IMAGINING SoTL

Visualizing the Power and Privilege of Failure in Higher Education

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ABSTRACT

Learning from failure is a core component of education; however, it is not often deliberately taught in university courses. In addition, while the rhetoric around taking risks, embracing failure, and bouncing back is pervasive in higher education, the corresponding structural supports are lacking. The purpose of the current work is to explore ways we can visualize and illustrate the power and privilege involved in embracing and learning from failure in the context of higher education. We offer three approaches for visualizing the same set of research data, which explores student and instructor experiences of failure. The first figure is structured using a Venn diagram; the second uses a Möbius strip; and the third draws on both puzzle imagery and the structure of a kernmantle rope to offer a more complex rendition of power and privilege in higher education.

The illustrations herein are intended to serve as introductory guides to this topic. The work emphasizes that power is diffuse and mutable, and we underscore the critical importance of recognizing that each person experiences power and privilege differently in different circumstances. This exploration of illustrative concepts is a place to start theorizing about how students and instructors experience, resist, or wield power as they navigate academic institutions and engage with failure. We note that each instance of struggle, failure, or recovery exhibits specific configurations of power as multiple vectors contribute more or less strongly to the situation. The exact topography of power changes as different people, areas of the institution, or social policies and values enter the equation.

Keywords: post-secondary education, inequality, teaching, learning, failure

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LAND ACKNOWLEDGEMENT

We wish to acknowledge the land on which the University of Toronto operates. For thousands of years, it has been the traditional land of the Huron-Wendat, the Seneca, and the Mississaugas of the Credit River. Today, these places are still the home to many Indigenous people from across Turtle Island, and we are grateful to have the opportunity to work on this land. We wish also to acknowledge the continued histories of injustice, oppression, and violence perpetuated by white, settler colonialist systems and institutions, including schools and universities. We recognize how education served as a tool to erase Indigenous cultures, devalue Indigenous knowledge systems, and craft systems of exclusion. It is not enough to be grateful for the land we now occupy. We recognize and seek to redress injuries both past and present. These histories and their present reverberations form part of the impetus for our work to understand and intervene in structures of power and privilege in the university.

INTRODUCTION

In recent years, post-secondary institutions have increasingly exhorted students to "embrace risk" and "learn from failure," often while highlighting both the pedagogical benefits of risk-taking and the opportunities that "failing forward" presents. While these claims reframe failure as an opportunity, they presuppose an institutional learning environment in which material resources (e.g., money, access to software/equipment) and intangible assets (e.g., time, support structures) are equitably distributed and accessible among all students. Yet as we know, pervasive inequalities, particularly in the lives of first-generation, international, and historically excluded students, dramatically shape who can afford to take risks, who gets to fail, and who has the resources to try again.

This paper seeks to prompt deeper conversations about the ways power and privilege shape experiences of teaching and learning within institutions of higher education. Despite the propensity to describe failure in individualistic terms, student experiences of struggle or failure are shaped by multi-scalar processes that connect classrooms to communities to geopolitical relations. Communicating the complex interactions of the processes that shape experiences of failure in higher education is neither a simple nor a singular task.

In the coming pages, we offer three figures illustrating the multiple vectors and interactions between modes of power and privilege in academe. These figures arose from efforts by the interdisciplinary Failure: Learning in Progress (FLIP) research project at the University of Toronto to address oversights in the research of productive failure and the integration of failure pedagogy into course design. The FLIP project explores failure using multiple approaches, including examining its role as a core part of the learning process, differences in disciplinary perspectives and practices toward the role of failure, how failure is supported or discouraged between institutional levels, and how failure relates to or impacts on student wellness. Attention to power and privilege runs through each of these approaches.

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As a key connecting thread, power and privilege plays an outsized role in shaping how both students and instructors embrace, learn from, and implement failure in higher education.

The illustrations of power and privilege detailed herein are intended to serve as guides and conversation starters rather than as complete or authoritative diagrams. Power is diffuse and mutable. It is vital to recognize that each person experiences power and privilege differently in different circumstances. The illustrations cannot and are not meant to stand in for critical analysis of situationspecific conditions. They are, however, a place to start theorizing how students and instructors experience, resist, or wield power as they navigate academic institutions and engage with failure.

CRITICAL CONTEXT

In the process of developing the forthcoming figures, as well as the conceptual frameworks behind them, we consulted research and ideas across a variety of scholarly fields. Data visualization, educational research, the scholarship of teaching and learning, and cultural theory all contributed to the critical context from which we devised these illustrations of power. In the following sections, we describe each area of scholarly work from which our figures developed.

Role of Illustration / Metaphor in the Comprehension and Communication of Difficult Concepts

There are times when a visual metaphor or a visual representation of data not only shares insights with the viewer, but also inspires the viewer to engage with ideas in new and interesting ways. For us, one such example is the Coin Model of Privilege and Critical Allyship (Nixon, 2019). Used to visualize transformative change to address health inequities, the Coin Model employs an intersectional process to "understand how systems of inequality, such as sexism, racism and ableism, interact with each other to produce complex patterns of privilege and oppression" (Nixon, 2019, p. 1). In this model, the coin itself represents a system or social structure of inequality, such as racism or ableism. The top of the coin represents privilege (having unearned advantage due to chance and circumstance), and the bottom of the coin represents oppression (having unearned disadvantage due to chance and circumstance). The coin metaphor highlights the dialectic that exists between privilege and oppression—that they are literally two sides of the same coin. The coin metaphor also models the role of power in decision making, as well as how disconnected the experience of systemic inequality, which occurs on one side of the coin, is from the power and decision-making processes lying on the other side of the coin. In health inequity work, focus often rests solely on the bottom of the coin (the oppressed), so much so that the top of the coin and the coin itself can disappear from discussions and solutions. Nixon states that "the goal is not to move people from the bottom of the coin to the top, because both positions are unfair. Rather, the goal is to dismantle the systems (i.e., coins) causing these inequities" (p. 3).

