Formative Leadership (Flashpoint): One Georgia Tech-born Approach to Deliberately Innovative Education

Can the Georgia Tech community collectively become more deliberately (reliably, persistently) innovative in education using approaches proven to help entrepreneurs become more deliberately innovative in business? Over the past several years, a uniquely Georgia Tech program, Flashpoint, has accelerated the pace of successful innovation within numerous small startups and large enterprises (e.g., Coca-Cola, Mercedes-Benz [USA], and NCR) with methods grounded in research results from developmental and social psychology (Kegan and Lahey 2009; Kegan and Lahey 2016; Cialdini 2007) and behavioral economics and decision-making theory, including work recognized by the 2002 and 2017 Nobel Prizes in Economics (Kahneman 2011).

The track record of Flashpoint is strong; the small startups from the Flashpoint program have attracted (in aggregate) more than $300 million USD in venture capital funding and have matured into businesses worth more than $1 billion USD. This success inspired ten of the Georgia Tech Commission on Creating the Next in Education (CNE) members, drawn from across the Institute—College of Engineering (CoE), College of Science (CoS), Center for Teaching and Learning (CTL), Georgia Tech Research Institute (GTRI), and Georgia Tech Professional Education (GTPE)—to form a CNE Flashpoint cohort (in collaboration with Merrick Furst, who leads Flashpoint at the Center for Startup Engineering). The cohort explored whether and how Flashpoint formative leadership methods and processes that help deliberately grow business innovations into thriving and flourishing ventures might also be harnessed to deliberately grow educational innovations into thriving and flourishing improvements at Georgia Tech.

Here is a brief summary of the CNE Flashpoint cohort’s experiences.

1. The CNE Flashpoint cohort is unanimous in the belief that Flashpoint methods and processes show great promise for helping to create enhanced learning and working environments at Georgia Tech. The cohort comprised a substantial fraction of the full Commission, with cohort members coming from differing backgrounds (biology, biomedical engineering, educational psychology, electrical engineering, learning and cognitive science, mathematics, physics, and polymer science and textile engineering). The cohort remained engaged in and became more passionate about educational innovation over the course of several months. That engagement suggests that the Flashpoint approach could find a genuine draw among a substantial number of other members of the Georgia Tech community.

2. Flashpoint methods provide powerful, research-based tools, both for testing proposed reforms and for generating and incubating new educational concepts, products, services, and activities that are genuinely embraced and demanded. This provides a mechanism for the Commission’s efforts to remain an evergreen source of educational innovations long after the ink has dried on the final report.

3. Most importantly, the CNE Flashpoint cohort’s efforts points to a deliberately developmental way that Georgia Tech educators can get better at innovation: they can tackle significant educational challenges using a systematic set of research-based methods and processes. These processes are then shared by similarly challenged colleagues, who provide honest, thoughtful, and constructive feedback and encouragement to each other in a supportive environment. In time, processes and collaborations such as these could foster a culture that enables Georgia Tech to be a leader in educational innovation.

CNE Flashpoint Experiment Description

Operationally, the CNE Flashpoint experiment was structured as follows. At the start, CNE Flashpoint cohort members met with Flashpoint mentors five hours per week for a six-week period. During this time, team members and mentors discussed key concepts underlying the Flashpoint program. Subsequently, members began working individually or in groups of two or three using Flashpoint methods and processes to explore different educational ideas and projects. These ideas and projects involved outside fieldwork in combination with both group and mentor office hours and periodic meetings of the full CNE Flashpoint cohort.

Flashpoint Conceptual Framework

There is a fundamental danger facing every innovator: the waking dream. In business, entrepreneurs believe strongly that others in the world (potential customers) will want the new product or service the entrepreneurs plan to provide, especially after clear explanations or demonstrations that show how the innovation can
improve the customers’ lives. In reality, however, the rest of the world is most often simply indifferent to the proposed product or service. In response, entrepreneurs are often blind to the circumstances under which their innovations, as initially conceived, meet with indifference and, consequently, are typically unable to make suitable adjustments. The end result is failure of the innovation.

The waking dream is also a trap in the world of education. Educational innovators often believe potential users will employ teaching and learning reforms, in particular those with strong research-based foundations, but experience says otherwise. Most research-based reforms languish; they are not widely adopted (National Research Council 2013). Potential users—faculty, students, departments, universities—are simply indifferent to the innovations. Like entrepreneurs, educational innovators are typically ill-equipped to perceive and therefore to address the underlying nature of users’ indifference.

There are two central barriers that obscure a clear understanding of how innovations will be received: cognitive biases and immunities to change.

