

Literature Review Assignment Instructions (45%)

The literature review assignment is a multi-stage project designed to help students develop their understanding of a specific topic within engineering education research (EER) and strengthen their research synthesis and academic writing skills. This assignment is broken into **four** components:

- Literature Trace (10%)
- Literature Review – Draft (6%)
- Literature Review – Final Paper (19%)
- Literature Review – Final Presentation (10%)

Please refer to the detailed instructions and rubrics for each part on page 4-10.

Learning Objectives

Literature Review Assessment		Milestone (45% In total)			
		Literature Trace (10%)	Literature Review - Draft (10%)	Literature Review - Final (15%)	Literature Review Presentation (10%)
Learning Objectives	LO1: Summarize the characteristics and historical development of engineering education as a research field.	ISSUE WEEK 3 DUE WEEK 6			
	LO2: Exam teaching & learning and research methodologies in engineering education.		ISSUE WEEK 4 DUE WEEK 9	ISSUE WEEK 10 DUE WEEK 16	
	LO3: Exam major topics in engineering education, including inclusivity and diversity, technology integration, and workplace connections.				
	LO4: Build a literature review paper on an engineering education research topic that interests students.				
	LO5: Present the topics in engineering education with clear, concise, and well-structured presentations				ISSUE WEEK 14 DUE WEEK 16

Format

All written submissions must adhere to standard formatting and style guidelines as outlined in the [American Psychological Association \(APA\) Formatting & Style Guide \(7th edition\)](#). This includes double-spacing, a 12-point Times New Roman font, and 1-inch page margins.

Reference:

1. [APA Sample Paper](#)
2. [Purdue APA Formatting and Style Guide \(7th Edition\)](#)

Resubmit Assignment

I will administer and approve all course grades as outlined in the table above. **Assignments that receive a grade lower than 90% of the total points may be revised and resubmitted.** To revise an assignment, you must schedule an appointment with me to discuss the graded assignment and the necessary revisions to address feedback. Re-submitted assignments must clearly indicate revisions using tracked changes, such as an alternative font color for added content and strikethrough formatting for deleted content. All revised assignments must be submitted within one week after receiving the feedback and original grade.

Late Assignment

If you need an extension on an assignment, please ask me with reasonable notice prior to the deadline. Extensions will be granted no later than 24 hours before the assignment deadline for legitimate reasons only. To be fair to other students, if an arrangement for an extension has not been made, your grade will be lowered by 10% each day that your assignment is late, including weekend days.

Literature Trace (10%)

In engineering education research, critical analysis, synthesis of ideas, and effective summarization are essential scholarly skills. As your reading volume grows, keeping track of what you have read—and why it matters—becomes more challenging. The Literature Trace is a tool designed to help you systematically organize and internalize key information from academic sources. It will serve as a reference for your final term paper and future research projects.

Assignment Released: Week 3 | Due: Week 6

How to Complete the Assignment

1. Download and review the template (see below).
2. Begin populating the trace as you read.
3. Use your own words for summaries and reflections.
4. Include brief notes on how each paper relates to your interests or other readings.
5. Submit your completed spreadsheet as a **FIRSTNAME_LASTNAME_LR Trace.xlsx** file by the deadline. The file should include:
 - a. 10-20 papers
 - b. Full citation (APA style)
 - c. Research question(s)
 - d. Method
 - e. Key findings
 - f. Author’s argument or contribution
 - g. Relevance to your research

Notes: Each row represents one paper. You may customize or add columns based on your reading habits or research focus.

Rubrics

	Score 5 - Excellent	Score 3 - Competent	Score 1 - Basic
Paper Quantity (5%)	Includes 10–20 well-chosen papers, clearly	Includes 6–10 entries with some relevance	Fewer than 5 entries.
Content Quality (5%)	Each entry is thoughtfully summarized in the student’s own words, with evidence of critical thinking and synthesis.	Some original paper interpretation is present but may be inconsistent or superficial.	Entries are vague, mostly copied/pasted, or lack relevance to engineering education. Little to no critical analysis.