Nixon (2019) specifically explores how the coin models ableism, a system of thought and practice that gives preferential treatment and support to people who align with "a societally-constructed norm of able-bodiedness" (p. 4). As Nixon explains,

> In an ableist worldview, there is a particular version of ability that is assumed to be normal or natural (top of the coin), and people who cannot meet this expectation (bottom of the coin) are viewed as a problem who should strive to become, or assimilate to, the norm. Ableism views disability as a mistake or failing rather than a simple consequence of human diversity, like sexual orientation or gender. (p. 4)

In this example, the coin exists through the establishment of a "norm" or "natural" way of being. Deconstruct this, or remove the structure of the coin, and the system of power that creates hierarchy around ability shifts into diversity of experience rather than the categories of the normal and not-normal. A strength of the coin model of privilege, therefore, is its simplicity as it directly illustrates privilege, power, and oppression as emerging from systemic inequalities. It illustrates well the intersectional nature of multiple systems of inequality through the visualization of multiple coins and coin surfaces.

In other situations, visualization can simplify complex processes in such a way that the status quo is (un)intentionally reinforced. For us, one such example is the figure labelled "A Spectrum of Reasons for Failure" in a piece on strategies for learning from failure (Edmondson, 2011). This visual is useful as it highlights a range of failure types, including inattention, task challenge, and hypothesis testing. However, by representing these different types of failure on a continuum, the relationship between them becomes laden with power and judgemental affects. Certain types of failures (inattention and lack of ability) are labelled blameworthy while others (hypothesis testing and exploratory testing) are presented as praiseworthy. In this visualization, there is no exploration of systemic forces that might inform an individual's experiences with failure. The figure neglects to acknowledge how power, privilege, and positionality shape the opportunities one has to fail, how that failure is perceived, and if there are chances to try again or bounce back from failure. We realize this critique goes beyond the goals of the original figure, but as this is the only figure related to learning from failure found during an extensive literature review, it is representative of what is lacking. The figure is a start, and it inspired us, but we need a more diverse lexicon of visualizations to facilitate a wider range of conversations around learning, failure, and recoverability.

Attentive to both the potential and the pitfalls of visualizing relations of power, our process for designing the images in this article draws upon D'Ignazio and Klein's (2020) approach to feminist data visualization that challenges us to rethink binaries, embrace pluralism, examine power, and aspire to empowerment. D'Ignazio and Klein's principles highlight problematic trends in some forms of data visualization—trends that obfuscate the processes of data collection and the social norms that inform the data analysis and its representations, as well as communicate information in ways that reinforce unequal power relations.

We have no illusion that the visualizations we create are neutral or universally true. Instead, we draw upon critical and feminist theories of data visualization to situate our work as an imperfect and fraught process of collecting, interpreting, and visualizing data. As Dörk et al. (2013) state, "visualizations do not capture reality as found in data but rather present a particular angle on it. ...Visualizations are always situated and particular to the assumptions of their designer as well as the context of the viewer" (p. 2192). In this paper, we simultaneously critique our own approaches and open space to empower the viewer to choose which, if any, of the visualizations presented best represent the themes in the data from their perspective.

Education Research

A growing body of scholarly research has demonstrated the pedagogical value of struggle and failure in student learning. Bjork and Bjork (2011) describe the significance of what they term "desirable difficulties," or those challenging scenarios and learning contexts that "trigger encoding and retrieval processes [to] support learning, comprehension, and remembering" (p. 58). Varying instruction conditions, spreading out study and practice sessions, interleaving instruction topics, and using tests and quizzes (rather than lectures only) as moments for learning all introduce desirable difficulties into the classroom. When used in conjunction with students' prior knowledge and skill sets, these moments of difficulty "lead to more durable and flexible learning" (Bjork & Bjork, 2011, p. 59). Similarly, Kapur's (2015) theory of productive failure engages students in problems or tasks that they cannot fully solve on the first try (see also Kapur & Kinzer, 2009; Kapur, 2008; Kapur, 2016). In this framework, students must draw on prior knowledge to develop potential solutions, even if those solutions are incomplete or suboptimal. As Kapur argues, productive failure requires students to identify gaps in their existing knowledge sets while also priming them for greater learning in upcoming instruction. Both desirable difficulties and productive failure value struggle and initial failure because of the ways they can deepen subsequent learning.