Cognitive Biases

Behavioral economics and social psychology research has uncovered unconscious tendencies (biases) that play a central role in everyday decision making and judgments (Kahneman 2011; Cialdini 2007; Chanoff 2016). For example, consider a motorist that is cut off in traffic by another vehicle. The motorist will often react by calling the vehicle’s driver a jerk (or worse); without conscious thought, the motorist favors judging the event using an ill-defined label for the driver’s demeanor (“the driver is a jerk”) rather than accounting for the specific circumstances that explain the action (“the driver is a physician responding to a sudden emergency call”).

This example illustrates a “fundamental attribution bias” by which decisions are reached by overestimating dispositions and intentions and underestimating situations and circumstances. In a similar way, conversations about innovations and reforms in education are often hijacked by attribution bias (“weak students,” “bad teachers”) that directs attention away from crucially important situational factors that, if properly accounted for, could lead to very different decision-making outcomes.

Asking questions about innovations brings additional cognitive biases into play. The inquiring innovator may be drawn to look for particular answers (confirmation bias), for example. More seriously, simply posing a question about wants, desires, or preferences fixes in the minds of both innovators and users a framing bias, i.e., the idea that the particular quality or function in question matters, even though it may not (Kahneman 2011). People do not often know why they do things; they make up stories that hide problems from themselves and from others. They misremember what they have done and misattribute why they did it. Such inquiries do not provide answers that can be relied on to distinguish indifference from a genuine draw toward an innovation (Chanoff 2016).

Immunities to Change

Research in adult developmental psychology has revealed universal mechanisms of change resistance (immunities to change) that often sabotage improvement efforts attempted by individuals and organizations. Oftentimes, proposed innovations, while promising improvements, simultaneously stimulate immunities that can squash innovations for reasons that are hidden from both innovators and potential users (Kegan and Lahey 2009; Kegan and Lahey 2016). Research-based methods can be applied in advance to identify and to map immunities to change that stand in the way of improvement goals.

As an example, consider the goal of losing weight as the desired improvement. When research-based methods are applied to identify a person’s immunities to change relevant to this improvement, specific actions being done (or not done) that stand in the way of the improvement are first explicitly identified (e.g., frequent nighttime snacking prior to bedtime). In lieu of proposing a naïve solution (just stop snacking), the motives behind the obstructing actions or behaviors are explored more deeply for underlying worries (“If you completely stopped nighttime snacking, what you be worried about?”). Persistent probing of worries uncovers commitments and assumptions, heretofore hidden from view, that drive obstructing actions or non-actions. In the context of educational reforms, the explicit mapping of hidden commitments and assumptions of potential users related to the reforms provides important guidance for moving forward with proposed innovations.

Flashpoint Processes

Becoming more deliberately innovative in education depends crucially on helping Georgia Tech educators improve at gathering reliable signals from community members affected by proposed innovations or reforms (students, faculty, alumni, administrators, and others). Reliable signal gathering that accounts for biases and immunities can be harnessed to pursue innovations and reforms in at least two distinct ways:
1. In some cases, innovations require substantial changes in the behavior of individuals and organizations. Altering the weight of educational contributions in tenure decisions is one example for education innovation. Here, the effort to reform and the risk of failure are both high due to change resistance at a variety of scales; nevertheless, the effort and risk may be worthwhile when envisioned improvements promise large, positive impacts. Under these circumstances, gathering reliable signals enables construction of explicit immunities-to-change maps, which in turn can be used to devise strategies for improving the odds of reform success.

2. Alternatively, reliable signal gathering about an innovation can serve a different purpose: to find conditions under which innovation and reforms are met with a genuine draw, a pull rather than a push—an authentic demand. Here, an innovator aims to learn whether she can give to stakeholders something they cannot or will not provide for themselves and that, importantly, the stakeholders will automatically embrace when the innovator simply shows up with the new concept, activity, reform, product, or service. During this type of signal gathering the innovation or reform is considered to be provisional—in a formative state, still coming into being, still evolving.

At any given time, the innovator views her innovation with “strong opinions, weakly held” (Chanoff 2016): working to develop the best possible conception of the innovation and, simultaneously, expecting to be proven wrong about the innovation’s authentic demand. Reliable signal gathering reveals how the innovation as currently conceived meets with indifference and elicits individual and organizational immunities to change.

The innovator values such information, as it allows her to test and to refine ideas (for example, to modify an innovation in ways that avoid stimulating immunities to change); the information may also lead the innovator to pivot from or to abandon the original idea. The refined/new idea is then presented to other stakeholders and the cycle repeats, with the innovator always being open to being proved wrong and changing directions, instead of blindly barging down a failure path.

In the CNE Flashpoint cohort, the process of collecting Documented Primary Interactions (DPIs) was used to gather reliable signals about innovations and reforms. The term Documented Primary Interactions emphasizes the importance of collecting and accurately recording firsthand information from stakeholders (students, faculty, alumni, and others) about how proposed innovations could directly impact their lives. The DPI process can be applied to both innovation approaches described above; the team members of the CNE Flashpoint cohort focused on DPIs in service of searching for authentic demand.

