clear section headings and a logical flow.	**Minor Revision** The paper was well-organized with clear sections but may have minor flow issues.	**Major Revision** The paper struggled with poor organization, unclear sections, or lacked a logical flow.
Technologies and Media	**Meets Specification** The paper included a comprehensive and critical evaluation of technologies and media used in the course or program.	**Minor Revision** The paper included an adequate description and critique of technologies and media being used in the course or program.	**Major Revision** The paper provided a limited or superficial treatment of technologies and media used in the course or program.
Instructional Strategies and Methods	**Meets Specifications** The paper thoroughly described and critically assessed the instructional strategies being used in the course or program and offered creative and practical suggestions for improvement.	**Minor Revision** The paper described instructional strategies adequately, but the analysis of the strategies was routine or generic and offered limited suggestions for improvements or revision.	**Major Revision** The paper provided an inadequate description and assessment of instructional strategies being used in the course or program and lacked practical suggestions for improvement or revision.
Critique and Reflection	**Meets Specifications** The paper provided a nuanced critique, clearly identifying strengths, weaknesses, and specific actionable improvements.	**Minor Revision** The paper offered a general critique with some useful observations but lacked depth in actionable improvements.	**Major Revision** The paper provided a superficial critique with limited or no actionable insights and did not identify any strengths or weaknesses.

In addition to individual feedback, group feedback is provided through the course Slack Community of Practice (CoP) channels (Figure 10). These messages summarize common patterns observed across learner work, including discussions, highlighting shared strengths and areas for improvement. This approach helps learners learn from the broader learning community and

reflect on their own work in relation to class trends. It also models professional practices that support team-based design efforts through collaborative feedback and reflection.

Figure 10.
Group feedback via Slack CoP Channel



Instructor 12:36 PM

Hi everyone 👋

Wishing you a great Sunday! ☀️ I hope you're all doing well.

First, I want to apologize for the delayed feedback—my week turned out to be unexpectedly hectic. Thanks so much for your patience.

I've finished reviewing your **Unit 2 assignment: Designing with Words**, and I wanted to share some overall feedback. This summary includes **common strengths and areas for improvement** I noticed across your submissions. I hope it helps you reflect on your own work and apply any relevant suggestions as you move forward with your instructional website.

- If you received **3 – Meets Expectations**, please still take time to review the comments and recommendations I shared with you (if any). Applying those notes in the next unit will help you keep improving.
- If you received **2 – Minor Revisions**, I encourage you to revise your work and resubmit by **June 10**. If you need more time for refinements, just reach out. I'm happy to support you.

✅ **What You Did Well**

1. **Clear Connection to Learning Goals:** You did a great job aligning your content with the learning goals from Unit 1. Your pages stayed focused and supported the learning outcomes effectively.
2. **Clarity and Readability:** Your writing was consistently clear, structured, and easy to follow. Your word choices supported understanding without oversimplifying the material.
3. **Consistent Voice and Tone:** Most of you maintained a professional yet learner-friendly tone across your sites. This helped create a warm, inclusive experience for your audience.
4. **Logical Page Structure:** Your use of headings, paragraph organization, and consistent formatting made your content easy to navigate and visually cohesive.
5. **Inclusive Language:** You avoided biased or exclusionary language and created learning environments that felt welcoming and respectful.
6. **Accessibility Audit Completion:** You applied WCAG and UDL principles thoughtfully, and many of you provided strong supporting evidence in your audits. Great job!

🛠️ **What You Can Improve**

1. **Link Text Accessibility:** Avoid phrases like *"Click here"* or *"Here is a link to..."*—these are not screen reader–friendly. Instead, **use descriptive link text** that explains the purpose of the link.
2. **Embedding Links:** Rather than pasting raw URLs, embed them into meaningful text (e.g., *Learn more in the WCAG Guidelines*) to improve clarity and accessibility.
3. **Headings and Text Formatting:** Make sure headings are used for structure, not style. **Avoid all caps and underlining non-link text**, which can confuse screen readers or reduce readability.
4. **Text Alignment: Left-align your text** for better readability, especially for users with dyslexia or low vision.
5. **Navigation Consistency:** Keep your navigation simple and consistent. Avoid opening new tabs for each page. It can make the site harder to follow.
6. **Color Contrast:** Watch out for **color combinations like red text on a black** background. These often fail accessibility guidelines and can strain the eyes.
7. **Measurable Learning Goals:** If you used vague verbs like "understand" in your goals, consider revising them using measurable verbs (e.g., *identify*, *explain*) to make them clearer and more assessable.
8. **Accessible Resources:** Make sure that any linked media (like audio or video) is accessible to everyone without needing special permissions.

