



Formation by Design

Project Progress Report 2014-2015

DESIGNING THE FUTURE(s) of the university

<https://futures.georgetown.edu/formation>



GEORGETOWN UNIVERSITY

The Formation by Design Project is part of the Georgetown University Designing the Future(s) Initiative, which explores issues facing higher education and experiments with new ways to deliver a university education. The goal of the Formation by Design Project is to articulate a forward-looking vision for defining and measuring the outcomes of holistic learning so that the value of educating for formation can be brought to the center of the conversation about reshaping higher education.

The first phase of the Project focused on defining wider (formational) outcomes for university students, a set of principles for moving formation to the center of higher education, and a set of strategies for campuses to use in order to further the centrality of formation in the design and assessment of student learning. Major project activities included: consultations with scholars and practitioners, reviews of precedent projects that shared common goals, and a multi-institution project symposium, designed to serve as a node within a growing network of researchers and educators interested in advancing this work.

In addition, the Formation by Design Project and Georgetown University partnered with Reinventors, a San Francisco startup, to mount the Web-based video roundtable series "Reinvent the University for the Whole Person" (Reinventors.net). This progress report is shaped by all major Project activities to date: research and consultations, the Project Symposium held in Washington, D.C., on June 30-July 2, 2014, and the web-based video roundtable series "Reinvent the University for the Whole Person."

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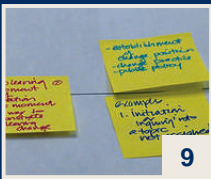
FORMATION BY DESIGN: AN OVERVIEW

Discovering the type of whole person education uniquely possible at this moment in history



FORMATIONAL OUTCOMES: CONNECTING PURPOSE WITH DESIGN

Advancing the measurement and assessment of wider formational outcomes



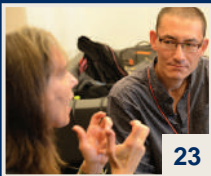
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WE SHARE
CONCEPT AND LANGUAGE
FORMATION" WITH
ITS FACULTY &
SO THAT IT IS
LIVED?

Specific Components of formation

How do
in order
toward the
we want

Governance & Structure

In this formation process,
how do ~~we~~ we balance
self + other? Attention
to self + service to
others?

How do we
make inter
around di

That the overwhelming number
of students experience higher ed.
inside a 9-year residential
community - where is the ideal
point for thinking about
new ecology of learning?

How do we move beyond
assessing performance,
to assess "being"?

do we reorganize
University for
formation (not at
the margins)?

resolve tension
among various
stakeholder goals
and aspirations

How do you assess
institutional holistic health?

What are the triggers
that encourage a sense
of personal agency?

How does culture factor
into this new ecology?

What is the
& technical
that enables for
intellectual + sp
development

What are the
of ongoing
in conjunction
one-time crit
experiences?

What are the

Formation by Design—An Overview

Why Formation?

Formation by Design is driven by the question: What kind of whole person education is uniquely possible at this moment in history? The concept of formation is at the heart of Jesuit education but we believe it has wide applicability for anyone concerned about the education of the whole student and holistic educational design. Formation is a concept of learning and development that pays attention to the individuality of each student as a distinctive person with unique potential. When we put the whole student at the center of our curricular and co-curricular designs in institutions of higher learning and embrace the interconnectedness of the students' journey, we help students progress toward a wholeness and fullness, shaping not just what they know, but forming who they become.

We believe there is a false dichotomy that pits this kind of holistic education against a more pragmatic preparation for workplace success. To the contrary, we believe that an education that is designed for the whole person—developing knowledge and skills within the wider traits that characterize learning, engagement, reflection, and integration—prepares students for a lifetime of success in a rapidly changing, complex, and uncertain world.

Why Formation 'by Design'?

This interconnectedness of the students' journey is not ensured even while providing a wide range of diverse educational opportunities. We believe we can no longer operate under the assumption that students will integrate on their own. This is especially true as the population of higher education expands and is increasingly characterized by student populations with uneven preparation and complicated, often fragmented lives. Although we acknowledge that intentional integration and meaning-making within the learner is achieved through an ongoing and unfolding process of experience, reflection, development and discernment, this intentional integration can only be achieved if the institution has itself engaged in integrative designs that provide milestone opportunities and connected contexts for this kind of unfolding reflection on learning. If this broader definition of whole person development is going to be a driving force in institutional design, then we must get more systematic about how we create contexts for integration and assess and measure these wider outcomes as intrinsic aspects of our institutions.

Formation, then, is fundamentally a learner-centered concept; it is ultimately about how one embodies knowledge, skills, dispositions, and values—and expresses them in the world through action. Formation by Design is a learner-centered and evidence-centered approach to reinventing our institutions around whole person development and doing so in ways that are thoroughly responsive to the emerging learning ecosystem that characterizes this moment in history.

Why Now?

This project responds in many ways to the new ecology of learning in the 21st century—the increasingly “data-rich” environment that, while enabling personalization and customization of learning, at the same time risks de-centering and dis-empowering learners. This is especially a risk with the increasing pressure in education at all levels to modularize, compartmentalize, and package learning in smaller and smaller units, bearing the weight of rising costs, diminished resources, and a need to prove quality and value while focusing for the most part on outcomes that are easily quantified and measured. The exploding ed-tech industry, including the growing field of learning analytics, has not thus far focused on a broader definition of learning, but rather demonstrated effective application only on a narrow gauge of learning activities, typically inside structured digital learning environments. We are far from effecting a synthesis of holistic educational principles and the emerging capacities of the global digital ecology.

Our digitally-enhanced, formal educational environments too often neglect important layers of the educational ecosystem on our campuses and in our institutions—layers that provide underlying values, relationships, and the cultivation of character traits. In the end, it is all of these layers that allow students to apply their knowledge and understanding in ways that align with their capacities and commitments, as they emerge as citizens of the world.

An Unprecedented Opportunity

Formation by Design is founded on the belief that we have an opportunity, as never before, to position formation at the center of the university, to provide an education that puts student empowerment and mentored, high-impact learning at its core. In order to take advantage of this opportunity we have to reframe formation in the context of the new ecology of learning. This new learning ecosystem provides us the opportunity to integrate all the learning dimensions we value, especially in helping to measure and assess the wider outcomes of formational education for the broadest possible student population.

Within this context, the Project seeks to make an impact in three sets of questions:

Defining Formation

How do we define formation so that it accounts for the expanding skill-set of a liberally educated person in this century? How can we make formation visible as a core educational goal in ways that respond to the emerging learning ecosystem?

Designing for Formation

How can we develop strategies and identify models for integrating formation into the core practices of institutions of higher education? How do we expand our concept of “outcomes” to include a broader sense of purpose and human capability appropriate to the new contexts of globalization, complexity, and social connection?

Measuring and Assessing Formation

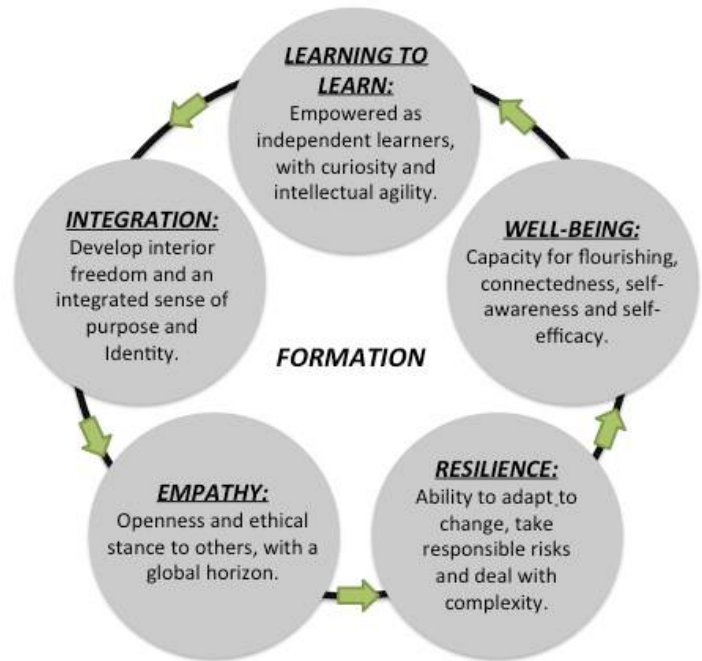
How do we assess and measure the impact of formational education in reasonably systematic ways, both to demonstrate the value of learning designs and for continuous improvement of them? How might we develop an integrative approach to assessment and measurement tuned to the emerging digital environment that can make learning, and the data from learning processes, visible and usable in new ways?