While the pedagogical value of struggle and failure has been well established, far less research explores the ways power and privilege are bound up with student experiences of failure. As Feigenbaum (2021) argues, "widespread proclamations about the benefits of failure do not reflect the lived experiences of students, especially those from socioeconomically, culturally, and politically marginalized backgrounds" (p. 16). With some exceptions (e.g., Hallmark, 2018; Kundu, 2014), much pedagogical literature on the learning potential of struggle and failure does not acknowledge the many structural inequalities students navigate on a daily basis. Instead, the documented pedagogical benefits of failure have merged with neoliberal discourses of productivity and individualized responsibility in troubling ways. Major publications in educational research and the scholarship of teaching and learning have adopted the language of business and management to promote the ability to bounce back from failure (Kordich Hall & Pearson, 2005) or to cultivate individual qualities

of resilience (Walker et al., 2006) and grit (Duckworth, 2016). Uncritical engagement with these discourses frames struggle and failure as solely personal issues, rather than phenomena with social and/or systemic factors. From our own quantitative and qualitative analysis of student surveys conducted through the Failure: Learning in Progress (FLIP) project, we have found that the tendency to individualize failure further stigmatizes lack of success and isolates students with feelings of loneliness, inadequacy, embarrassment, or shame. Thus far, educational and SoTL literature advancing neoliberal rhetoric has done so without sufficient attention to the ways power and privilege shape students' experiences of failure, their willingness to take risks, and their abilities to try again or recover.

Critical Cultural Theory

In developing the coming illustrations, the FLIP research team turned to cultural theory to gain a more robust understanding of the role of power and privilege in both teaching and learning in higher education. Our understanding of power in higher education derives not only from the insights of Feigenbaum (2021) and others, but also from cultural theories of relationality (Foucault, 1990), interpellation (Althusser, 2014), and intersectionality (Crenshaw, 1991). By drawing upon this range of theories, we are able to see power working in diverse ways. For example, according to Michel Foucault (1990), power is not a static phenomenon. Rather, it is a continuously shifting negotiation of authority expressed in the interactions between people, institutions, ideologies, and modes of discourse. In these relational spaces, power must constantly be remade, reinforced, and relegitimized. Moreover, wherever one form of power works to control social relations, other forms push back, resist, or offer alternatives. Alternatively, Louis Althusser (2014) delves into the workings of power through the specific vector of ideology. In Althusser's estimation, society functions through a series of ideological filters that call upon, or interpellate, an individual to respond as a particular kind of subject with a particular kind of identity, regardless of whether the individual self-identifies in that manner or not. For Althusser, no one exists outside of ideology. Each person views others through a certain ideological filter and, therefore, exercises power over that person by calling upon them to act in certain ways. Finally, critical race theorist Kimberlé Crenshaw (1991) examines how systems of power intersect to create specific experiences of privilege and oppression. According to this theory, intersectionality accounts for the many ways racism, sexism, classism, and other manifestations of power interact to produce overlapping forms of inequity and oppression.

Together, these cultural theories provide us with a kaleidoscope of lenses through which to examine the production and negotiation of power in relation to an individual's experiences. Although each approach exhibits a different set of priorities, they come together in their view of power as an ongoing process produced by and productive of social relations. We embrace the messiness of working in and through

this variety of theoretical frames because it gives us the means to engage with the tangled reality that is lived experience.

METHODOLOGY

The coming illustrations of power in higher education were developed by pairing cultural theories of power with data collected from faculty interviews and student surveys conducted at the University of Toronto. We briefly describe the methodologies involved in both data collection and the design of the illustrations below. Both the faculty interviews and the survey received ethics approval through the University of Toronto Delegated Ethics Review Committee.

Faculty Interview Process and Analysis

In a study examining the relationship between power, privilege, and experiences of failure, instructors (n=12) in a variety of faculty and non-faculty positions across disciplines were invited to reflect on the role of failure in teaching and learning. During one-hour, semi-structured interviews, interviewers asked participants to consider their perceptions of failure, the role failure played in their own training, research, and teaching, their views on the pedagogical value of failure, and any influence institutional structures may have on instructor willingness to incorporate the pedagogy of failure in their classrooms. Following the interviews, two members of the research team analyzed the data according to Creswell's (2012) qualitative coding protocol. During this process, major themes and subthemes were determined and recorded in a detailed coding ledger. Coding was conducted by question and by participant to compare instructor perspectives on a given topic and to track shifts in individuals' attitudes over the course of the interview.

Student Survey Process and Analysis

A survey was conducted of undergraduate students at the University of Toronto. Students were recruited through learning-management-system-based announcements in undergraduate courses across disciplines and student-engagement-focused listservs. Following this recruitment campaign, 303 students completed the survey and consented to have their contributions used in this study. Open responses to the survey were coded using Creswell's (2012) protocol of thematic coding, mentioned above. This paper draws specifically from open response questions asking students to reflect on power and privilege in their experiences with higher education.

Illustration Design

Qualitative data and coding ledgers from both the instructor interviews and student surveys were consulted to guide illustration design. Members of the research team took note of instances in which participants described experiencing power themselves or identified circumstances where they saw power working. These instances were categorized according to themes including positionality, institutional policies, resources/support, and status/rank. The data was then paired with areas of power identified in educational research, SoTL, and cultural theory. This additional step of comparing interview and survey data with educational scholarship and cultural theories enabled the research team to position power structures unique to higher education within larger socio-cultural systems of power. In terms of educational research and the scholarship of teaching and learning, literature examining the pedagogical role of failure, discourses of failure and recoverability, and students' abilities to try again were emphasized. Cultural theories of power—particularly those engaging with critical race studies and feminism—were consulted to offer further detail to the socio-cultural context in which higher education is situated. Together, educational and SoTL research, the cultural theories of power, and qualitative data from the FLIP project provided the examples for each category of power.

