



The Annual Report for Applied Critical Thinking at RIT

*for*

2018-19

**Dr. Jennifer L. Schneider, CIH**

**Eugene H. Fram Chair in Applied Critical Thinking**

**2019**

## Table of Contents

Executive Summary .....	2
Purpose and Guiding Aims .....	3
Initiative Framing and Rationale .....	3
Applied Critical Thinking Strategic Action Plan (2018-21).....	8
Integration with RIT’s major goals.....	17
Challenges to ACT integration.....	17
ACT Recommendations .....	17
Conclusion .....	18
Appendix 1 History.....	20
Appendix 2 Learning Outcomes .....	21
Appendix 3 Fram Social Media Statistics.....	23
Appendix 4 Fram Award for Excellence in Applied Critical Thinking at Imagine.....	24

## **Executive Summary**

In 2018-19, the maturation and integration of the Applied Critical Thinking initiative at the Rochester Institute of Technology (ACT@RIT) continued under the leadership of Dr. Jennifer L. Schneider. Applied Critical Thinking at RIT is framed, functional, and ready to meet greater challenges. We have entered a new phase of ACT efforts on the national stage and are also poised to deepen our efforts to fulfill university goals.

We have increased on-campus participation 700% over the last 5 years. This year, we hosted 12 college-focused Fram events, and an institute -wide spring lecture and fall signature event set that were very successful. The year-over-year participation increased 61% to an all-time high of 1400 attendees despite the ongoing challenge of capturing interest on our busy campus.

Engagement is more than event attendance, but strategic refinement of university systems for student success. Notable accomplishments are measurable at all RIT campuses, including:

- implementation of the suite of rubrics for ACT-related student learning outcomes, and initiation of data informed ACT process evaluation;
- completion of a first year student perception survey for Rochester that forms a baseline for longitudinal student assessment;
- establishment of a relationship for future RIT4LIFE opportunities;
- continued successful university- level offerings including the graduate ‘Worldmaking’ salon and a critical thinking course through RIT edX;
- growth in faculty support including resources, rubrics, teaching circle and workshop offerings;
- initiation of participation and feedback survey for RIT international campuses;
- successful planning for the first of its kind Association of Independent Technological Universities (AITU) Applied Critical Thinking Summit, attracting participation for our peer institutions for a summit in August 2019.

## Purpose and Guiding Aims

The purpose of this report is to summarize the ACT efforts and accomplishments for the 2018-19 academic year, list recommendations for future efforts, and define benchmarks for the ongoing evaluation of our progress.

Establishing the reputation of RIT as a national leader in Applied Critical Thinking relies upon a university-wide commitment coupled with a notable external contribution to the development of applied critical thinking. To ensure success, the university is (1) developing a process grounded in performance measures and student achievement assessment, (2) continually seeking and sharing best practices and opportunities, with internal and external partners, (3) integrating high-quality ACT learning opportunities across the student experience, and (4) facilitating excellence in the development of Applied Critical Thinking in our students and our world.

## Initiative Framing and Rationale

Our global society has high expectations. Decision makers must think critically to assess and strategize within complex, interconnected systems, continually adapt to rapidly evolving technological, aesthetic, and social environments, and manifest new ideas, both individually and collectively.

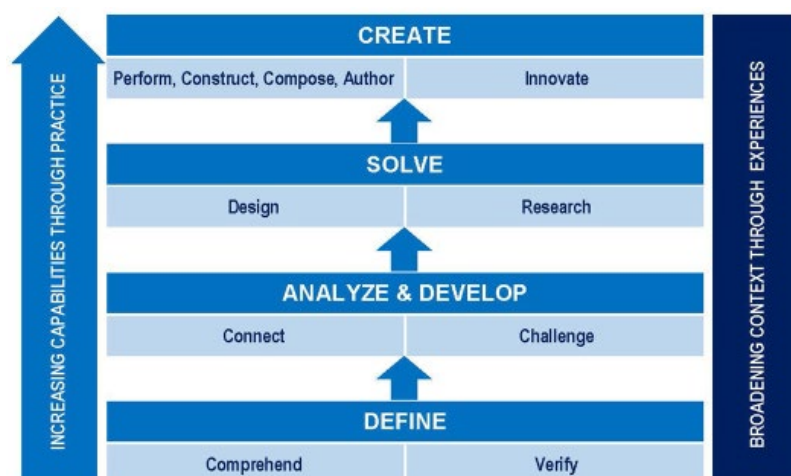
In response, RIT created the **Applied Critical Thinking (ACT at RIT)** initiative to foster the application of critical thinking – *the exercising of effective thinking in any context*. **Application of critical thinking connects this performance chain of knowing-doing-creating.** The initiative is guided by several working definitions, including:

