Terrifyingly Productive
A Response to Nardo and Trninic
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In "Bridging the Theory and Empiry of Learning from Failure," Nardo and Trninic have introduced us to Manu Kapur's idea of Productive Failure. I realize that they are somewhat critical of Kapur, calling his sense of failure "under-theorized."[1] I also understand that they seek to bridge between Kapur's empirical work and more theoretical sources. Nonetheless, I will primarily focus on Kapur's idea of Productive Failure in these brief remarks, treating it, at least sequentially, as their paper's major premise. I admit that I enter the learning sciences with very little specialized expertise, but this risk should at the very least simulate the approach that Productive Failure promotes, as we will see.

In "Productive Failure," a 2008 article in *Cognition and Instruction,* Kapur claims to provide an "existential proof for productive failure" through an empirical study "to test the hypothesis of productive failure: whether or not there is a hidden efficacy in the unscaffolded, problem-solving efforts of groups of learners solving ill-structured problems and if this efficacy can be extracted using a contrasting-case design."[2] Now, claiming that a single experimental study can provide an "existential proof" for Productive Failure and, at the very same time, to claim that the same study tests Productive Failure as a rather oddly phrased scientific hypothesis, makes for a rather convenient and unscientific rhetoric of evidence, but I will assume that this is simply the accepted style for *post facto* reporting in social science articles.

Kapur's empirical experiment took place in India with high school students working on problems of Newtonian kinematics in three phases supplemented by pre- and post-tests. Before we look to the conclusion, where Kapur's hypothesis is predictably confirmed, it is worth noting that the idea of failure in the experimental stages of the article has nothing to do with failure as such or theoretical negativity. It is entirely a question of two contrasting approaches to problem solving, contrasted by how they are

structured and sequenced. The well-structured approach will later be called "Direct Instruction." The ill-structured and unscaffolded approach is what Kapur affixes his trademark to.

As we can see, the hypothetically noted "hidden efficacy" seems to be the *productive* part of Productive Failure. The ill-structured and unscaffolded design, contrasted from Direct Instruction, is the *failure* part. While well-structured and ill-structured have a sensible analogical contrast, there is nothing analogically comparable between Direct Instruction and Productive Failure. After the experimental sections of the article, Kapur supplies a more conventional meaning to the word 'failure' by leaping from his experimental usage about structure and sequence to what the experimental data, on Kapur's very confident analysis, reveal. He writes:

This study was designed to show that, under certain conditions, students' engagement in solving ill-structured problems—problems that are beyond their skill sets and abilities—can be a productive exercise in failure. The data provide evidence for and support the productive failure hypothesis...[T]his study claims that one need not necessarily provide additional structures within ill-structured problem-solving activities; the implication being that, not overly structuring the problem-solving activities of learners, and permitting students to struggle and possibly even fail can be a productive exercise in failure.[3]

In this passage, we see that Kapur shifts from the previous experimental language where failure means the ill-structured and unscaffolded problem environment for students to an entirely different usage that refers to an extended expression: "a productive exercise in failure." After this shift, Kapur echoes a note we can also hear in Nardo and Trninic's paper when he claims that under certain conditions, even ill-structured, complex, divergent, and seemingly unproductive processes have a hidden efficacy about them requires a paradigm shift—in theory and in practice. Resisting the rarely questioned, near-default rush to structure problem-solving activities, perhaps it might be fruitful to first investigate conditions under which ill-structured problem-solving activities lead to productive failure as opposed to just fail-

ure.[4]

      In this final paragraph of Kapur's 2008 article, he adds a third meaning to failure. The first one, disanalogous as it was, was the experimental distinction between Direct Instruction or well-structured problems, on the one hand, and Productive Failure or ill-structured problems, on the other. The second shifted from the experimental to the extended "productive exercise in failure." Now, in this new meaning, we have a more dialectical "productive failure as opposed to just failure" that seems to isolate the productive aspect more than the failure aspect. Tracing these meanings of failure did not lead me to find Kapur's 2008 notion of failure merely under-theorized, as Nardo and Trninic claim. Far worse, I found it conceptually overworked and often arbitrarily theorized when not simply labeling the contrasting case experiments. If this 2008 article is sequentially understood as an opening premise to thinking about failure and negativity in education, then, it is hard for me to see how any worthwhile minor premises, conclusions, or implications could follow.