ILLUSTRATING POWER AND PRIVILEGE

Drawing on the emergent themes from our research, we now present three different approaches to visualizing experiences of failure within the context of higher education. All three visualizations situate higher education within sociocultural contexts as well as highlighting systems of power and inequity that flow through institutional structures and impact individual experiences. In the description of the first figure, we go into detail about the various research themes and how they relate to one another. In the remainder of the discussion for this figure and for the subsequent figures, we then discuss the strengths and challenges of each visualization. Consistent with the feminist and critical data visualization principles outlined above, we offer these multiple visualizations both to avoid a singular authoritative narrative and to offer readers the space to evaluate and engage with the visualizations in ways that are meaningful to them.

Model 1: A Venn Diagram of Failure in Higher Education

The first illustration introduces the complex landscape of power and privilege in higher education through a figure familiar to wide audiences. In Figure 1, a Venn diagram representing sites of power and privilege specific to academe is set against a background evoking the socio-cultural contexts in which institutions of higher education are situated.

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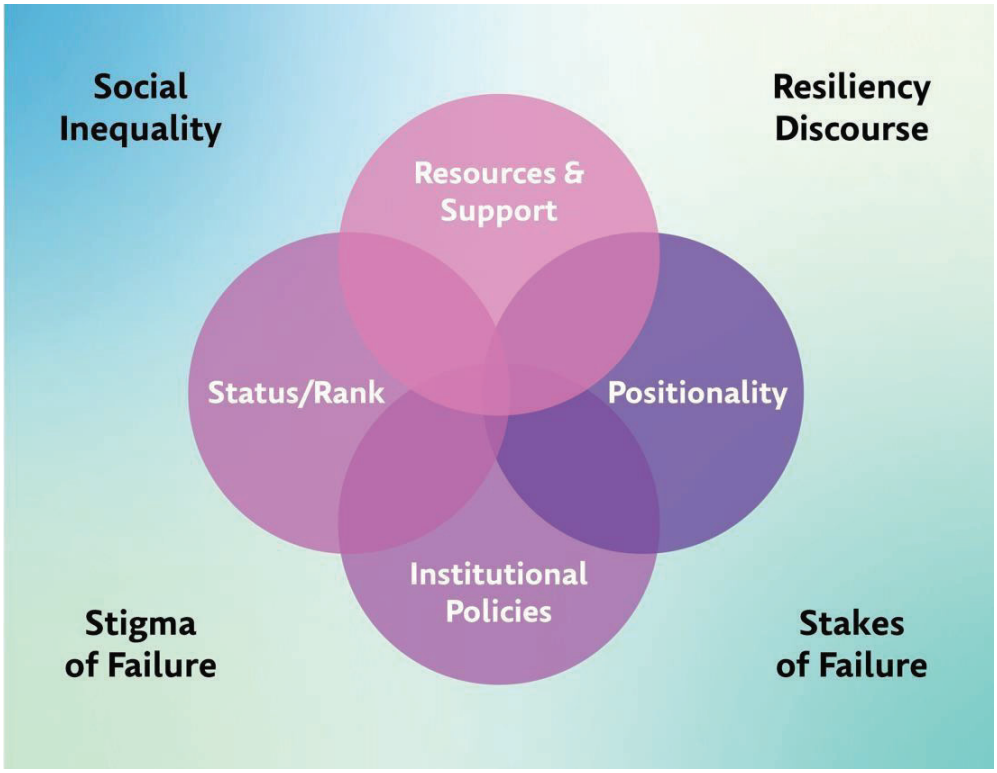
Figure 1. A Venn Diagram of Failure in Higher Education



[Figure ALT TEXT: Figure shows four intersecting circles at the centre, labelled "Resources & Support," "Positionality," "Institutional Policies," and "Status/Rank." The circles overlap and come together at the centre. At the corners on the outside of the figure, there are four labels: Social Inequality, Resiliency Discourse, Stakes of Failure, and Stigma of Failure.]

Note. The Venn diagram in the centre of this figure represents intersecting sites of power and privilege within the academy. The four background corners represent the socio-cultural contexts that situate the institutions of higher education.

Socio-Cultural Background

Each corner of the socio-cultural background represents a different aspect of failure as it manifests in social and cultural contexts. Each corner blends into the others horizontally, vertically, and diagonally, with all four merging in the centre of the background. While these four components can be disaggregated for study, individuals experience them as a complex whole. Each factor contributes to the experience of failure in varying degrees, with no two instances of real or perceived failure exhibiting the same configuration of power.

Social Inequality

Social inequality (top left) refers to those social forces that shape one's ability to fulfill the standards of success as they have been defined, in this case by North American, capitalist societies. Racism, poverty, sexism, xenophobia, and wealth gaps intersect to create overlapping inequalities that shape one's experience of struggle, failure, and recoverability (Crenshaw, 1991; Feigenbaum, 2021; Hallmark, 2018; Kundu, 2014). Moreover, these social forces influence the stakes and lasting effects of failure. For instance, a student of limited socioeconomic means may feel increased pressure to pass a course knowing that they do not have the financial resources to pay additional tuition to retake the class. Similarly, racialized students may not be extended the same benefit of the doubt as their white peers if struggle or failure appears on their record. Finally, social inequality plays a significant role in determining one's opportunities (if any) to try again. As reported in this team's instructor interviews and student surveys, limited financial resources, restrictions on time, familiarity with institutions of higher education (and the ability to navigate them), as well as social stereotypes and prejudice all shape the field of possibilities open to individuals seeking chances to bounce back from failure.