- **RIT University Educational Goal and Essential Program Outcome: Critical Thinking** refers to those processes required to understand and evaluate complex claims of various sorts. It involves the evaluation of information, evidence, arguments, and theories, and the contexts in which these are encountered. It entails the questioning of different and competing perspectives, and challenging the (sometimes hidden) assumptions and inferences that determine what will count as evidence or argument. Critical thinking is learning to think in a disciplined and evaluative manner, to analyze and interpret the processes by which various claims are made and reliable conclusions are reached ([RIT Essential Outcomes](#))

- **Critical Thinking Across the Curriculum: Critical thinking is...** ‘the ability to identify, analyze, construct, and evaluate evidence and arguments in a deliberate and rigorous way’ or ‘The growth of educated thinking’. (C. Sheffield, Critical Thinking Across the Curriculum Report, 2014)
- **Fram Advisory Board:** “At RIT, ACT is an active form of engagement, drawing from our diverse domains and deep expertise to address the questions and challenges that we face. As the uncertainties and the magnitude of impacts increase in our complex world, we must now consider a wider range of possible outcomes. To do this well, we need to employ thinking that draws from multiple, diverse environments to more fully inform our evaluation and resultant strategies.” (Fram Advisory Board, [Fram Award at Imagine](#)).

RIT systematically integrates critical thinking across the student experience to develop critical thinking in diverse settings. ACT at RIT is cultivated through learning expectations of *defining* the quality of information, *analyzing* and *developing* a point of view, *solving* of complex problems, and *creation*. These elements are embedded into our curriculum and practiced intentionally in ever-broadening and diverse environments of experiential learning. RIT’s renowned experiential learning program, the prolific use of projects and teams, community service programs, international experiences and programs, entrepreneurship and research opportunities, and participation in student groups in and out of the classroom are all valuable to the initiative. The ACT skills students develop transfer into every other area of life and are the impetus for growth, professionalism, and creative expression, empowering our alumni to realize their unique contribution to our world through whatever path they choose or create. The visual map of the effort is below:

**Figure 1 – ACT Skill Development Map**



## 2018-19 Management & Structure of the Initiative:

The ACT initiative is led and the report is compiled by the Eugene H. Fram Chair in Applied Critical Thinking (Fram Chair), Dr. Jennifer L. Schneider, CIH. In addition to her role as the Fram chair, Dr. Schneider is also a professor in Civil Engineering Technology, Environmental Management & Safety within the College of Engineering Technology at RIT, and leads the cross- disciplinary Collaboratory for Resiliency & Recovery at RIT. She has expertise in HAZMAT, risk-based decision-making and global resilience. The internal Fram Advisory Board (FAB) of Rochester faculty and staff, the Fram alumni-driven External Advisory Board (FEAB), and the international campus IFAB all advise Dr. Schneider. Until January 2019, Dr. Schneider was supported by a part-time Fram Faculty Fellow, Dr. Adrienne Decker. Ms. Angela Brodie of Academic Affairs, who specializes in business management and communications, provides full-time administrative support. Further information on the history of the Fram/ACT Initiative can be found in Appendix 1.

### Fram Advisory Boards

In August 2018, the Rochester based Fram Advisory Board (FAB) membership was again confirmed by the college deans & unit directors. Most members from the previous year chose to remain on the board for 2018-19 (Table 2). This board has representation from the colleges and degree granting units as well as Student Affairs. The duties of the board members are to guide Rochester – based ACT efforts and advocate for/be a conduit for ACT@RIT.