In what follows below, we report on our progress in each of the three areas: specifying a working version of formational outcomes, sketching a set of principles shaping institutional design and action, and identifying eight strategies and paths to action for institutions to take up the broader goal of formation in the context of ongoing efforts to respond to the changing landscape of higher education.

Formational Outcomes: Connecting Purpose with Design

A foundational premise of Formation by Design is that the wider formational outcomes of learning and development—those that address the broadest purpose of higher education—should be put at the center of our learning designs. With considerable input during discussion at the summer symposium, the Project has gained clarity around formational outcomes with the hope that measures and designs can now be operationalized. With acknowledgement that on every campus, local values and missions will shape the clustering and prioritization of these outcomes, a working set of five Formational Wider Outcomes areas is presented below, each to be understood as acquired and demonstrated interdependently with skills, knowledge and abilities.

These five outcome areas (learning to learn, well-being, resilience, empathy, and integration) share several critical cross-cutting traits which help inform the instruments that we believe can be useful in measuring where students are in terms of these dispositions. These include: curiosity, creativity, risk-taking, humility, collaboration, cross-cultural competence, integrity, moral discernment, ethical judgment, imagination, and reflectiveness.



One of the major challenges in defining formational wider outcomes, however, is the temptation to isolate and narrowly define in order to make measurement easier. In this work we want to resist the tendency to disentangle formational wider outcomes from skills, knowledge, and abilities, but rather tackle the complex problem of measuring both the process or journey, as well as student learning through action or practice. As Ruth Deakin Crick, a Project consultant and Reader of Systems Learning and Leadership at the University of Bristol, notes, “a very important question is: How do we integrate formation with becoming an expert biologist and engineer—how do we construct knowledge and how does it integrate with our core purpose in life in the world?” Similarly, Heidi Elmendorf, Associate Professor of Biology at Georgetown University, observes that these outcomes were hardly at odds with disciplinary or professional competence; indeed, “if you’re not relatively accomplished in most of these dispositions then you’re probably not a particularly effective version of anything.”

Expanding on the need to see dispositional learning in a wider context, Peter Felten, a Project consultant and co-author of the book *Transforming Students: Fulfilling the Promise of Higher Education*, states, “transformation involves purpose and performance. Not just one or the other. When we think about measuring, we need to retain the connection between action and thought.” This connection between purpose and performance also elevates an interest in formational outcomes above the individual in isolation. It is an important part of the Jesuit tradition to understand formation as a movement both into oneself and outward to others. In this way the cultivation of formation is always essentially relational, not just individual, and our institutional designs should strive as much to create formational communities and networks as to design environments to help individuals grow.

A Future Precedent: Kara enters the 2020 University with Formation at the Core

Kara's story represents a possible path of the future student according to Formation by Design principles (p. 9) and paths to action (p. 12). To explore this student pathway in more depth, refer to the appendix, "Visualizing a Learning Ecosystem."

When Kara begins her first year in 2020, her journey as a student will require an educational ecosystem that is designed for her full formation. The University guides her to see that her choices are not just about what courses to take or her major, but about the full range of experiences that constitute a high-impact learning journey.

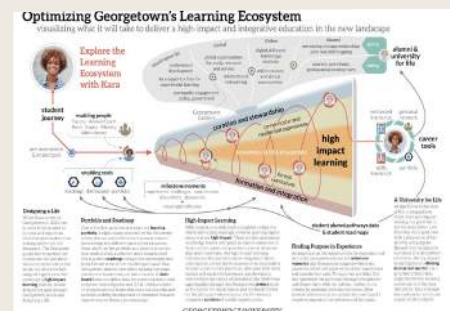
As she enters college, she takes an intake assessment around the wider outcomes that help to illuminate who she is in relation to her openness to learning. This data gets shared with her and becomes part of a conversation with her advisor and one of the forms of early analytics with which she begins to create her learning portfolio, an open digital space provided by the University where she can post reflections that make integrative connections among the different parts of her education. Soon, she'll use her portfolio as a place to show her best work and tell a coherent story about herself. She is given a roadmap through the curriculum that helps her see some of the pathways that university alumni have taken, helping her make decisions to branch out and take chances. A dashboard that she herself shapes helps her define how she wants to track her own progress—beyond grades and GPA—with markers of progress such as leadership roles, social media and network activity, development of mentored research experiences, or fluency in technology.

As more and more "lecture-based" materials move into online modular environments, her coursework focuses increasingly on high-impact learning that is project-based and highly interactive.

Many of her courses are taught by faculty who have incorporated formational outcomes into their assignments and assessments. As she learns biology, philosophy, writing and design, and so on, she is learning knowledge and skills in the context of wider outcomes, such as resilience, empathy, and reflective judgment. Her high-impact learning includes a policy analysis course assignment about urbanization, which she then presents to local leaders through a community practicum, discusses with these leaders and social entrepreneurs, and develops into a real-world project about urbanization. As she works through these kinds of projects, she is harvesting evidence of her engagement from a wide range of sources, from social network feedback linked to digital badging (micro-credentials) to direct client responses to faculty assessment.

The University has identified a series of milestone opportunities for her to pause, reflect, and make sense of her experiences and consider her path. Through her portfolio, she represents her pathways through university and shares them with her advisor, mother, and a mentor by granting them limited access. After several conversations, she adjusts her dashboard's targets and narrative reflections to represent her interests and her goals.

The curricular and co-curricular programs that support Kara are periodically gathering faculty and other stakeholders together to look at the portfolios, dashboards, and analytics from a program and institutional perspective. They are able to take an integrative view of student learning and see more clearly—and respond more agilely—than ever before which learning experiences are contributing the highest impact to whole student development.

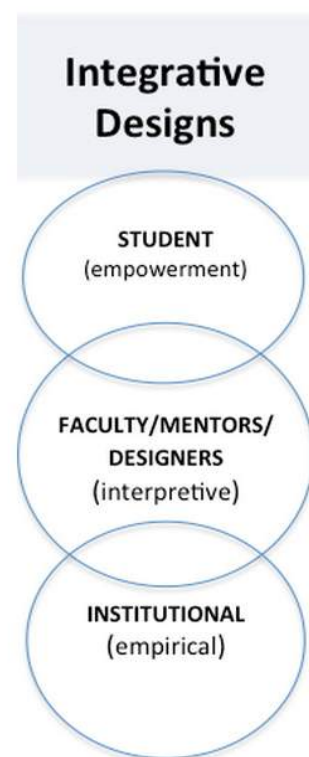


Visualizing a Learning Ecosystem (Appendix).

Principles for Moving Formation to the Center of Higher Education

Based on a broad review of effective practices, we have formulated five principles that are essential for establishing and maintaining formational outcomes at the center of institutional designs. The principles assume that a focus on formation must ideally exist at multiple levels, from institutional culture to curricular designs to measurement and assessment strategies. Ultimately we believe that institutions will value and make actionable only that which can be both linked to mission and made visible (counted, accounted for) as evidence of effectiveness and productivity. These five principles take a systemic approach to change.