Stigma of Failure

Failing to fulfill socio-cultural expectations of success is often stigmatized. *Stigma of failure* (bottom left) includes those negative perceptions and affects attached to the inability to be successful, whether temporarily or permanently. As our interviews and surveys found, an individual may experience stigma from family, social networks, supervisors, potential employers, and the general public more broadly. Yet stigma may also stem from one's own internalization of social values that emphasize success, wealth, or prestige. In academia specifically, students referred to stigma in terms of failing assignments, tests, or courses, rejection from specialized programs or graduate school, and the inability to secure employment after graduation. Students also explained stigma as a result of disappointing the expectations of family and social groups, not meeting cultural norms and values, or not achieving personal goals. Like students, instructors explained stigma in both material and immaterial terms. On the one hand, instructors linked stigma to the inability to establish financial security for themselves, whether through full-time work after graduation from their doctoral programs or tenure/continuing status mid-career. On the other hand, instructors also related stigma to the matter of establishing and maintaining a reputation in their field through publishing, grant funding, and recognition among peers. Emotionally, both instructors and students reported stigma as prompting feelings of stress, anxiety, decreased self-worth, and shame. Significantly, the stigma of failure combines with social inequalities to often fall more heavily on equity-seeking groups, who are not only expected to fail more often but, when they do, may encounter additional anxieties arising from fear of confirming stereotypes (Verschelden, 2017).

Stakes of Failure

Stakes of failure (bottom right) refers to a wide range of consequences occurring as a result of struggle or failure. In the instructor interviews and student survey data, participants predominantly referred to the stakes of failure in large-scale, potentially life-altering terms. For both groups, stakes of failure included not graduating from university or doctoral programs, unemployment, and social and financial insecurity. Students further defined the stakes of failure in terms of cumulative GPA, academic probation, entrance into desired fields of study, and mental health and well-being. Instructors described the stakes in respect to teaching evaluations and publications for establishing tenure/continuing status, or in terms of the need to secure grant funding and fellowships for research. While students and instructors may encounter similar stakes among their peer group (e.g., passing courses, securing employment), social inequalities and the stigma of failure combine differently to influence how the lasting effects of failure are experienced by individuals of varying identity formations, social and institutional statuses, and social, cultural, and economic backgrounds. Students and early-career instructors both differentiated between anxieties toward the stakes of failure and anxieties toward the lasting effects of failure. Students in particular expressed concern over the influence past failures would exert on future educational and career plans, opportunities for scholarships and funding, and overall life goals. Similarly, earlycareer instructors worried that the inability to secure a full-time teaching position or postdoctoral fellowship, rejection from publications or grant funding opportunities, and poor teaching evaluations would foreclose secure employment in the form of tenured or continuing positions. These concerns reveal the dual elements entangled in the stakes of failure: the potential for not only immediate consequences, but also lingering and unforeseen ramifications in the future.

Resiliency Discourse

Resiliency discourse (top right) forms the fourth corner of the socio-cultural background. Advice to "embrace risk," "fail fast, fail often," and "learn from failure" has become increasingly prominent in dialogues about higher education. Originally developed in business and management, the language of grit, resilience, and failing forward within higher education obfuscates core questions about the role of power in shaping who gets to take risks, who gets to fail, and who has the resources to recover and try again. Instead, this language of "failing forward" presupposes an environment in which material resources (e.g., money, access to software/equipment) and intangible assets (e.g., time, support structures) have been equitably distributed and are equally accessible. Scholarly research into social and educational inequalities reveals this assumption to be patently untrue, particularly for students from first-generation, international, or historically excluded backgrounds (Loo & Rolison, 1986; Robertson & Dundes, 2017; Verschelden, 2017). Nevertheless, universities continue to exhort students to embrace risk and develop resilience in the face of failure while facilitating neither the equitable environments in which to productively engage with failure nor broader systemic

and institutional changes that would mitigate the stress, stakes, and lasting effects associated with struggle and failed endeavours.

Venn Diagram of Failure as a Model

Because the academy cannot be separated from the socio-cultural milieu in which it operates, the Venn diagram of power in higher education falls in the centre of the socio-cultural background where all components have merged together. Like its socio-cultural counterpart, this diagram includes four areas through which power operates. Some of the areas, such as positionality, could easily reference sociocultural formations and ideologies. Others, like resources, support, and policies, can be found in other institutional structures. We juxtapose these factors in the Venn diagram to illustrate how they interact in higher education specifically. *Positionality* refers to identity markers such as race, ethnicity, Indigeneity, gender, sexuality, religion, ability, and first-generation status. *Status/rank* indicates standing within the academic hierarchy. In terms of *resources and support,* study participants reported experiencing power and privilege through factors such as time, money, institutional or interpersonal support, tutoring and career resources, among others. It is important to note that this latter category operates on multiple levels: Do resources and support systems exist? Can they be accessed? Do target audiences know about them? Finally, power and privilege operate through *institutional policies.* Program and graduation requirements, course size, the significance of evaluations for tenure and promotion, approaches to academic integrity, and policies toward mental health, harassment, and abuse all influence how various constituencies experience power and privilege at university.