1 1

Peer Review and Social Feedback in Asynchronous Settings

Peer review plays an important role in supporting these cognitive processes in online learning. It helps learners reflect on their own work, consider different perspectives, and take responsibility for the quality of their contributions. These processes build metacognition, accountability, and deeper engagement with course content (Topping, 2009). Giving and receiving feedback also fosters adaptability and emotional regulation.

In the LDT programs, peer review is embedded into assignments and discussions. For example, in LDT 320: Digital Learning Theories, learners post a draft of their work in discussion forums and provide feedback on at least two peers' submissions. They then use the feedback they receive to improve their work before submitting a final version to the instructor. In LDT 508, learners complete a structured accessibility audit of a peer's website. Scaffolded feedback strategies, including peer and instructor input, help learners manage their progress, revise with intention, and prepare for real-world instructional design practice.

Assessment & Feedback: Platform-Agnostic Implementation

- Use LMS-native assignments, rubrics, and due-date visibility to externalize expectations; pair with structured checkpoints (draft → peer review → revision) and simple feedforward prompts ("Next time, focus on…," "By X date, try…") to support planning and self-monitoring.
- For actionable, multimodal feedback, combine rubric criteria with brief in-line comments and optional audio/video notes (LMS SpeedGrader/markup, Microsoft/Google comments).

- Enable transparent revision cycles with version history and resubmission windows; capture self-assessment via short reflection forms embedded at submission.
- For peer review, use LMS peer-review tools or forms (assign 2–3 peers; provide a guided checklist and 1–2 open prompts).
- Keep all artifacts linked from a single “Assessment Hub” page (instructions, examples, timelines, rubrics, reflection prompts).
- Note for higher education settings. Favor LMS tools for FERPA; avoid learner protected information in third-party graders; state feedback turnaround expectations in the syllabus; ensure accessible formats (captions/transcripts, alt text, readable PDFs).
- Note for K–12 setttings. Use district-approved platforms; align timelines and formats with IEP/504 accommodations (extended time, simplified rubrics); route grade/feedback summaries through the parent portal when required.
- Note for workplace settings. Use employer-approved systems (LMS/LXP, SharePoint) and data-retention policies; map feedback to job-relevant competencies; document accommodations and alternative evidences through learning and development workflows.

Learner Feedback on Feedback Cycles and Scaffolded Rubrics

Learners described iterative feedback cycles as central to developing metacognitive awareness and self-monitoring skills. In courses such as LDT 484 and LDT 508, learners reported that instructor and peer feedback helped them refine their work, manage the emotional demands of revision, and approach problems more flexibly. Several learners noted that clear exemplars and scaffolded rubrics enhanced their ability to anticipate expectations and evaluate their own progress.

Assessment and Feedback Methods Key Takeaways

Assessment and feedback strategies that support these cognitive capabilities can empower learners to manage their learning more effectively in asynchronous settings. Through scaffolded tasks, actionable feedback, and structured peer review, learners are encouraged to set goals, reflect on progress, and revise with purpose. The LDT programs’ approach models real-world instructional design practices, fostering autonomy, accountability, and collaboration — essential not only for academic success but also for lifelong learning.