Template (will be provided as an excel document)

NO.	Authors	Year	Title	Published in	Brief Paper summary (in your own words)	Research Question(s) /	CONSTRUCT (theoretical, conceptual)	Method(s)	Participants (students/faculty/principals)	Findings/Contribution	Implications
1	Yanfang Zhai & Xiufeng Liu	2024	Science career expectation and science-related motivation: a latent profile analysis using PISA 2015 data	International Journal of Science Education	This study explores how students' science-related motivation profiles relate to their expectations for science careers, using data from PISA 2015. The researchers identify five distinct profiles of science-related motivation among Chinese 15-year-olds and analyze how instructional practices, engagement, gender, and socioeconomic status predict these profiles. The study	What are the latent science-related motivation profiles? How do student science career expectations differ in terms of student motivation profiles? How do instructional practices and engagement predict different student motivation profiles? How do gender and socioeconomic status predict different student motivation	Theoretical: Expectancy-Value Theory (EVT) and Systems Theory Framework (STF). Beliefs/Perspective constructs include enjoyment, interest, self-efficacy, instrumental motivation, and epistemological beliefs about science.	Approach: Latent Profile Analysis (LPA). Data Source: PISA 2015 dataset for students in Beijing, Shanghai, Jiangsu, and Guangdong. Variables: Five motivation-related factors, instructional practices, engagement, gender, socioeconomic status, and career expectations.	9,841 Chinese 15-year-old students from 268 schools. Gender distribution: 47.6% girls.	Profiles: Five distinct motivation profiles emerged: Average (61.1%): Moderate levels across all variables. Unconfident (22%): Low self-efficacy and motivation. Enthusiast (13%): High instrumental motivation and epistemological beliefs. Uncommitted (3.1%): Lowest across all variables. Scientist (0.7%): High enjoyment,	Implications: Effective instructional practices, combining teacher-directed and inquiry-based approaches, can foster science-related motivation. Addressing socioeconomic disparities and gender stereotypes in science education is crucial for promoting equity and increasing science career aspirations among diverse groups. Non-linear

Literature Review – Draft (6%)

This draft assignment allows you to begin developing and organizing your literature review before the final submission. It is designed to help you clarify your research position, receive targeted feedback on your methods and findings, and ensure you are on track for a strong final paper. Submit your paper as a pdf file named **FIRSTNAME_LASTNAME_LR Draft.pdf** by the deadline.

(Before this assignment is due, class workshops are expected to have covered key topics related to positionality, methods, and findings, and students will have had opportunities to receive peer review feedback. If, for any reason, these topics are not adequately covered in class before the submission deadline, the assignment requirements may be adjusted accordingly to reflect what has been taught.)

Assignment Released: Week 4 | Due: Week 9

How to Complete the Assignment

Your draft should be approximately 2–4 double-spaced pages, not including references. It may include outlines, bullet points, and partial paragraphs, especially for the methods and findings sections. **However, the positionality section should be written in full paragraph form and ready for grading.**

1. Positionality (Required – Graded):

This section will be formally evaluated and count toward your final grade. You are expected to reflect on your positionality as a researcher—how your background, experiences, and identity influence your topic interest, interpretation of literature, and perspective on the field.

2. Methods and Findings (Required – Feedback Only):

These sections are required in draft form but will not be graded. They are included to provide you with formative feedback and to help you prepare for deeper synthesis in the final paper. You should show early efforts to:

- a. Describe the literature search and selection methods you used. For example, which databases and keywords were applied. Mention inclusion/exclusion criteria and how you narrowed your focus. Use a [PRISMA flow diagram](#) to present the literature selection process.
- b. Highlight emerging themes or findings from the literature, even if incomplete.

Format

All written submissions must adhere to standard formatting and style guidelines as outlined in the [American Psychological Association \(APA\) Formatting & Style Guide \(7th edition\)](#). This includes double-spacing, a 12-point Times New Roman font, and 1-inch page margins.

Reference:

3. [APA Sample Paper](#)
4. [Purdue APA Formatting and Style Guide \(7th Edition\)](#)

Rubrics (Positionality)

	Score 2 - Excellent	Score 1 - Competent	Score 0 - Basic
Identity and Relevance (2 pts)	Clearly describes aspects of personal identity and	Mentions identity and attempts to connect it to the	Identity is vague or not clearly linked to the research topic.
Reflection and Insight (2 pts)	Demonstrates thoughtful reflection on how identity	Shows some reflection, but may be surface-level or	Lacks meaningful reflection; may be descriptive or overly
Clarity and Organization (2 pts)	Writing is clear, well-structured, and easy to follow, with	Mostly clear and organized, with occasional grammar	Writing is unclear, disorganized, or contains frequent

Literature Review – Final Paper (19%)

This assignment gives you the opportunity to synthesize and critically analyze scholarly literature related to your research interests. It will help you identify key themes, theoretical frameworks, and gaps in the field while clarifying your own research direction. The review serves as both a foundational document for your Ph.D. journey and a potential springboard for future research proposals or publications.

Assignment Released: Week 10 | Due: Week 16

How to Complete the Assignment

You will submit a written literature review paper (approximately 6–10 double-spaced pages, not including references), based on the scholarly works you have reviewed throughout the semester. Your review should demonstrate a clear structure and coherent synthesis of sources. Submit your paper as a pdf file named **FIRSTNAME_LASTNAME_LR Final.pdf** by the deadline.