Shared Responsibility for Cultivating Wider Outcomes: Institutions cannot think of formation as emerging from certain values-related outcomes that are distinct and separate from core practices, especially as they are taught through the formal curriculum and disciplinary practice. It is too typical that faculty believe it is their responsibility only to teach content and disciplinary knowledge and it is someone else's responsibility to think about dispositions such as learning to learn, resilience, or empathy. On the other hand, we cannot expect faculty to know how to incorporate designs that teach to these dispositions without institutional frameworks, support for design and implementation, and pragmatic tools. We must seek ways to integrate wider outcomes with the learning of disciplinary knowledge and core skills by providing occasions to talk about wider outcomes, models of assignments that take wider outcomes into account, faculty development opportunities, and tools and rubrics for integrating them into assessment. Finding ways, appropriate to each diverse institutional context, to share responsibility for the wider outcomes is foundational.



Integrative Designs: Focusing on formation in the new ecology compels us to think integratively across our campuses in ways we have not done traditionally, especially connecting the curriculum to the co-curriculum, academic and student affairs, and creating tighter connections across the arc of student learning, from advisement to career placement. Thinking systemically about the institution is crucial when implementing integrative designs, especially with respect to assessment and measuring the impact of educational designs on student learning and development.

Within Formation by Design, we have adopted the three-tier model for learning and assessment that builds on a systemic vision of learning analytics developed by Simon Buckingham Shum, one of our Project research partners. The model posits that there are three levels of impact for evidence of learning (data analytics and otherwise): Student, Faculty (and other program-level staff, whether advisors, residential life mentors, or learning environment designers), and the Institution. In turn, the evidence of learning has a different role at each level. For the student the impact is empowerment; for the faculty or program level it is primarily interpretive for the purpose of improvement; for the institutional level it is empirical as a matter of institutional assessment and accountability. Keeping the levels distinct as well as connected is also a primary foundational principle for moving formation to the center.

Make use of Visible Learning Processes: Informing these integrative designs at all three levels is an emergent digital environment that makes it possible to see traces of learning processes—from individual learning to community connections and network learning—in new ways. Moving formation to the center of education implies a much broader view of these processes—and the analytics they produce—than is currently the case in most digital learning environments. Our approach to formational education must be attuned to the emerging ecology of a ubiquitous learning system that is far larger than formal institutions of higher education. We must harness these capacities in the service of a formational vision and shape our practices on campuses for empowering students and assessing learning in this new context.

Assessment and Measurement of Wider Outcomes: To ensure that formational outcomes have influence on the strategic designs and investments of universities, we must make advances on measuring and assessing for the outcomes we value. From the perspective of formational outcomes, however, measurement and assessment must co-evolve with our growing understanding of the visible learning processes described above. Otherwise, our focus on assessment and measurement will be only those things that arise from narrow cognitive or keystroke activity that does not represent the fullness of learning which we aspire to promote and understand through assessment. Similarly, institutions must not only focus on digital and numerical data, but also understand assessment as essentially integrative in need of “occasions” for faculty and other stakeholders to engage with the data as well as the artifacts of student learning, their work products, and reflective narratives.

Whole Person Development and Authentic Learning Record: The consequences of our designs are graduates who embody the traits of the whole person, equipped for personal and professional fulfillment and the capacity to manage change and to work for a better world. With these goals we also need to rethink how the full embodiment of this learning is represented beyond the transcript. The emerging digital environment demands that we rethink the ways students can develop an “authentic record” of their learning that must necessarily be a combination of narrative reflection, contextual assessment (by faculty, mentors, and peers), and analytics. We might think of this collectively as “next generation portfolio practices,” modeled on the successful network of ePortfolio practices already established at many institutions, and further integrative of emergent opportunities such as a learning dashboard, digital badging (micro-credentialing), and learning analytics.

It is a fundamental premise of Formation by Design that these principles exist not only as a constellation, but also as mutually reinforcing. Formation by Design depends on all of the principles to support a systemic—or ecosystemic—approach: culture drives practices; practices are supported by evidence; evidence, when shared with multiple stakeholders, shapes and influences culture.

Eight Paths to Action

Campus-Based Research Projects

A major Project activity has consisted of looking closely at precedents for thinking about formation in the new ecology: wider outcomes, emerging analytics, and the capacity of the digital environment to create means for integrating and seeing learning. These precedents complemented targeted design exercises at the Project Symposium and ultimately resulted in the identification of eight strategies and paths to action that could be taken up on local campuses.

These paths pose questions to be addressed through local actions on campuses to further the centrality of formation in design and assessment, and challenge institutions to undertake an action research agenda that could yield evidence to be shared throughout a network of institutions interested in advancing this work. The precedents are shared as illustrations of where this action is already taking place across the network.

The strategies and paths to action outlined below are all premised on the three-tier model outlined under the principle “Integrative Designs” (p. 9). In this model, the evidence of learning (measurement and assessment) is understood at the level of the student, the program (faculty, advisors, mentors, designers), and the institution. Each of the strategies below is design to enrich and expand each of these layers, whether through student empowerment, pedagogical improvement, or the institution’s ability to assess the impact of programs and curricula—all in the name of a new integrative approach to holistic education in colleges and universities.

Formation at the Core

- 1) Mapping campus resources around wider formational outcomes
- 2) Integrating wider formational outcomes with disciplinary instruction

Emergent Assessment Practices Shaped by Formation

- 3) Dashboards: Building an interface to an authentic learning record
- 4) Measuring wider formational outcomes
- 5) Learner analytics
- 6) Digital badging
- 7) Next generation learning portfolio practices

Integrative Approaches to Assessment and Analytics

- 8) Closing the loop on the evidence of formation

Formation at the Core

ACTION PATH 1:

Mapping campus resources around wider formational outcomes

Where do campus practices—in the curriculum and co-curriculum—have impact on the full range of student learning and development? What does formational development look like in different contexts? What practices already exist at an institution, and how can evidence from these practices be linked to the significant body of evidence in national data around formational development, such as High-Impact Practices (NSSE), the Wabash National Study of Liberal Arts Education, and the Multi-Institutional Study of Leadership (MSL)?

Local campuses might undertake this mapping through a process similar to curriculum mapping where instead of associating experiences and practices with program or disciplinary goals, wider formational outcomes are used. Alumni might be tapped to provide insight into where and when during their educational experience they particularly experienced growth in areas such as well-being, resilience, empathy, integration, and learning to learn.

Shared Evidence: *Campuses would share models for **mapping wider outcomes** to institutional practices.*

ACTION PATH 2:

Integrating wider formational outcomes with disciplinary instruction

How can faculty, especially through collaborative course design, be engaged in the integration of wider formational outcomes with the teaching of disciplinary knowledge and skills? Many faculty care about the development of their students as whole people, as individuals who will need to act ethically in their field and who need to embody reflective judgment. Because these qualities are hard to measure, and pressures on instruction and assessment are geared toward professional skills and academic content, the development of wider formational outcomes sometimes drops down the priority list.

One of the most important strategies for integrating formational outcomes is working with faculty to align the assignments and assessments with one or more formational outcomes. Institutions should promote faculty development opportunities—within and across disciplines as well as across the curriculum and co-curriculum—to look at ways that disciplinary and interdisciplinary learning engages wider formational outcomes. Critical to these initiatives will be sharing institutional data on measures (see paths 1 and 4), as well as discussion of model assignments and exercises modifying rubrics and other assessment instruments.

