

ESD.83 Assignment 9: Critical Review Paper **(500 word paper, 5% of the total)**

Assigned: Session 12; Due: Session 13.

Reading Material:

A set of 10 articles is provided as an appendix at the end of this document. These papers cover a variety of concepts and methods, each related to the topic of engineering design.

Each student shall pick a different article to analyze.

Assignment:

Choose from the list of available papers. Instead of your typical 300 word response to two faculty-selected papers, we would like to you to perform a **slightly more in-depth, slightly longer**, critical analysis of your chosen paper.

While you may wish to highlight important weaknesses, we would like to you to first emphasize the strengths and contributions of the paper; what was the fundamental research contribution: did it yield a new insight, a new method, or a new question?

As such, your first section (50-100 words) should identify the key contribution of this paper (to any field, to design research and/or to ES generally).

For the remainder of your response, you may focus on the areas you find most relevant to your paper, and you may use the following questions as a guide:

- What is the main claim or conclusion? To what extent is it fact or opinion? Are conclusions supported by the methods and analysis employed?
- How well does this paper address a relevant question in the field, and draw upon prior research?
- To what extent is it a scientific paper? If so, are the methods, data, appropriate?
- Is it communicated clearly? Are the Figures clear and meaningful? If there are no figures, is the logic clear, valid, sound?
- What are the main weaknesses? Is it missing evidence? Does it state assumptions and limitations?
- Would you recommend this paper to your fellow ESD students? Why?

Design Paper Options

	Design Papers
1	R. Parasuram, T. Sheridan, D. Wickens. (2000). A Model for Types and Levels of Human Interaction with Automation, IEEE TRANSACTIONS ON SYSTEMS, MAN, AND CYBERNETICS—PART A: SYSTEMS AND HUMANS, VOL. 30, NO. 3, MAY 2000 p. 286.
2	R. Weisberg. (2006) “The Cognitive Perspective on Creativity, Part II: Knowledge and Expertise in Problem Solving”, Chapter 4 in <i>Creativity: Understanding Innovation in Problem Solving, Science, Invention, and the Arts</i> . New Jersey: Wiley & Sons.
3	Frey, D.D., Herder, P.M., Wijnia, Y., Subrahmanian, E., Katsikopoulos, K., Clausing, D.P. (2009). The Pugh Controlled Convergence method: model-based evaluation and implications for design theory. <i>Research in Engineering Design</i> , 20:41-58.
4	O. de Weck, D. Roos, C. Magee. “Partially Designed, Partially Evolved”, Chapter 6 in <i>Engineering Systems: Meeting Human Needs in a Complex Technical World</i> . Proof copy.
5	L.J. Ball, T.C. Ormerod, N.J. Morley. “Spontaneous analogising in engineering design: a comparative analysis of experts and novices.” <i>Design Studies</i> 25 (2004) 495–508
6	H. Simon. “The Science of Design: Creating the Artificial”, Chapter 5 in <i>The Sciences of the Artificial</i> . The MIT Press: Cambridge, MA. 3 rd Ed., 1996.
7	J. Luo, A. Olechowski, C. Magee. “Technologically-Based Design as a Strategy for Sustainable Economic Growth”, October 23, 2011. Submitted. Draft, DO NOT DISTRIBUTE.
8	P.R. Carlile. “Transferring, Translating, and Transforming: An Integrative Framework for Managing Knowledge across Boundaries”, <i>Organization Science</i> , Vol. 15, No. 5 (Sep. - Oct., 2004), pp. 555-56.
9	J.S. Linsey, K.L. Wood, A.B. Markman. “Modality and Representation in Analogy”, <i>Artificial Intelligence for Engineering Design, Analysis and Manufacturing</i> (2008), 22, 85–100.
10	F. Brooks. “The Surgical Team”, Chapters 2-4 in <i>The Mythical Man-Month: Essays on Software Engineering</i> . New York: Addison-Wesley Professional, Anniversary Edition, 1995.

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