Role and Efficacy of Illustration

The Venn diagram illustration capitalizes on a familiar visual form to introduce the topic of power and privilege with an express aim of subsequently fostering a deeper and more complex discussion. The simplicity of the Venn diagram offers a clean image that shows the intersections between multiple expressions of power and privilege. To an extent, it succeeds in connecting these systems to one another. However, this same simplicity obfuscates the complexity of power and privilege as they are structured and manifest in our institutions, society, and epistemologies. The illustration reduces power to a single, static image, rather than a process continually in the making. Power must be continuously reasserted and reinforced in order to maintain hegemony. Any one system of power is a multivalent and mutable force, constantly shifting and being remade as it interacts with other forms of power and resistance. These systems and ideologies mutually constitute each other, creating interlocking connections that work toward maintaining social hierarchies. The Venn diagram is unable to demonstrate this dynamism. Rather, the Venn diagram implies that each socio-cultural and institutional category is a fixed component, distinct and independent from the others. Moreover, the figure does not adequately convey how the socio-cultural contexts and the institutional categories interact with and inform one another.

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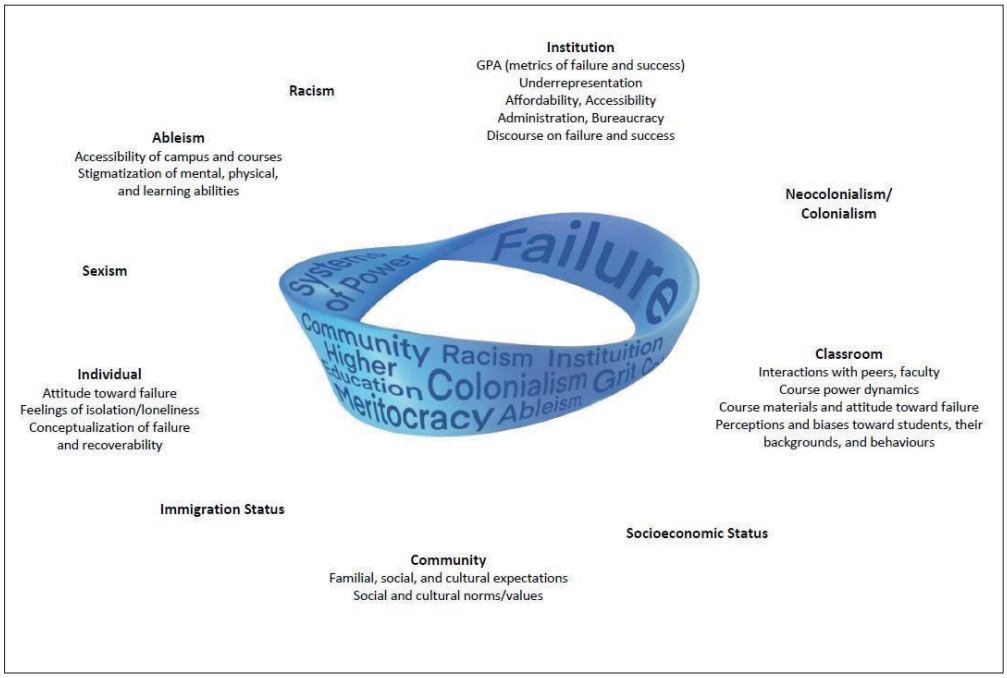
Model 2: Failure in Higher Education as a Möbius Strip

The second visualization (Figure 2) of power and privilege emphasizes the multi-dimensionality and connectivity of the social systems informing and shaping experiences of failure. The Möbius strip in Figure 2 is a three-dimensional shape originally used in physics to visualize three-dimensional planes. In a Möbius strip, the half twist joins the "front" and "back" into a continuous loop in which each side of the figure blends into the other to create one continuous plane. In the version below, the Möbius strip demonstrates how experiences of failure are constituted by multiple systems of power, including racism, colonialism, sexism, and socioeconomic status. The figure then references the ways power may manifest in individual, community, classroom, and higher education contexts. The text surrounding the figure identifies the multiple elements that influence perceptions and experiences of failure in their entirety (since some elements are obscured by the twisting of the strip), as well as providing examples of the ways individual components may appear in different settings.

Figure 2, Failure in Higher Education as a Möbius Strip



[Figure ALT TEXT: The centre of the figure contains a Möbius strip (a concept from physics wherein the ends of a strip of paper can be attached with a half twist, resulting in there being neither an inside nor outside of the strip). The Möbius strip contains the following labels: Failure, Systems of Power, Racism, Institution, Colonialism, Ableism, Grit, Meritocracy, Higher Education, and Community. The

outside of the figure, surrounding the Möbius strip, contains the following labels and descriptors: Ableism (Accessibility of campus and courses; Stigmatization of mental, physical, and learning abilities); Racism; Institution (GPA–metrics of failure and success; Underrepresentation; Affordability; Accessibility; Administration; Bureaucracy; Discourse on failure and success); Neocolonialism/Colonialism; Classroom (Interactions with peers and faculty; Course power dynamics; Course materials and attitudes toward failure; Perceptions and biases toward students, their backgrounds, and behaviours); Socioeconomic Status; Community (Familial, social and cultural expectations; Social and cultural norms/values); Immigration Status; Individual (Attitude toward failure; Feelings of isolation/loneliness; Conceptualization of failure and recoverability); Sexism.]

Note: This Möbius strip illustrates the multi-dimensionality and connectivity of systems of power, sites of interaction, and experiences of failure in contexts of higher education.

The circularity of the Möbius strip underscores the point that there is no single beginning or end to the systems of power that inform perceptions and experiences of failure. Instead, these systems of power are co-constitutive. They inform and reinforce each other, as well as combine to create ever shifting and contextually specific dynamics of power and privilege. Each of the themes documented in the figure above float freely within the Möbius strip. Without a fixed position, these dimensions of power blend and interact in myriad ways to create a wide variety of failure experiences.