Shared Evidence: *Models for creating high-impact learning designs that **integrate wider outcomes with disciplinary learning** and/or connect curriculum to co-curriculum.*

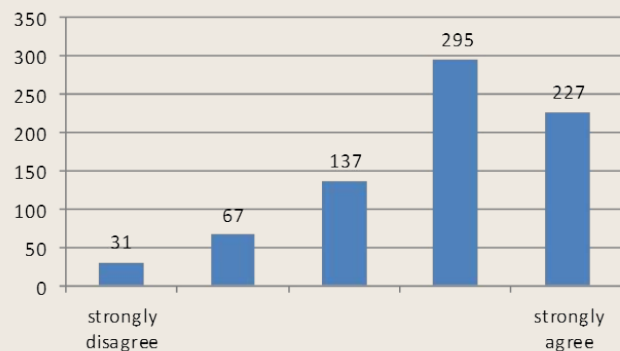
Precedent: The Engelhard Project

At Georgetown University, **the Engelhard Project for Connecting Life and Learning** encourages faculty to work in partnership with professional university health staff to connect course content with issues of student health and well-being. In this way, students see how life issues and challenges are inextricably connected with academic problems, and that the solutions to these issues can matter to humanity and to them personally.

Run out of the university teaching and learning center in partnership with the Division of Student Affairs, the Engelhard Project rewards faculty innovation in developing students' personal resilience, empowering students to better understand and potentially seek help for depression or other mental health illnesses, and helping students to become more open to new ideas and perspectives that might serve them well later in life.

The project pairs a faculty member with a campus health professional, who comes into the classroom to guest-lecture on a health and wellness topic related to the course's content. Students are asked to reflect on their own experiences as it relates to the topic via an anonymous reflection. During the 2013-2014 academic year, 50 Engelhard courses were offered with a total enrollment of 1289 students. During that same year, 31 faculty and 16 health professionals participated in the project.

In a survey of 771 students who had taken Engelhard courses, 68% agreed or strongly agreed that what they learned in the course about health and wellness will influence their future behavior. Students gave examples such as counting alcohol drinks per hour while partying, taking steps to get help for depression or eating disorders, and being more tolerant of others struggling with disease or mental health issues.



It is likely that what I learned in this course about health and well-being will influence my future behavior.

*"I am more attentive and reflective in my daily life."
—Georgetown Student Enrolled in Engelhard Course*

Emergent Assessment Practices Shaped by Formation

ACTION PATH 3:

Dashboards: Building an interface to an authentic learning record

How might we work with students and other stakeholders to design a dashboard as an interface to an authentic learning record, which may draw in data from multiple sources? How can we involve students so that they are invested in designing and in using the dashboard?

This action path challenges campuses to think about how learning analytics can help to bring forward and display useful information to different stakeholders—including students, faculty, advisors, and university administrators.

Shared Evidence: *Models of expansive forms of an authentic learning record, including student-driven dashboards serving as the interface, recording formational learning and development.*

Precedent:

Student Dashboard Initiative

One of the dimensions of formational analytics is developing a student dashboard that provides metrics of learning and the learning process, giving students the ability to visualize and reflect on their own development, track progress, and set goals. As Simon Buckingham Shum, Professor of Learning Informatics at the Open University UK, noted at the Project Symposium, we can think of “analytics as a mirror that can be held up to students to provoke reflection.” With dashboards, students can be empowered through owning their own analytics and by acting directly on their personalized data. There are many ways to imagine the dashboard—Simon Buckingham Shum presented one such model at the symposium, as shown in the below graphic.

Georgetown University is just beginning to think about this, and the campus **Student Dashboard Initiative** launched its first version of a dashboard in Fall 2014. This initiative is a student-led effort to work with faculty, staff, and administrators to create an online platform serving as every student’s portal to what might be thought of as their “authentic learning record,” a record that measures outcomes beyond just credit hours and grade point averages. At its core, the dashboard will be a space designed by students for students. Georgetown senior Shane Thomas is currently leading this effort and has interviewed students to gauge what they hope to track and measure in order to gain a more holistic perspective of personal development during their time at the university. For more on the Student Dashboard Initiative, visit futures.georgetown.edu/launch-of-the-georgetown-student-dashboard-initiative/.

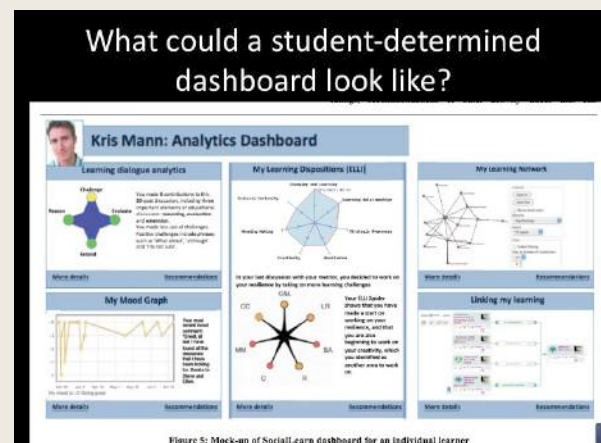


Figure 5: Mock-up of SocialLearn dashboard for an individual learner
Ferguson, R. and Buckingham Shum, S. (2012)

ACTION PATH 4: Measuring wider formational outcomes

How can we advance our local and shared knowledge around measuring hard-to-measure formational outcomes? Can we develop a toolbox of measures ranging from surveys to reflective evidence to observation of performance over time? This action path challenges institutions to experiment with different qualitative and quantitative measures to learn more about, and elevate the visibility of, wider formational outcomes.

Our five wider formational outcomes areas provide a starting place for local conversations about values and priorities, as well as a shared reference point for cross-institutional conversations. Discussing and sharing institutional systems and policies that allow for integration of data collected from multiple sources is also essential to gaining a more holistic picture of formational development.

Shared Evidence: *Instruments and data for **measuring wider formational outcomes**. Experiments with “survey 2.0” tools where data is collected but also remains with the student for their reflection and record.*

Precedent: CLARA

Learning Power Dimensions

| Strategic Mindfulness | Unaware, passive, mindless |
|------------------------------------|------------------------------|
| Hope and Optimism | Stuck and static |
| Sense-making | Data accumulation |
| Creativity | Rule bound |
| Curiosity | Passive |
| Collaboration | Independent or Dependent |
| Belonging | Isolated, split off, lonely. |
| Open and ready to learn and change | Closed, brittle and fragile |



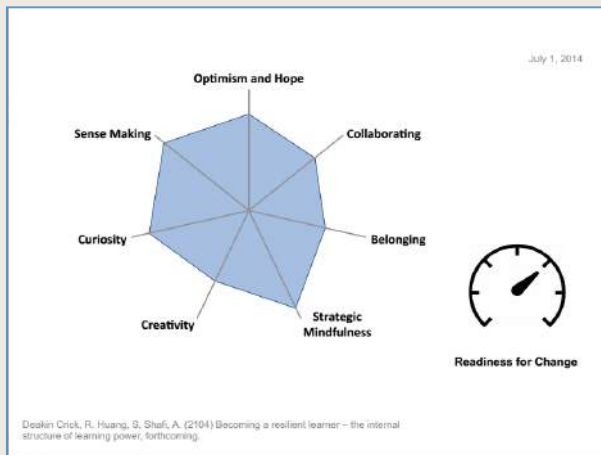
Ruth Deakin Crick shared as precedent to this work the **Crick LeArning for Resilient Agency Profile (CLARA)**, a student self-report instrument designed to measure the concept of learning power. CLARA builds on fifteen years of research and qualitative, quantitative, and narrative data collected and analyzed by the former ELLI research team based at the Graduate School of Education at the University of Bristol. This brand new instrument is being released in a research phase to be used non-commercially as part of networked improvement communities.

The research team belongs to the international Learning Emergence Network, the Systems Centre in the Faculty of Engineering, and the Graduate School of Education at the University of Bristol.

