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Circuit Breakers

So-called “circuit breakers” are being used to stop the spread of the Coronavirus on college and university campuses². Specifically, schools are making the decision to pause in-person instruction to stem the spread of the virus, mirroring the success similar moves have had to spur decreases elsewhere. It is becoming more evident that the return of students to campuses and in-person teaching have both contributed to local outbreaks. The temporary pause in in-person instruction – what has come to be called a “circuit breaker” – has become “the new favored tactic of colleges and universities trying to curtail the spread of coronavirus².” We are now even hearing about “circuit breakers” (e.g., temporary lockdowns) being considered at the city and national level in the UK³.

In my 2020 article, *Defining Resilience: The University-Edition*^{4,5}, I begin by seeking to establish that large institutions like universities are indeed analogous to infrastructure systems. Both are complex; made up of interconnected, and interdependent elements and subsystems; and serve critical functions. They are both expensive to construct, operate, and maintain. Design and operation of these systems should implicitly or explicitly address security, health and safety, integrity, durability, redundancy, reliability, and resilience.

“They both facilitate flow. In the case of infrastructure systems, this could be traffic, data, water, electricity, workforce, emergency vehicles, goods and services, commerce, etc. In the case of universities, flow could refer to our students or the generation/distribution of knowledge itself. Our ‘intellectual infrastructure’ consists of the campus, buildings, research facilities, major equipment, physical plant (water, sewer, power, telecommunication) as well as IT infrastructure, and stored knowledge (whether physical or digital). But it also includes the people (faculty, staff, researchers, clinicians, and of course students).”

¹ *Across the Green* was started as a series of periodic [letters](#) from Provost Rosowsky to provide updates on current initiatives and information on topics of interest to the broader UVM academic community. Started in 2013, *Across the Green* was published three times per year during the six years Dr. Rosowsky served as UVM’s Provost and Senior Vice President. The *ATG Brief series* continues in the spirit of this communication with topics focused on higher education and leadership.

² See: <https://www.insidehighered.com/news/2020/09/23/covid-19-roundup-circuit-breakers-and-other-temporary-shifts-study-estimates-college>

³ See: <https://www.telegraph.co.uk/news/2020/09/18/would-two-week-circuit-break-lockdown-work/>

⁴ See: <https://www.davidrosowsky.com/wp-content/uploads/ATG-Briefs-Defining-Resilience-University-edition.pdf>

⁵ Also published as “Defining Resilience: Building Institutional Resilience into Colleges and Universities” by AGB *Trusteeship* magazine, <https://agb.org/trusteeship-article/defining-resilience-building-institutional-resilience-into-colleges-and-universities/> (requires subscription)

In that original 2019 article, *Defining Resilience*⁶, I wrote:

“Robustness and redundancy are terms used to describe an engineered system’s ability to respond to different loading types, directions, scenarios, or conditions of localized or partial failure not explicitly considered in the (typically member-level) design. This relates to load-sharing properties of a system, alternate load paths, fuse-type elements, and so on. Like resilience, these are system characteristics.”

Another name for a fuse-type element is a *circuit breaker*, a safety mechanism installed to prevent an overload or a cascading failure.

I find it interesting that the term “circuit breaker” is now being used to describe the decision to pivot, after the start of the semester, to remote learning only (in response to a rapid and/or significant increase in the number of positive test results for Covid-19), with the expectation that on-campus teaching and learning may resume in a small number of weeks (after the designated quarantine period). It’s not a bad term. In fact, it’s apt. It also further reinforces my point that our universities have much in common with infrastructure systems when it comes to building and ensuring continued and safe operations, e.g., *resilience*.

Whether the “circuit breaker” approach works, and leads sustainably to conditions for which in-person classes can be resumed (i.e., without having to again suspend in-person classes), remains to be seen. But it appears we will have a good sample size as the number of schools pivoting away from (and back to) in-person classes appears to be growing. We also will have a representative sample of schools that pivoted to online instruction with no plans to re-open this fall, as well as those that decided before the start of the semester to hold all classes online. This national higher education experiment, evolving and unfolding in real-time, will provide critical information to those making decisions about the spring semester, now just three months away.



David V. Rosowsky is Professor of Engineering at the University of Vermont and served for six years as UVM’s Provost and Senior Vice President (2013-2019). These personal reflections are based on 15 years of experience leading organizational and institutional change in higher education. Prior to joining UVM in 2013, he served as Dean of Engineering at Rensselaer Polytechnic Institute, and before that as Head of the Zachry Department of Civil Engineering at Texas A&M University. He previously held the A.P. and Florence Wiley Chair in Civil Engineering at Texas A&M University and the Richardson Chair in Wood Engineering and Mechanics at Oregon State University. He is a Fellow of the American Society of Civil Engineers, the Structural Engineering Institute, and the Institute of Science, Technology, and Public Policy at the Bush School of Government and Public Service at Texas A&M University. In 2019, he was a Fellow and member of the inaugural cohort of the Association of Governing Boards (AGB) Institute for Leadership and Governance in Higher Education.

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⁶ “Defining Resilience” by D. Rosowsky, *Sustainable and Resilient Infrastructure*, Taylor & Francis, 2019, <https://doi.org/10.1080/23789689.2019.1578166> (requires subscription)