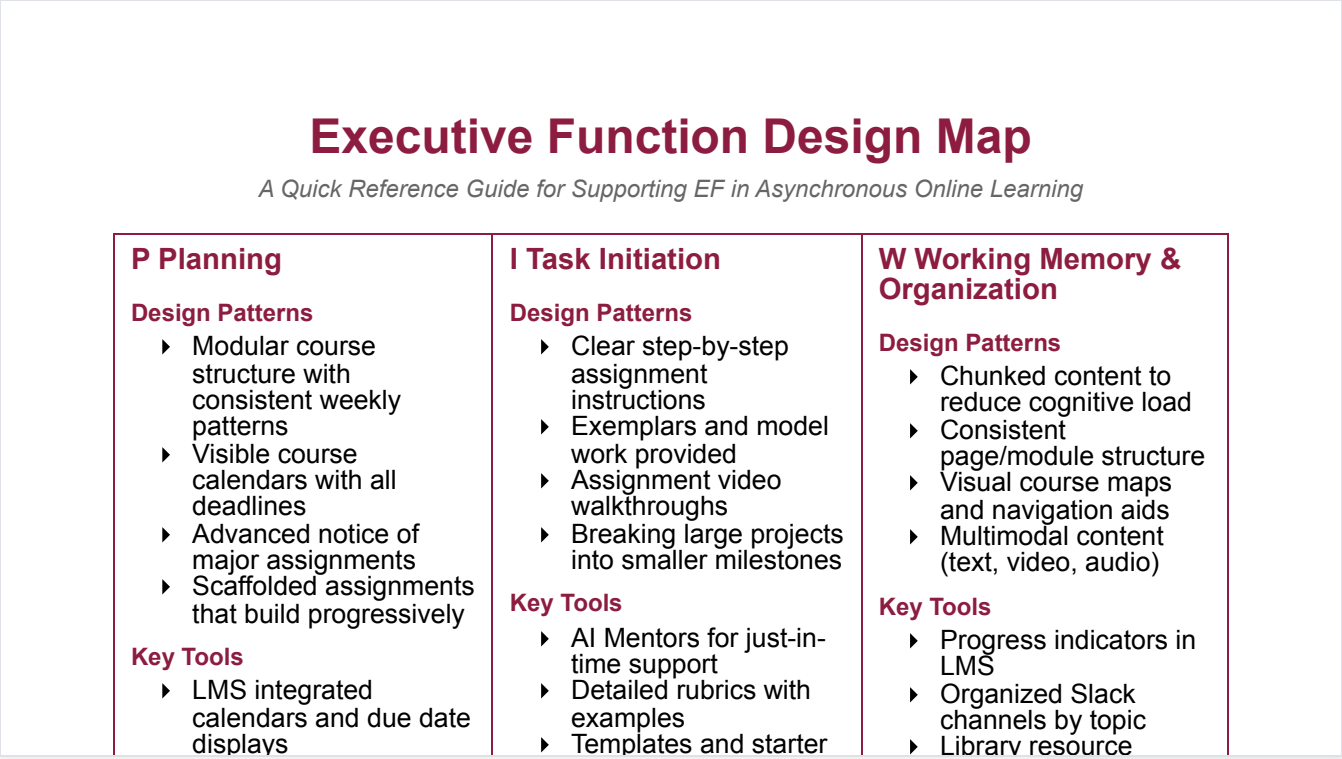
Assessment and feedback also serve as essential data sources for refining course design. In the LDT programs, learner reflections on assessments, scaffolds, and communication strategies play a critical role in shaping instructional tools that strengthen EF. The next section highlights how instructors use learner feedback to iteratively refine supports, improve clarity, and enhance accessibility, ensuring that the course environment evolves in response to authentic learner needs.

Strengthening EF Supports through Learner-Informed Refinements

Throughout this chapter, we have highlighted a range of technology-based tools embedded in LDT courses to support EF, including the Assignment Organizer Prompt Generator, AI Mentors, Slack channels for community and project management, Google Sheets trackers, and Assignment Video Walkthroughs. While based on established research, their practical use and refinement are guided by learner feedback. This section synthesizes learner input across multiple courses to identify recurring themes, such as pacing, organization, planning, scaffolds, communication, collaboration, and flexibility. This section describes how feedback informs ongoing course and tool improvements for a continuous, learner-centered development process. Figure

11 presents the Executive Function Design Map, which synthesizes the chapter's EF-aligned strategies and course design practices into a consolidated framework to guide implementation in online learning contexts.