Suggested Paper Structure:

1. Introduction: Introduce your general topic and explain its significance in the engineering education research field.
2. Research Questions: The main research questions or goals that the body of literature seeks to address.
3. Methods
 - a. Describe the literature search and selection methods you used. For example, which databases and keywords were applied.
 - b. Mention inclusion/exclusion criteria and how you narrowed your focus.
 - c. Use a [PRISMA flow diagram](#) to present the literature selection process
4. Findings
 - a. Group and synthesize key findings from the reviewed papers according to major themes, approaches, or debates.
 - b. Highlight agreements, contradictions, evolving patterns, or trends in the literature.
 - c. Avoid summarizing papers one by one—focus on cross-paper analysis and theme-based organization.
5. Discussion
 - a. Identify gaps, limitations, or under-explored areas in the existing literature.
 - b. Suggest future directions, research questions, or contributions you may explore.
6. References
 - a. Include a complete list of APA-formatted references.
 - b. Your review should be based on at least 10 summarized scholarly articles, with a total of over 20 references, including background or contextual sources.

Format

All written submissions must adhere to standard formatting and style guidelines as outlined in the **American Psychological Association (APA) Formatting & Style Guide (7th edition)**. This includes double-spacing, a 12-point Times New Roman font, and 1-inch page margins.

Reference:

5. [APA Sample Paper](#)
6. [Purdue APA Formatting and Style Guide \(7th Edition\)](#)

Rubrics

	Score 3 - Excellent	Score 2 - Competent	Score 1 - Basic
Introduction (3 pts)	Clearly introduces topic and significance; provides strong rationale and context for the review.	Topic is introduced but lacks depth or clear rationale.	Topic is vague, missing, or lacks relevance to the field.
Research Questions (3 pts)	Research question(s) or goals are clearly stated and logically aligned with the	Research question is somewhat clear but not fully aligned with the literature.	Missing, unclear, or not connected to the review.
Methods (3 pts)	Literature search process is clearly described (databases, keywords, inclusion	Search methods are mentioned but lack detail or clarity.	Methods are not described or too vague to assess.
Findings / Thematic Synthesis (3 pts)	Key findings are synthesized into clear themes; strong comparison and integration	Some attempt to group findings into themes; synthesis is present but	Mostly descriptive summaries with little or no synthesis.
Discussion (3 pts)	Gaps, limitations, and future directions are clearly identified and well connected to the review.	Some discussion of gaps or future work; connections could be more explicit.	Discussion is weak, unclear, or missing entirely.
References (2 pts)	/	Includes 10+ scholarly sources with accurate APA formatting throughout.	Slightly fewer than 10 sources or minor APA formatting issues.
Organization and Clarity (1 pts)	/	/	Clear and logical structure; strong transitions; argument flows well throughout the paper.
Writing and Grammar (1 pts)	/	/	Writing is clear, precise, and free of grammar errors; uses academic tone and field-specific vocabulary.

Literature Review – Final Presentation (10%)

This assignment gives you the opportunity to present the key findings from your literature review in a concise, professional, and engaging way.

Assignment Released: Week 14 | Due: Week 16

How to Complete the Assignment

You will deliver a 10–12 minute presentation, followed by 2–3 minutes of Q&A based on the literature you have reviewed this semester. Presentation Tips:

1. Begin with a brief introduction to your topic and its significance.
2. Clearly state your main themes or questions.
3. Slides (5–8 pages)
 - a. Group papers by themes, methods, or findings
 - b. Explain how they connect to one another and to your own research interests.
 - c. Use visual aids (figures, charts, diagrams, or conceptual frameworks) to help explain complex ideas.
4. Maintain good eye contact, pace, and tone.
5. Be prepared to answer audience questions.

Rubrics

	Score 2/3 - Excellent	Score 1 - Competent	Score 0 - Basic
Organization and Logical Flow (2%)	Well-structured; ideas connect smoothly throughout.	Basic structure with some transitions and logic.	Disorganized; lacks clear sections or transitions.
Clarity and Delivery (3%)	Clear, confident, and engaging delivery with good pacing.	Generally clear delivery; minor issues; somewhat engaging.	Unclear or difficult to follow; heavily read from notes.
Visual Support (Slides/Materials) (2%)	Visually appealing slides that enhance understanding.	Adequate slides with relevant visuals; may lack polish.	Cluttered or hard-to-read slides; ineffective visuals.
Time Management and Interaction (2%)	Well-timed presentation with thoughtful engagement and responses.	Within time range; basic interaction or question response.	Significantly over/under time; poor audience engagement.