CLARA is a practical measurement tool that is designed to stimulate change through rapid feedback of data to individual learners and to learning facilitators or teachers. It is also subject to the rigorous quality of social science research in terms of reliability, validity, trustworthiness, and authenticity. It supports learning with accuracy and sharper distinctions than its predecessors.

Learning power is useful because it provides a framework and a language, and once you have language you can measure and assess it.

—Ruth Deakin Crick



Immediate feedback in the form of a spider diagram allows students to see how they rated themselves on seven dimensions of learning power and, if taken repeatedly, can help students see change in their learning power over time. This feedback provides a framework for a coaching or advising conversation that can help a student reflect on areas of strength or weakness and develop these personal qualities that will enable them to take ownership and responsibility for their learning. According to Ruth Deakin Crick, one of the principle researchers involved with the development of CLARA, even a small change such as a

coaching conversation using CLARA feedback can have a dramatic impact on student learning and outcomes.

With the move to put the CLARA instrument online, Deakin Crick and other researchers hope to find new ways to gather wider outcomes data, and to harness the power of integrating the self-report data from CLARA with data from randomized trials and radical narrative, among other sources, to form a more holistic picture of student learning, student journey, and student formation.

ACTION PATH 5: *Learner analytics*

How can we harness the full range of learner analytics increasingly afforded by the new ecology, including social learning analytics and data that could be associated with dispositions, to know more about student formation? What role could computational analytics, machine learning, and big data play in capturing and making visible the processes of, or meaningful moments in, student formation?

This action path urges campuses to identify the “analytics” of an integrative, holistic education, and to imagine what computers could do to help examine the large corpuses of data generated through learning activities, such as reflection on experiences, online discussion forums, and potentially even behavioral data. Learning—and especially “learner-centered”—analytics hold much promise as a mechanism for integrating qualitative and quantitative measures of formation, as well as visualizing and feeding meaningful data back to stakeholder groups at multiple levels of the educational ecosystem.

The Project believes in two primary goals for this work of learner analytics: One, empowering students to be in control of their own learning analytics through student-centric dashboards, and two, elevating evidence of the process of integrative, deep, formational learning to all levels of curricular design and institutional decision-making. Providing robust and multiple sources of learning analytics along the whole arc of learning will help achieve the ultimate goal of informing educational designs to best support formation of all of our students.

Shared Evidence: *Models, emerging practices, and shared data using learner analytics to support formational education, including social and dispositional analytics.*

Precedent: Discourse-Centric Analytics

“Computers are really good at counting constituent bits. The fear is that in the process we are going to destroy the very thing that we value.” –Simon Buckingham Shum

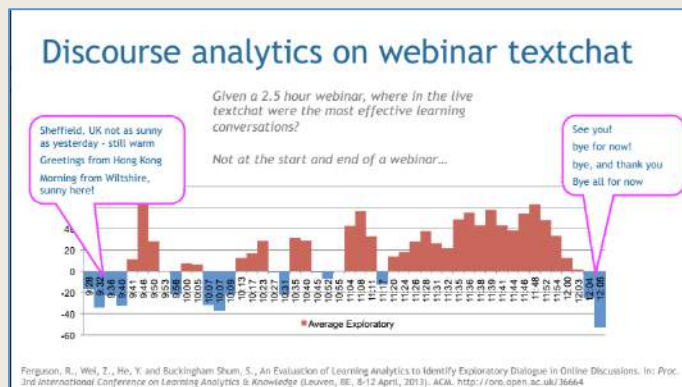
A small but growing field of qualitative, discourse-centric analytics holds much promise for developing analytics of formational learning. Simon Buckingham Shum and fellow researchers have been exploring how machine learning and computational analytics can help us know more about what happens in the liminal space of learning—“the space betwixt and between”—the place ripe with opportunity for student transformation or withdrawal.

According to Shum, analytics provide an opportunity to train computers to recognize the kind of moves that we as practitioners know students are making when they are learning, and to make these moves visible in patterned and meaningful ways.

The following examples were presented by Shum at the Project Symposium as promising ways to visualize and understand formational learning through discourse-centric analytics.

Social Network Analysis can make visible the social networks, relationships and interactions present in a traditional discussion forum. Interpersonal engagement and social capital analytics can provide insight to peer-peer and peer-mentor dynamics by making network connections, interactions, and topics more visible.

Dispositional Learning Analytics collected from self-report, informal and formal teacher observation, and behavioral analytics data can provide insight into what learners are doing in online spaces. Behavioral data can also come from apps similar to fitness tracking, which collect information about how people respond when they are placed in challenging learning situations, such as measuring and monitoring stress levels during presentations or other performances of learning.



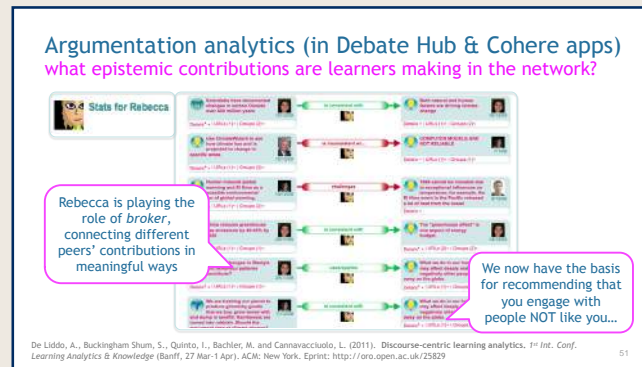
Liminal space = opportunity for transformation, or withdrawal

“It is when you have **left the tried and true**, but have not yet been able to replace it with anything else. [...] It is when you are between your old comfort zone and any possible new answer. **If you are not trained in how to hold anxiety, how to live with ambiguity, how to entrust and wait, you will run...** anything to flee this terrible cloud of unknowing.”

Richard Rohr O.F.M. on the spirituality of liminal space ¹³

Narrative and Discourse Analytics go beyond number, size, and frequency of online discussion posts to look beneath the surface to find and quantify linguistic proxies for ‘deeper learning.’ Natural language processing technologies involve teaching computer software to recognize effective learning through analysis of written and oral discourse in online spaces. Shum and colleagues have used machine learning to train a computer to recognize the most effective learning conversations in webinar textchats.

Epistemic Cognition Analytics can indicate what epistemic contributions learners are making in their network; for instance, through analyzing argumentative stance or how sophisticated their understanding of concepts is. An example is argumentation analytics used in the Cohere tool. Instead of posting to an online forum, the user posts ideas and takes the next step of connecting ideas via nodes. Linguistic behaviors visualized through the tool can be examined to find evidence of different levels of certainty of epistemic beliefs being portrayed.



ACTION PATH 6: Digital badging

What could the emerging practice of digital badging look like in a context intended to advance student formation in both curricular and co-curricular contexts? How can systems of badging, with built-in rubrics, advance contextual assessment of wider formational outcomes of learning?

This action path encourages campuses to explore micro-credentialing options, such as online badging systems, which hold the promise of leaving visible tracks of smaller sets of skills that may contribute in valuable ways to student formation. Incorporated into a learning portfolio system, badges can provide an opportunity for students to showcase and receive credentials for their co-curricular and integrative learning, especially since this learning is not typically visible on a traditional transcript.