Figure 11.
Executive Function Design Map



Open in New Tab

Pacing and Course Organization

Learners consistently praised the structure and logical flow of LDT courses, noting how predictable modules and clear expectations supported their ability to manage time effectively. Comments praised the "bite-sized sections" and consistent formatting for reducing cognitive overload and supporting retention. In response, instructors have prioritized modular design that aligns with real-world instructional design workflows, pacing content to promote sustained engagement, and forward planning.

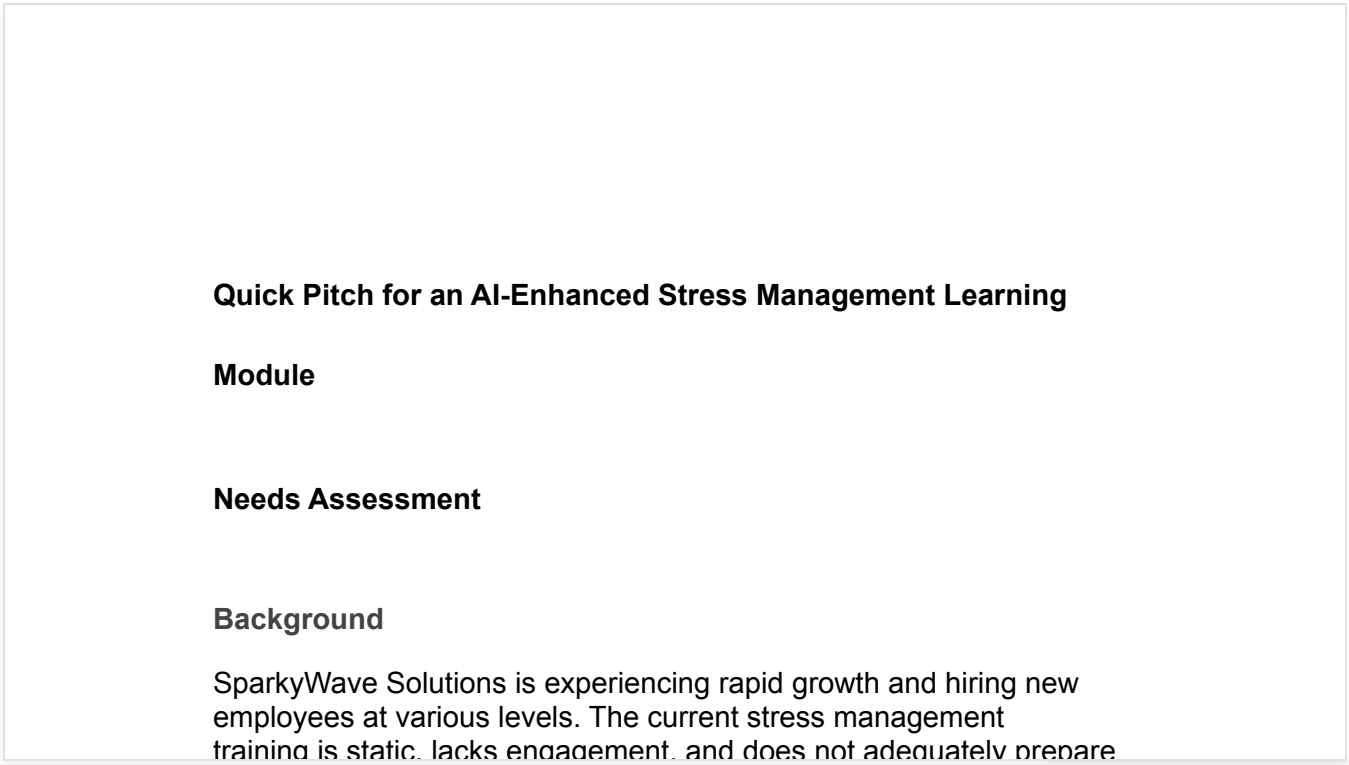
Planning Tools and Time Management Aids

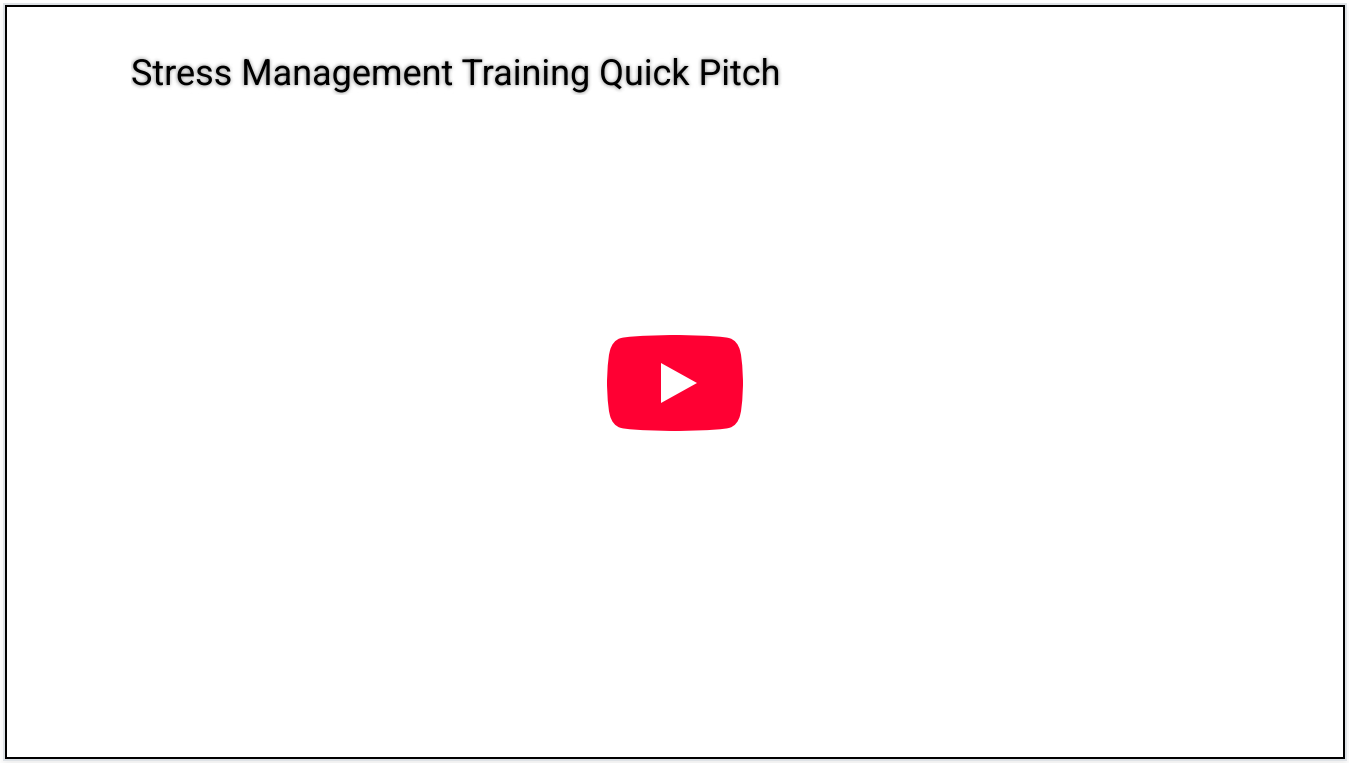
Many learners cited tools like project trackers and planning templates as instrumental in managing course demands. Learners valued receiving advanced notice of major assignments, integrated milestone tracking, and tools such as the Library Resource Organizer. Based on this feedback, instructors enhanced planning tools by adding editable Google Sheets trackers and visual project timelines into Slack for improved clarity and accessibility. These enhancements support self-regulation by helping learners set goals, monitor their progress, and coordinate team tasks more effectively.

Scaffolds for Assignment Completion

Learners across courses valued detailed rubrics, templates, exemplars (Figure 12), and assignment walkthroughs for clarifying expectations. As one learner shared, “The exemplars included for each assignment were incredibly helpful and helped me generate ideas.” In response to feedback about assignment complexity, instructors revised prompts, expanded visual walkthroughs, and introduced prompt generators to guide planning. These scaffolds enhance confidence and task initiation, especially in more complex or collaborative tasks.

Figure 12.
Assignment Exemplar: Process Write-up and Video Product Process Write-up.