**Table 2. 2018-19 Fram Advisory Board**

- **Callie Babbitt**  
Goliso Institute for Sustainability
- **Heath Boice-Pardee**  
Student Affairs
- **Corey Crane**  
College of Health Sciences & Technology
- **Roger Dube**  
College of Science
- **Mike Eastman**  
College of Engineering Technology (Associate Dean Representative)
- **Christine Keiner**  
College of Liberal Arts
- **David Long**  
College of Art & Design
- **Rachel Mazique**  
National Technical Institute for the Deaf

- **Sylvia Perez-Hardy**  
Golisano College of Computing & Information Sciences
- **Patricia Poteat**  
College of Engineering Technology
- **Brian Thorn**  
Kate Gleason College of Engineering
- **John Ward**  
Saunders College of Business

### **Fram External Advisory Board (FEAB)**

The Fram External Advisory Board is selected from RIT's notable alumni (Table 3). These board members bring an external point of view and guidance to the initiative. The current members serving 2- or 3-year renewable terms are:

**Table 3. 2018-19 Fram External Advisory Board**

- **Jason Edwards** (Saunders College of Business, MBA 2003)  
Vice President of Category Leadership - Total US Grocery Pinnacle Foods Group LLC
- **Robert Jacoby** (Civil Engineering Technology, B.S./Environmental Management 1977)  
Consultant to the Energy Industry  
Former Global Manager at Royal Dutch Shell
- **Ellen Moser** (Computer Technology, B.T. Software Science 1981)  
Board of Directors  
Fundraising Committee Chairperson Brentwood Library Foundation
- **Chris Petescia** (College of Art and Design, B.F.A. Graphic Design 2005)  
Chief Experience Officer Carrot Creative
- **William Standwill** (College of Art and Design, B.S. Graphic Communications 1988)  
General Manager, International T2 Biosystems, Inc.
- **Krista Vardabash** (Saunders College of Business, MBA 2012)  
KV Strategies

The Fram International Advisory Board represents each of RIT's international campuses (Table 4). These board members bring an international point of view and guidance to the initiative. The current members serving 2- or 3-year renewable terms are:

**Table 4. International Fram Advisory Board**

- **Mark Baskin**  
Rochester Institute of Technology-- Kosovo

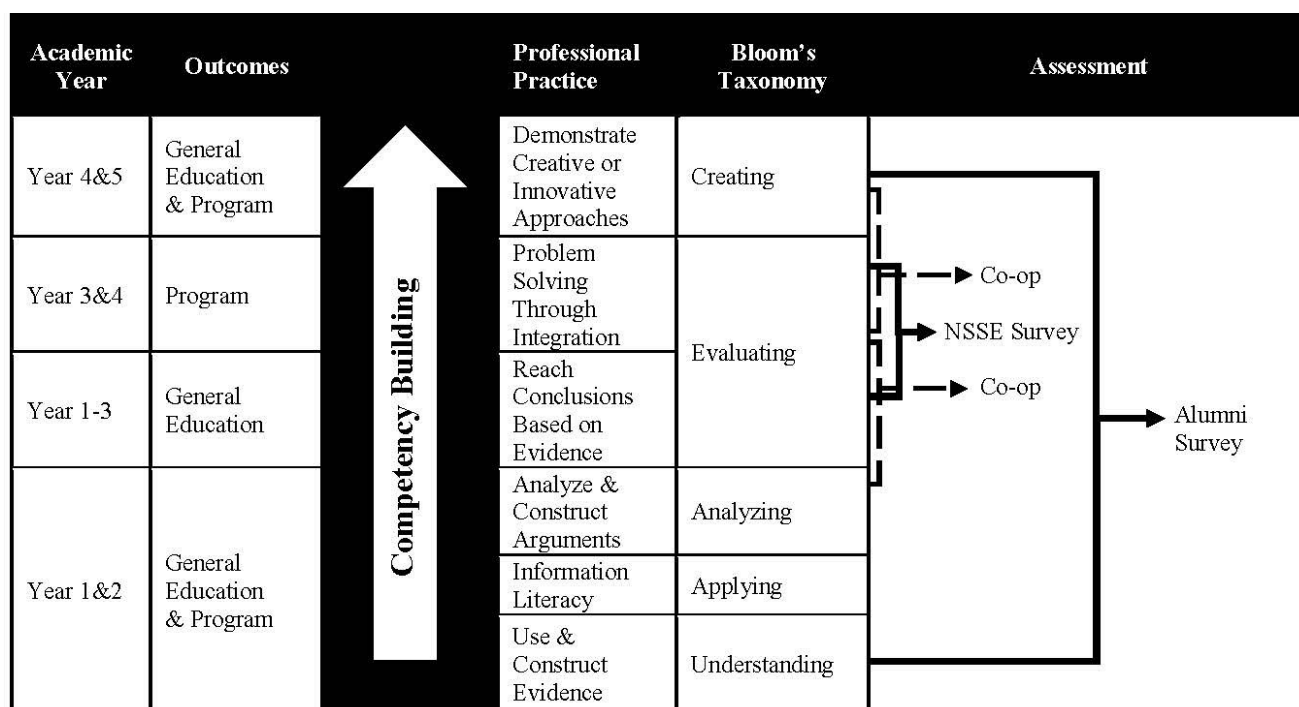
- **Francis Brassard**  
Rochester Institute of Technology--Croatia
- **Jonathan Penny**  
Rochester Institute of Technology--Dubai