Shared Evidence: *Models and findings for effective and experimental ways to create **contextual assessment** along the learning journey that accounts for formational outcomes, such as the emerging practices around **digital badging**.*

Precedent: Integrative ePortfolio Badges

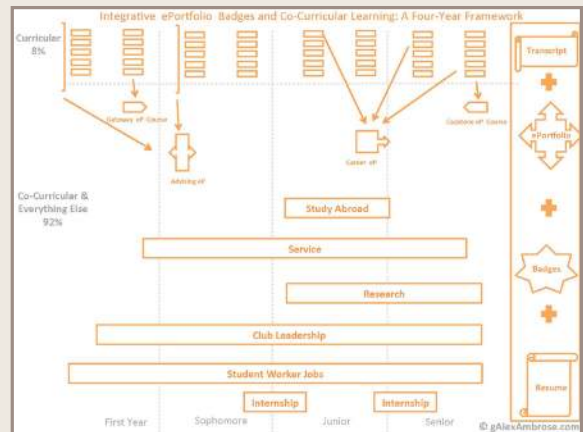
Alex Ambrose shared as precedent **University of Notre Dame's (UND) effort to integrate digital badging into online portfolio practice.** At UND, where Ambrose researches ePortfolio assessment, digital badging is part of an online portfolio practice where integrative and engaged learning are encouraged, tracked, and made visible. To earn a badge, students must meet specified criteria and provide evidence of those criteria in their portfolios. According to Ambrose, badging at Notre Dame supports curricular learning and application of that learning while also encouraging students to engage and excel in co-curricular activities.



Examples of digital badges at Notre Dame include a study abroad badge tied to the application process, a career-ready badge to demonstrate that students have translated educational experiences into career skills, and a Dean’s A-List Award for first year students who have completed a yearlong process of contemplation and self-discovery resulting in personal growth and transformation. More badges can be found in the UND Badge Directory: <http://eportfolio.nd.edu/directory/badge-directory/>.

Notre Dame has recently piloted a project to explore the intersection of digital badges and ePortfolios to create a more relevant currency between today’s colleges and employers. The digital badges and ePortfolios are designed to capture, recognize, channel, and connect student career ePortfolios with evidence-based skills for the employer stakeholder. The result of this intersection is the bridging of the skills gap.

One of the major challenges to campuses in using badges or micro-credentialing is to figure out what framework and infrastructure are needed to support the convergence of integrative and engaged learning on the traditional campus across all four years. Ambrose proposed a four-year framework for integrating a student’s transcript (with mainly curricular learning indicators), ePortfolio, badges, and resume, which would help elevate in visibility the skills and character formation gained through study abroad, service, research, leadership and internship/work activities during college.



ACTION PATH 7: Next generation learning portfolio practices

How might we build on the considerable evidence of the impact of learning portfolios on student success and integrative learning? What would it look like to integrate a next generation learning portfolio system and practices into an emerging ecosystem of learning that exists inside and outside an institution?

The emerging digital environment demands that we rethink the ways students can develop an “authentic record” of their learning that must necessarily be a combination of narrative, contextual assessment (by faculty, mentors and peers), and analytics. We call this collectively the “next generation portfolio practices,” modeled on the successful network of ePortfolio practices at many institutions, but further integrative of dashboards, badging, and analytics.

Shared Evidence: *Models, findings, and practices for next generation learning portfolio practices, including links to the field’s primary hubs, such as the Connect to Learning website.*

Precedent: Connect to Learning (C2L) Project

Bret Eynon and Laura Gambino, leaders of the **Connect to Learning (C2L) Project**, presented their Catalyst Framework, data, and evidence as precedent for next generation learning portfolio practices. The C2L Project was a FIPSE-funded national project bringing together 24 campuses from different educational sectors of higher education to work together in a sustained community of practice around ePortfolio. A major question driving the project was: What do successful campuses do to make their ePortfolio initiatives thrive and be meaningful? The Catalyst framework captures three key design principles that emerged from the project data and are necessary for transformative portfolio learning:

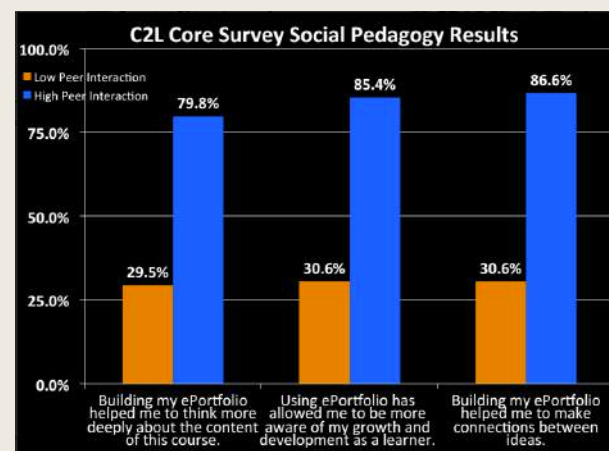
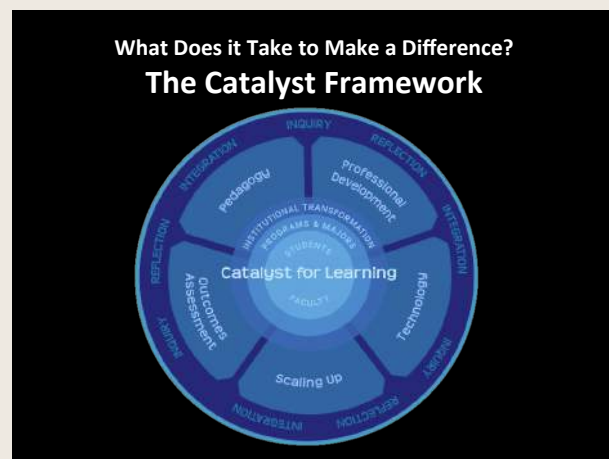
Inquiry. Active, authentic, problem-based inquiry into one’s own learning.

Reflection. Making meaning from experience.

Integration. Transfer and application of knowledge from one setting or context to another.

The C2L Project supports integrative ePortfolio initiatives that require and facilitate cross-campus conversation and collaboration focused on student learning of all sorts, and in so doing, catalyzes the emergence of learning colleges. Evidence from the project comes from data collected across the 24 campuses, thousands of faculty, and around 250,000 students. Survey findings support the project propositions that sophisticated portfolio initiatives advance student learning and success; support reflection, social pedagogy, and deep learning; and promote student self and identity formation.

By making integrated learning visible, ePortfolios help to translate qualitative evidence into quantitative evidence that can be used at the institutional level for decision-making, give advisors and faculty a better picture of the whole student experience, and provide a structure for students to construct a rich learning narrative which allows them to become better agents of their own learning.



Integrative Approaches to Assessment and Analytics

ACTION PATH 8:

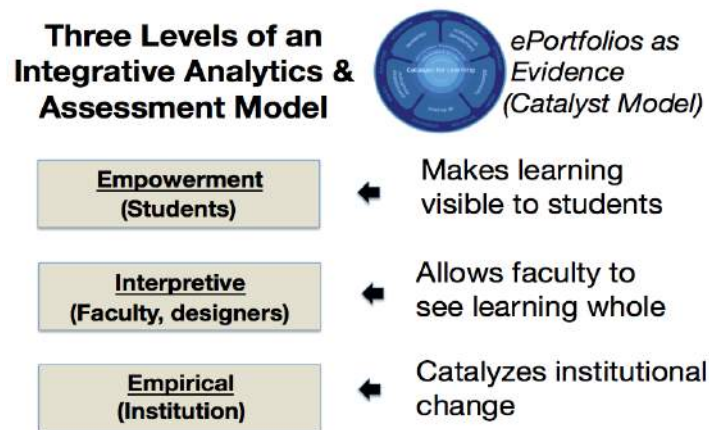
Closing the loop on the evidence of formation

An institution committed to formational development requires an integrative approach to assessment and analytics. At the heart of this integrative approach is the goal of creating occasions for different stakeholders to see the evidence of learning and discuss its potential for the next phase of action. This applies to all stakeholders in the three-tiered model.

For students, the process of viewing their own data empowers them to change based on data and feedback along their learning journey. For faculty, program directors, advisors, and learning environment designers, evidence of learning (whether work or analytics) serves an interpretive purpose, useful to informing learning designs and instructional programming. For institutional decision-makers, learning data is mostly used at an empirical level to inform decision-making.