Role and Efficacy of Illustration

In contrast to the Venn diagram, the Möbius strip comes closer to demonstrating how socio-cultural and institutional processes and systems of power influence, inform each other, and operate together in a continuous manner. The Möbius strip begins to capture a sense of motion, while the twist underscores the idea that there is no recognizable start, end, or hierarchy to the systems of power and privilege we have identified as manifesting in higher education. Moreover, the way the sociocultural components, institutional processes, and ideological "-isms" have been woven together suggests that no single power structure can be disaggregated from the others. The continuity of the figure and the fluidity of the words ultimately suggest that power and privilege operate in ways that are neither singular nor linear. Instead, they interact with other social systems, ideologies, and epistemologies to demonstrate how multiple strains of power and privilege interweave to create a complex whole.

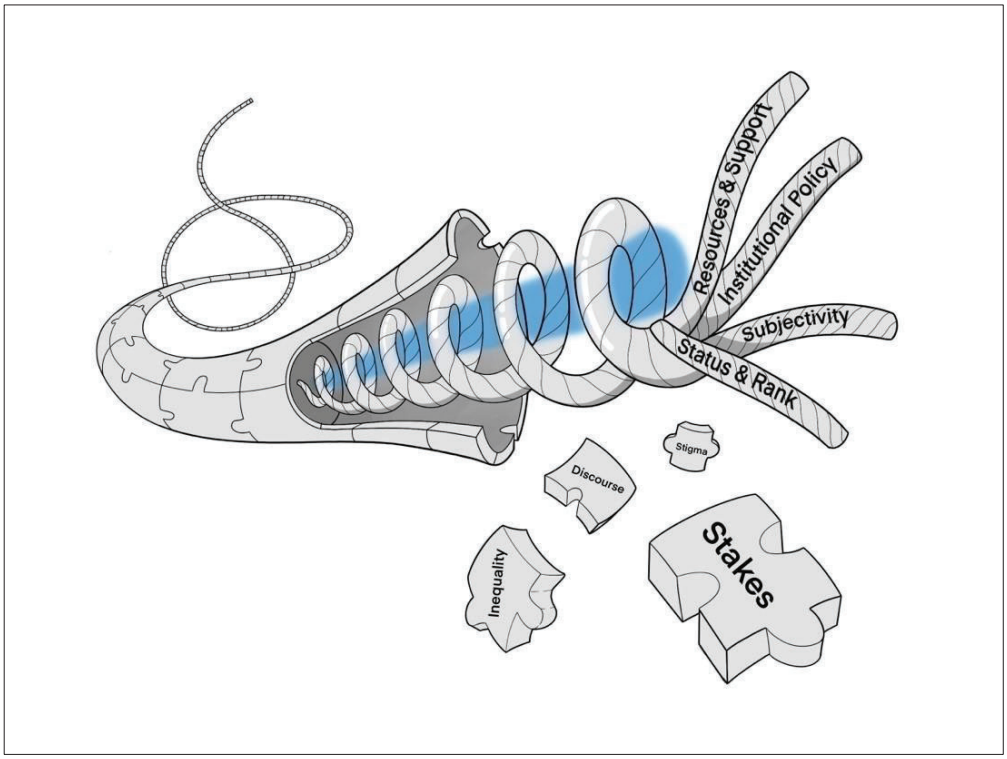
Nevertheless, the Möbius strip does not depart enough from a sense of linearity. The figure still conveys a sense of limited and sequential interactions. At the same time, the figure does not adequately illustrate how these varied structures and expressions of power interact on multiple planes. The profound complexity of

interactions between systems of power and privilege continues to be flattened by the Möbius strip, despite attempts to invoke a sense of depth through three-dimensionality.

Model 3: The Failure Core in a Higher Education Context

The final model (Figure 3) offers the most complex rendition of power in higher education. Using the same information as Figure 1, Figure 3 demonstrates just how influential systems of power can be in shaping student experiences of failure or attempts to recover. The illustration is composed of three interconnected layers: the socio-cultural envelope, the institutional power spiral, and the failure core.

Figure 3. Failure as Core to Student Experiences



[Figure ALT TEXT: This figure seeks to show a complex rendition of failure in higher education. The image contains a blue failure core thread with spiral ropes around it that depict the following: Resources and Support, Institutional Policy, Subjectivity, and Status and Rank. Outside of these ropes is a casing of puzzle pieces with the following labels: Stakes, Inequality, Discourse, and Stigma.

Note: This model uses three interconnected layers to illustrate how systems of power shape student experiences of failure. The central layer is that of a failure core (blue). The middle layer is that of the "Institutional Power Spiral," consisting of the twisting and constraining ropes of (1) Resources and Support, (2) Institutional Policy, (3) Subjectivity, and (4) Status and Rank. The outer layer consists of the socio-cultural envelope, created by the combination of various puzzle pieces, such as inequality, stakes, discourse, and stigma.

Socio-Cultural Envelope

As in Figure 1, the socio-cultural envelope is composed of four major components: *social inequality*, *stigma of failure*, *stakes of failure*, and *resiliency discourse*. These four components fit together like puzzle pieces in an infinite variety of configurations. All institutional power structures and individual experiences of struggle, failure, and recovery are influenced by the discourses, practices, ideologies, and attitudes toward failure found in this layer.