To conduct a DPI, a CNE Flashpoint team member shows up (typically in person though at times by phone, email, or other electronic means) to meet with a stakeholder. The team member works to remove biases that may reveal what she aims to learn about her idea or innovation by posing open-ended prompts that allow stakeholders wide latitude in replying. The team member lets the stakeholder’s responses guide follow-up queries that avoid probing details about wants or desires (which do not provide reliable information) and instead focus on behaviors or actions revealed by the stakeholder. The results of DPIs are shared with other members of the project team, the full CNE Flashpoint cohort and mentors. Feedback on the DPIs both helps the project team refine ideas and helps cohort members get better at conducting DPIs. The cycle repeats, with team members employing improved skills to a new round of DPIs to gather more information about revised ideas and innovations.

To gain a deeper understanding of Flashpoint Processes, CNE Flashpoint cohort members worked on a range of projects, including: Exploring authentic demand among Georgia Tech alumni (Carlee Bishop—Georgia Tech Research Institute/Lew Lefton—College of Sciences); Improving diversity/inclusivity in engineering as part of a funded NSF IUSE/RED project (Joe LeDoux—Biomedical Engineering/Wendy Newsstetter—College of Engineering); Elucidating barriers that hinder learning at Georgia Tech (Michael Schatz—Physics/Chrissy Spencer—Biological Sciences/ Joyce Weinsheimer—Center for Teaching and Learning). Here, we briefly highlight the work of cohort member Mary Lynn Realf (Materials Science and Engineering) on reforms to improve the effectiveness of student teams in undergraduate courses throughout Georgia Tech as an illustration of new insights into educational innovations obtained from application of Flashpoint methods:

1. Team Dysfunction and Student Perceptions ofFaculty: DPIs with students revealed a common student perception that when team dysfunction is reported to faculty, typical responses by faculty (“you’ve worked on teams before, figure it out”) indicate that faculty “don’t care” about students. DPIs with faculty, in contrast, revealed that faculty commonly feel ill-equipped to respond meaningfully to student reports of
team dysfunction; moreover, faculty were not indifferent to student perceptions—faculty in courses with teams were not okay with being seen as not caring. This non-indifference by faculty has translated into a genuine draw, in an authentic demand, of numerous Georgia Tech faculty for new tools to help them address in-class student team dysfunction.

2. Unexpected Revelations of Team Dysfunction in Other Venues: As part of the CNE Flashpoint process, DPIs were conducted while taking great care to reduce biases that might reveal Realff’s focus on undergraduate student teams. This put Realff in a position to discover, in several separate faculty DPIs, spontaneous reports of a common team dysfunction (unrelated to undergraduates) between a particular member of the faculty and graduate students for whom the faculty member served as a research advisor—specifically, the behavior and actions of graduate students indicated that the graduate students did not see this advisor as a member of their research teams. This unexpected finding suggests new directions for work on improving the functioning of teams in graduate research that Realff plans to pursue as part of an NSF Innovations in Graduate Education (IGE) program.

3. Getting Better at Educational Innovation: CNE Flashpoint methods can be used by educational innovators themselves to help overcome self-imposed limits to advancing educational innovations. In the work on effective team dynamics, Realff came to recognize that progress was impeded by her failure to schedule timely meetings with collaborating faculty. By conducting an immunity-to-change mapping on the improvement goal of timely meeting scheduling, Realff uncovered her commitment to being a person who does not like to waste the time of others that, coupled with her (previously hidden) assumption that her collaborators expected all work materials to be finalized in advance, caused her to procrastinate in scheduling. Realff tested her (now explicit) assumption and found that it was wrong; in fact, her collaborators preferred to meet to provide input before work materials were finalized. Thus, immunity-to-change mapping enabled Realff’s work to advance both more rapidly (via improved meeting scheduling) and with better quality (with increased feedback from collaborators).

4. Solving the Right Problem/Avoiding Solving the Wrong Problem: In her early work on students working in teams on senior design projects, Realff observed that students commonly expressed concerns about grades when reporting team dysfunction due to a poorly performing team member. Initially, Realff assumed the reporting students were concerned with “getting the grade they deserved,” i.e., getting a better grade than their poorly performing teammate. Thus, Realff first thought she should focus on designing ways that faculty could more fairly assign grades to each member of a team. However, upon conducting DPIs with students in senior design courses, Realff came to learn that, rather than grade fairness, students were actually worried that, due to team dysfunction, the team outcomes were not their “best work” and that this would damage their reputations and keep them from getting the jobs they would like to have. By noticing this, Realff’s work was refocused to look for strategies that enable students on teams to obtain outcomes that more closely represent their best work.
References