Communication Tools and Social Presence

Learners identified Slack and Canvas announcements as key channels for supporting learner motivation, fostering community-building, and promoting effective time management. Learners appreciated real-time reminders and direct instructor engagement, but they also noted that Slack could be overwhelming. Instructors responded by using topic-specific threads in Slack, clarifying communication expectations, and modeling effective engagement, which improved access to support and reduced distraction.

Peer Feedback and Collaborative Projects

Learners described peer feedback opportunities as valuable for deepening understanding and improving work. However, they highlighted logistical issues such as tight deadlines and poor group coordination. Instructors responded by suggesting defined roles, integrating collaborative templates, and using Slack checklists to support coordination. These revisions have improved clarity, accountability, and the quality of collaboration in team-based online projects.

Iterative Refinement: A Continuous Feedback Loop

Each semester, instructors systematically review learners' responses to the open feedback discussion prompt to refine materials, improve scaffolds, and better align supports with authentic learner needs. Tools such as the Assignment Organizer Prompt Generator and Slack project management strategies have undergone multiple iterations based on specific learner suggestions. This iterative, feedback-driven approach fosters a collaborative partnership between instructors and learners, demonstrating that course design is not static but co-created. By responding to evolving learner needs, instructors create more coherent, accessible, and empowering learning environments that actively support EF and learner agency.

The learner-informed refinements illustrate how EF supports are most effective when they are continuously shaped by the lived experiences of learners. These ongoing enhancements reflect a broader commitment to designing with intentionality, responsiveness, and inclusion. In closing, the following section synthesizes key insights and offers overarching implications for creating asynchronous learning environments that actively promote EF through thoughtful, learner-centered design.

Learner-Informed Refinement: Platform-Agnostic Process

- Simple improvement loop
    - Collect focused input at key points: mid-course pulse, end-of-module check, post-project retrospective.
    - Synthesize themes: pacing, clarity/organization, workload balance, scaffold effectiveness.
    - Implement small changes on a fixed cadence: next module / next term.
    - Close the loop with a brief “You said / We did” update in the LMS.
    - Lightweight instruments
- Use 1–3 targeted items and one open prompt.
    - Tag comments by theme to track patterns across courses.
    - Maintain a shared change log (LMS page; Google/Microsoft Sheet; Teams/Slack doc).
- Prioritization
    - Do first: changes that reduce ambiguity, externalize timelines, or strengthen scaffolds for planning, monitoring, and collaboration.
      Defer: cosmetic tweaks that do not affect EF.

Conclusion

Supporting EF in asynchronous online learning environments requires a deliberate, responsive, and research-informed approach to course design. Throughout this chapter, we examined how EF challenges can impact learner engagement and academic progress in self-paced contexts and how these challenges can be mitigated through strategies grounded in the Universal Design for Learning (UDL) 3.0 framework (CAST, 2024). Drawing on empirical research, we synthesized research-based strategies, course design principles, and project-management approaches, illustrated with practical examples from the LDT graduate and undergraduate programs, that support EF for all learners. As demonstrated through the practices of the LDT programs, scaffolding EF is not limited to a single tool or strategy. Rather, it is achieved through an interconnected system of modular pacing, planning aids, scaffolded assessments, multimodal feedback, and inclusive communication. These crucial supports are refined through iterative feedback loops that position learners as co-creators in the educational experience.

Collectively, learner feedback across the programs provides preliminary evidence that EF-aligned design elements—predictable structure, scaffolding, collaborative supports, and responsive mentorship—translate into observable improvements in learners’ planning, time management, cognitive flexibility, and emotional regulation. Learners explicitly linked these design choices to their ability to stay organized, navigate complex design tasks, and sustain engagement across varied course formats. These insights offer promising indicators of impact and point to areas where further empirical measurement may be beneficial.

The implications for practice show that effective support for EF involves cultivating learning environments that are flexible, transparent, and grounded in universal design principles. By embedding self-regulation tools, providing accessible materials, and modeling intentional planning, instructors empower all learners to succeed. In addition, maintaining open channels for learner input ensures that course design evolves in alignment with the authentic needs of learners.

Ultimately, by centering learner voice and designing with variability in mind, educators can transform asynchronous online courses into dynamic, supportive spaces that foster not only academic achievement but also the development of lifelong EF skills.

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