Institutional Spiral

The institutional spiral is modelled after a kernmantle rope, a type of rope that twists together four thick, braided strands and then wraps them in an outer sheath. The outer sheath represents the specific institution, or even more finely, a specific division or department within a given institution. The four thick strands represent the same institutional vectors of power referenced in Figure 1: *positionality,* such as race, gender, Indigeneity, ability, religion, and first-generation or international status; *institutional policies*, such as program or graduation requirements, workload, class size, academic integrity, weight of evaluations, and hiring practices; *resources/support*, including time, money, institutional resources, and interpersonal support structures; and *status/rank*, or one's position within the institutional hierarchy. These four threads, wrapped within the institutional sheath, loop around and around to form a spiral similar to that of a Slinky or a spring. The loose coil is significant because the open space formed in the centre of this spiral hosts the experiences of struggle, failure, and recovery in higher education.

Failure Core

Formed by both socio-cultural and institutional power structures, the failure core lies at the heart of the illustration. Failing grades, imposter syndrome, stereotype threat, rejections from publication or grant funding, and unemployment are all examples of phenomena located within the failure core. Each experience of struggle, failure, and/or recovery is shaped by the specific configuration of power created by interactions between the individual student or faculty member, the

systems of power embedded in the institutional spiral, and the broader sociocultural context.

In this illustration, power is not unidirectional. Each layer is permeable, malleable, and relates deeply to the others. In other words, the socio-cultural envelope, the institutional spiral, and the failure core are all mutually constitutive. While social, cultural, and institutional systems of power shape experiences of failure in higher education, those same struggles, failures, and recoveries can resist institutional and socio-cultural pressures, to the point that they reconfigure the exact shape of the institutional spiral and socio-cultural envelope by affecting educational and societal change.

Role and Efficacy of Illustration

Perhaps the greatest advantage of the final image is the sense of movement and interaction it conveys. More so than either the Venn diagram or the Möbius strip, the Failure Core in Context illustration underscores the idea that power and privilege are processes that must be continuously expressed and maintained. The figure demonstrates the idea that systems of power and privilege function in a state of continual creation. That is, power and privilege must be continually remade and reinforced in order to maintain the social, political, and economic hierarchies that result from and inform them. Critically, the figure can be read the opposite way—as unraveling. Just as socio-cultural and institutional systems of power must be continually recreated, they can also be unraveled through mindful systemic change. With its interconnected socio-cultural envelope, institutional power spiral, and failure core, the third illustration comes closest to depicting the interconnected and overlapping intricacies of power in higher education.

The complexity of the Failure Core illustration offers both advantages and disadvantages for conveying complex power structures. Unlike either of the other two figures, the Failure Core illustration demands that viewers slow down to take in the details of the image in a more mindful and concentrated manner. However, this complexity also means that, if viewers do not linger over the image, misconceptions can be generated. In addition to potential misunderstandings resulting from the complexity of the image, the Failure Core illustration continues to struggle with a persistent sense of linearity and reduction. The figure relates the socio-cultural envelope, institutional spiral, and failure core through spatial association, but lacks a crucial temporal relationship, particularly one that explains how systems of power and privilege have changed both over historical shifts in time and between a single individual's experiences of power and privilege. Like the Venn diagram, the Failure Core in Context freezes the permutations of power and privilege to a single moment in time. It does not show how an individual may experience one system of power more strongly in one moment and a different system of power more strongly in another. To visualize these permutations, the illustration would have to incorporate an element similar to a topographical map, capable of mapping not only the landscape of power in a given moment, but also

the changes in that landscape as systems of power shift in strength and expression to alter the "terrain" or "elevation" of that landscape.

Conclusion

The role power and privilege play in student experiences of failure in higher education is of critical importance and exceedingly complex. This paper sought to prompt deeper conversations about the ways power and privilege shape experiences of teaching and learning within institutions of higher education. To do so, we offered three figures illustrating the multiple vectors and interactions between modes of power and privilege in academe. These figures are meant to serve as guides and conversation starters rather than as complete or authoritative diagrams, and it is our hope that they will generate meaningful conversation about the ways students and instructors experience, resist, or wield power as they navigate academic institutions.

In a sense, it can be considered an impossible task to try to render these complex relations and experiences in accessible two-dimensional sketches. The models could be interpreted to flatten the embodied experience of power and privilege to an impersonal, even sterile, diagram. The images do not—cannot—account for the deeply personal, emotional, and mental aspects of exercising or feeling the effects of power. Of note, the models represent just one moment in which the constantly shifting forces of power have been frozen in time. In reality, each instance of struggle, failure, and recovery exhibits specific configurations of power as multiple vectors contribute more or less strongly to the situation. The exact topography of power will change as different people, different areas of the institution, or social policies and values enter the equation.

Through these three models, we are not trying to simplify or condense these issues. Rather, we endeavor to leverage visualization in an effort to increase accessibility of these topics and encourage others to see new things, not only by how the concepts are presented, but also by identifying what is absent or hidden. In our approach, the three models do not exist as separate interpretations, but work together in a complementary fashion to highlight distinct aspects of these complex systems. In line with contemporary trends in feminist and critical data visualization (e.g., D'Ignazio & Klein, 2020; Dörk et al., 2013), we offer these multiple visualizations with the goal of empowering readers to critically engage with the visualizations in a process of creating their own interpretation of the relationships of these systems of power as they manifest in higher education.

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