      Kapur's 2016 article in *Educational Psychologist* presents a taxonomy of unproductive failure, productive failure, productive success, and unproductive success.[5] Despite the brevity and speculative nature of this article, it seemed to extend the third meaning of failure from his 2008 article. By the end, however, and despite earlier claims of interpretive moderation, Kapur pejoratively associates Direct Instruction with unproductive failure and ends by again endorsing Productive Failure. This article lacks the previous article's triumphalism, but it does not substantially correct his previous work on my view.

      As we can see, Kapur's two articles, cited by Nardo and Trninic, are a burdensome major premise to overcome. As a result, I am unable to sort through the eclectic claims to follow, made in reference to Hegel, Dewey, and Vygotsky, along with assertions about the present state of education and negativity and learning writ large. I am also unable to find evidence that Productive Failure is more than marginally interested in failure as a pedagogical phenomenon in this flurry of psychologisms.

      The trademarked rhetoric of Productive Failure as an educational slogan also strikes me as profoundly *status quo*, similar in tone to grit dis-

courses, start-up language, and corporate motivational branding. A critic of my analysis thus far might sympathetically compare Kapur's general thesis to Paulo Freire's famous distinction between "the banking concept of educa- tion," which would resemble Kapur's well-structured Direct Instruction, and Freire's "problem-posing education," which might be said to be the analogi- cal equivalent to Kapur's ill-structured Productive Failure.[6] Of course, anyone who reads Freire's methodical use of "epochal thematics" and structured approach to literacy will find that his approach is not an endorsement of ill-structured problem posing at all.[7]

This false analogy between Kapur and Freire clarifies the moral negativity I found in Kapur's cited work and Nardo and Trninic's paper: an absence of concern for the grave risk of moral failure in education. Freire has no room for Productive Failure in his critique of the banking concept of education because his distinction between banking and problem-posing is, unlike Nardo and Trninic, not about learning. "At bottom," Freire writes, "the great archives are persons, in this mistaken 'banking' concept of edu- cation. Archived because, outside of the yearning, outside of praxis, persons cannot be."[8] Unlike Nardo and Trninic's Kapurian and therefore amoral concern for *learning*, Freire's moral concern is about *education*. He continues: "The strange humanism of this 'banking' concept is reducible to the attempt to make men into their opposite—an automaton."[9] For Freirian pedagogy, the risks of depersonalization and objectification are potential moral failures that cannot be ill-structured or left up for grabs. This moral sense of failure is not the usage at play in Nardo and Trninic's paper or in Kapur's articles. However, given the wide variety of meanings they invoke and their ostensible interest in education, it seems reasonable to expect the moral dimension to be addressed to some substantial degree.

The most concrete way to substantiate my accusation of there being an absence of concern for the grave risk of moral failure in education in this paper and its primary source can be found in the absence of the teacher in these studies of learning. To be fair, Nardo and Trninic (in their commentary on Vygotsky), like Kapur (in 2016), do not endorse an absent teacher, but the role of the teacher in their analysis is clearly an instrument for learning just

as *students* are rhetorically conflated with *learners*. We do not see a concept of learning, as the Spanish term *aprendizaje* suggests, where teaching and learning are conjoined through apprenticeship or any other more nuanced position. For the reasons I have outlined, then, my response is as follows: any appreciation of failure and negativity and promotion of ill-structured problem-solving that fails to account for what distinguishes computer programming and robotic learning from a genuinely moral education is terrifyingly productive, producing an amoral dystopia that inexact and pseudoscientific narratives about failure and negative learning cannot redeem, rectify, or bridge.

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1 Aline Nardo and Dragan Trninic, "Bridging the Theory and Empiry of Learning from Failure," *Philosophy of Education* 76, no. 2 (2020).

2 Manu Kapur, "Productive Failure," *Cognition and Instruction* 26, no. 3 (2008): 379-424, 384.

3 Kapur, 414.

4 Kapur, 415.

5 Manu Kapur, "Examining Productive Failure, Productive Success, Unproductive Failure, and Unproductive Success in Learning," *Educational Psychologist* 51, no. 2 (2016): 289-299.

6 See generally Paulo Freire, *Pedagogy of the Oppressed*, rev. ed. (New York: Continuum, 1996).
7 See Samuel D. Rocha, *The Syllabus as Curriculum: A Reconceptualist Approach* (London: Routledge, 2020), 9-11.

8 Paulo Freire, *Pedagogia do Oprimido*, 17a ed., trans. Samuel D. Rocha (Rio de Janeiro, Brazil: Paz e Terra, 1987/1970), 58.

9 Freire, *Pedagogia do Oprimido*, 61.