A key challenge in this work will be to resolve the translation problem between deep, integrative, reflective qualitative evidence of formative learning experiences (e.g. learning portfolios) that is gathered over time, and the quantitative analytics out of learning systems and the assessments that “roll up” and are recognized as valid assessment. Institutions need to take an experimental approach to the evidence of whole person development while at the same time developing systematic approaches to “closing the loop” with evidence of high-impact learning designs.

Shared Evidence: *Models for practices that generate assessment and analytics data that are operational at all **three levels of assessment stakeholders**: student (empowerment), faculty/advisor/designer/program director (interpretive for continuous improvement of designs), and institutional (empirical).*



The graphic above compares the findings on the impact of learning portfolios with a three-level system of analytics proposed by Simon Buckingham Shum, as discussed above. ePortfolios are an example of an integrative learning innovation that functions effectively to help stakeholders see learning whole at each of the three levels. As the sources of analytics and evidence of learning expand, institutions need to move occasions for integrating and discussing evidence of learning to the center of their practices.

Evidence of Formative

Integration
(across time & content)
+
Engagement
(how much + in which way)

actions
consistent with
commitment
for good

engagement in
communities
that support
growth

DECREASE IN
NUMBERS OF
STUDENT CONDUCT
AND HONOR
CODE
VIOLATIONS

Narrative
expressions of
personal
meaning *

dialogue *
that reflects
complexity

classroom
discussions
≠ dialogue

evidence of
empathy:
altruism around
causes from which
one does not
personally benefit

mentoring
relationships
among students

A sub-
stantial
research
project

The Project: Activities and Participants

Research and Consultations

During spring 2014, the Formation by Design Project conducted research and consulted with researchers and experts in the areas of learning analytics, ePortfolios, digital badging, and assessment. These consultations are part of the Project's ongoing research into how analytics, integrative learning, and assessment can aid in the goal of formational education. Interviews with Georgetown alumni contributed additional data about the ways career and education pathways are shaped by formational learning experiences during college.

Project Symposium

The Formation by Design Project held a summer symposium to advance a vision and framework for measuring the characteristics and dispositions of whole person learning in a more systematic and integrative way. The Project Symposium served to bring together national and international educational experts to share “precedents” for discussion based on their research and prior work. Symposium outcomes include the basis for the wider formational outcomes presented in this report, the generation of ideas for locally-based pilots and initiatives, and ways to collaborate across various research networks to share resources and data.

Reinventors Web-Based Video Roundtable Series

Georgetown University partnered with Reinventors Network to produce the online roundtable series “Reinvent the University for the Whole Person.” Vice Provost for Education and Principal Investigator for the Formation by Design Project Randy Bass hosted the series, which brought together higher education experts to address topics of policy, new metrics, learning environments and more.

The topics of the six roundtable episodes were:

- 1) The Whole Opportunity
- 2) Next Skill Sets
- 3) Next Physical and Virtual Environments
- 4) New Metrics
- 5) Principles Driving Policy
- 6) Strategies for Organizational Change

All episodes are available to stream at <http://reinventors.net/series/reinvent-university/>.

Looking Ahead

Based on the work reported here, the medium- and long-term goals of the Project are starting to clarify. Over the next few years we want to advance significantly how we understand the role of wider formational outcomes across the whole arc of learning and to enable programs and institutions to better identify which learning experiences are contributing the most to which outcomes.

Beginning this fall, we seek to establish networks and resources that will help us explore how the evidence of wider outcomes (data analytics, contextual assessment and narrative reflection) can help expand purposeful and outcomes-driven curriculum (including proficiency-based models).

As part of this network (or network of networks), we want to find ways to “stress test” emerging models

for integrating a diversity of evidence across a heterogeneous group of institutions. Overall, we believe that the distinct contribution of Formation by Design is in helping to connect still disconnected streams of conversation in higher education: integrative learning and technology-driven granular learning.

Key Next Steps for the Project

Fall 2014:

Building a Network for Formation in the New Ecology

The Project is building a visible node to serve as a means of sharing instruments, data, processes, and findings within and between the existing research networks interested in formational and holistic education. This virtual space would allow practitioners and researchers to share their findings, tools, and practices generated through locally-developed work based on the eight paths to action.

Winter 2015:

Disseminate the Concept Brief: "Formation in the New Ecology"

A critical stage in this Project will be to disseminate a concept paper or "brief" on considerations for reimagining the practices of formation and the development of students into full human persons in a changing educational context.

Summer 2015:

Formation by Design Symposium II: Expanding to Global Network and Conversation

Building on the success of the Summer Symposium, which involved mostly U.S. educators, the Project proposes a second symposium with a global focus on holistic and formational education.

Core Project Team, Research Partners, and Symposium 2014 Participants

Formation Core Team (Georgetown)

- Catherine Armour, Director of Education and Academic Affairs and Formation by Design Project Team Member
- Paige Arthur, Graduate Associate and Formation by Design Project Team Member, The Center for New Designs in Learning and Scholarship
- Randy Bass, Vice Provost for Education and PI for the Formation by Design Project
- Alexis Downey, Project Coordinator for the Engelhard Project and Formation by Design Project, The Center for New Designs in Learning and Scholarship
- Brandi Durkac, Director of Advancement and Regional Development at the Office of Advancement and Formation by Design Project Team Member
- Carrie Gladstone, Assistant Vice President for Strategic Initiatives at the Office of Advancement and Formation by Design Project Team Member
- Mindy McWilliams, Assistant Director for Assessment and Co-PI for the Formation by Design Project, The Center for New Designs in Learning and Scholarship

Research Consultants and External Collaborators

- Alex Ambrose, Associate Director of ePortfolio Assessment, The Kaneb Center for Teaching and Learning, University of Notre Dame
- Kate Anderson, Policy Analyst and Technical Lead, Learning Metrics Task Force, Center for Universal Education at the Brookings Institution
- Dan Bernstein, Professor of Cognitive Psychology, University of Kansas

- Simon Buckingham Shum, Professor of Learning Informatics, The Open University UK
- Ruth Deakin Crick, Reader in Systems Learning and Leadership, Graduate School of Education, University of Bristol
- Kathleen deLaski, Founder and President, Education Design Lab
- Bret Eynon, Director, The Making Connections National Resource Center on Inquiry, Reflection, and Integrative Education, LaGuardia Community College (CUNY)
- Peter Felten, Assistant Provost for Teaching and Learning and Executive Director of the Center for Engaged Learning, Elon University
- Ashley Finley, Senior Director of Assessment and Research, Association of American Colleges and Universities
- Laura M. Gambino, Professor and Faculty Scholar for Teaching, Learning, and Assessment, Guttman Community College (CUNY)
- Don Harward, Director, Bringing Theory to Practice Project
- Pat Hutchings, Senior Scholar, National Institute for Learning Outcomes Assessment
- Charity Johansson, Professor of Physical Therapy Education, Elon University
- Dawan Stanford, Director of Design Strategy and Operations, Education Design Lab
- Kathy Takayama, Executive Director, The Harriet W. Sheridan Center for Teaching and Learning, Brown University

Georgetown Partners

- Melody Fox Ahmed, Assistant Director for Programs, Berkley Center for Religion, Peace & World Affairs
- Tom Banchoff, Vice President for Global Engagement
- Erika Cohen Derr, Director, The Center for Student Engagement
- Heidi Elmendorf, Associate Professor of Biology and Director of Science Education Outreach
- Diana Guelespe, Evaluation Specialist, Center for Social Justice Research, Teaching, and Service
- Beth Harlan, Associate Director for Career Education and Counseling
- Edward Maloney, Executive Director, The Center for New Designs in Learning and Scholarship
- Rev. Kevin O'Brien, Vice President, Mission and Ministry
- Todd Olson, Vice President for Student Affairs
- Joan Riley, Associate Professor, School of Nursing & Health Studies
- Mike Schaub, Executive Director, Cawley Career Education Center
- Joselyn Schultz Lewis, Senior Program Coordinator, The Center for New Designs in Learning and Scholarship
- Shane Thomas, Undergraduate Student and Leader of the Student Dashboard Initiative
- Yianna Vovides, Learning Design Research Specialist, The Center for New Designs in Learning and Scholarship
- Dennis A. Williams, Associate Dean of Students
- Jen Woolard, Associate Professor of Psychology

Select Readings

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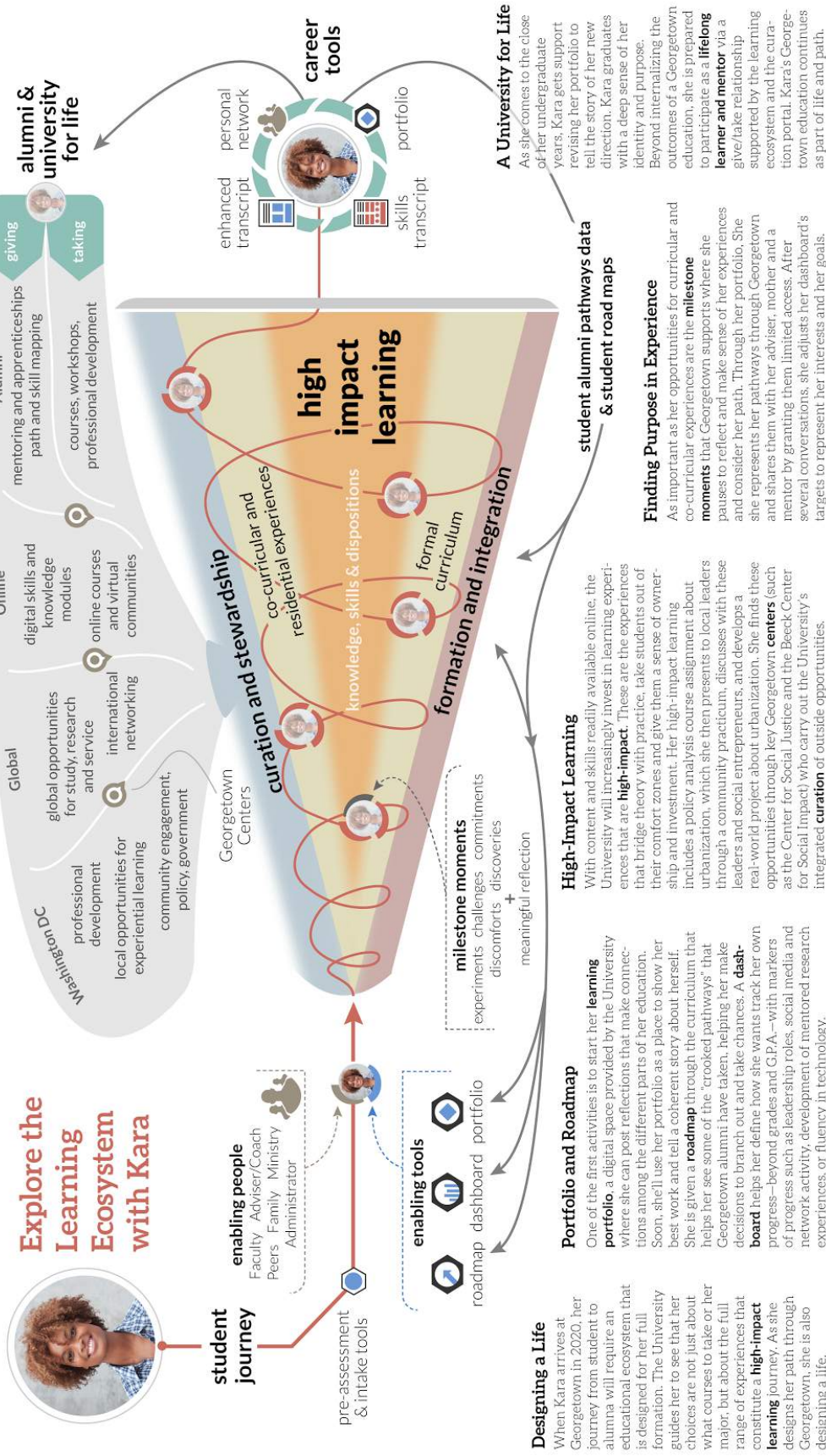
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The UNESCO Institute for Statistics and the Center for Universal Education at the Brookings Institution. (2013). *Toward Universal Learning: What every child should know*. Montreal and Washington, DC: Learning Metrics Task Force.

NOTE: The image below is a graphical mapping of the learning ecosystem using Georgetown as an example. Each campus ecosystem would look different. We include it here merely to suggest the value of a campus trying to represent all the parts of the learning ecosystem schematically.

Optimizing Georgetown's Learning Ecosystem

visualizing what it will take to deliver a high-impact and integrative education in the new landscape



Explore the Learning Ecosystem with Kara



student journey

enabling people
Faculty Adviser/Coach
Peers
Family Ministry Administrator

pre-assessment & intake tools

enabling tools
roadmap dashboard portfolio

milestone moments
experiments
challenges
commitments
discomforts
discoveries
+
meaningful reflection

Designing a Life

When Kara arrives at Georgetown in 2020, her journey from student to alumna will require an educational ecosystem that is designed for her full formation. The University guides her to see that her choices are not just about what courses to take or her major, but about the full range of experiences that constitute a **high-impact learning** journey. As she designs her path through Georgetown, she is also designing a life.

Portfolio and Roadmap

One of the first activities is to start her **learning portfolio**, a digital space provided by the University where she can post reflections that make connections among the different parts of her education. Soon, she'll use her portfolio as a place to show her best work and tell a coherent story about herself. She is given a **roadmap** through the curriculum that helps her see some of the 'crooked pathways' that Georgetown alumni have taken, helping her make decisions to branch out and take chances. A **dashboard** helps her define how she wants track her own progress—beyond grades and GPA—with markers of progress such as leadership roles, social media and network activity, development of mentored research experiences, or fluency in technology.

High-Impact Learning

With content and skills readily available online, the University will increasingly invest in learning experiences that are **high-impact**. These are the experiences that bridge theory with practice, take students out of their comfort zones and give them a sense of ownership and investment. Her high-impact learning includes a policy analysis course assignment about urbanization, which she then presents to local leaders through a community practicum, discusses with these leaders and social entrepreneurs, and develops a real-world project about urbanization. She finds these opportunities through key Georgetown **centers** (such as the Center for Social Justice and the Beck Center for Social Impact) who carry out the University's integrated **curation** of outside opportunities.


Finding Purpose in Experience

As important as her opportunities for curricular and co-curricular experiences are the **milestone moments** that Georgetown supports where she pauses to reflect and make sense of her experiences and consider her path. Through her portfolio, she represents her pathways through Georgetown and shares them with her adviser, mother and a mentor by granting them limited access. After several conversations, she adjusts her dashboard's targets to represent her interests and her goals.

A University for Life

As she comes to the close of her undergraduate years, Kara gets support revising her portfolio to tell the story of her new direction. Kara graduates with a deep sense of her identity and purpose. Beyond internalizing the outcomes of a Georgetown education, she is prepared to participate as a **lifelong learner and mentor** via a give/like relationship supported by the learning ecosystem and the curatorial education continues town education continues as part of life and path.

GEORGETOWN UNIVERSITY



“Each person enjoys an inherent dignity that can never be taken away. As a teacher, we work with a pupil. We appreciate the depth and human dignity of the human person, helping each person realize their possibility and their potential.”

***—Fr. Kevin O’Brien, SJ
Georgetown University***

**Formation by Design Project
Georgetown University
futures.georgetown.edu/formation**

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