## General Education & Program Student Learning Outcomes

The teaching and assessment of ACT at RIT is managed through a comprehensive general education and program strategy founded on student learning and program goals. General education outcomes have been codified by the governing committee, and adopted accordingly. The abbreviated outcomes are listed in the professional practice column of the chart below because these inform the building of a competent, professional, and capable critical thinker. The full description of ACT student learning outcomes are noted in Appendix 2. RIT measures student critical thinking at several opportunities along the student experience as follows:

1. University level Essential Program Outcomes assessed in designated general education courses
2. Program learning outcomes
3. Cooperative employer feedback
4. National Survey of Student Engagement (NSSE)
5. RIT's alumni survey (broad in scope)

**Figure 2 – ACT Outcomes Map**





## Applied Critical Thinking Strategic Action Plan (2018-21)

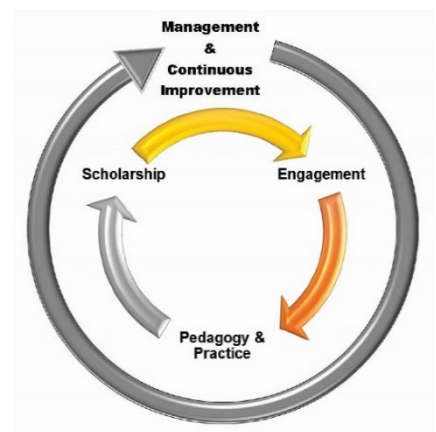
The Applied Critical Thinking (ACT) Strategic Action Plan (SAP) for 2018-21 is meant to guide the ACT initiative and reflect ACT related goals of the Rochester Institute of Technology (RIT) Strategic Plan for 2025. As an initiative focused on a core 21<sup>st</sup> century skill, uniquely manifested by RIT, the ACT effort directly supports university goals and the growth of the university programming, reputation, and is also crucial to the blending and growth of the unique capabilities of RIT. The effort serves to attract, engage and advance high quality high quality application of critical thinking. ACT plays a particular formative role in these university goals:

- GOAL 1: Enroll and support a diverse mix of increasingly creative, multi-talented students.
- GOAL 4: Continue to attract and retain world-class faculty committed to elevating RIT's collective excellence in scholarship, teaching, and service.
- Goal 8: Design and integrate unique curricular experiences at the intersection of RIT's programs in Technology, Art, and Design (TAD). Design new and revise existing programs in non-STEM disciplines that increase enrollment through this same distinctive integrated core.
- GOAL 16: Create a distinctive RIT brand and develop a supporting content marketing strategy that makes use of all relevant media.

This plan follows the initial ACT SAP for 2015-18; the SAP is a guidance document that is in turn supported by the annual plans of work for the Fram Chair and administrative support. This plan outlines our university-wide effort to drive RIT's contribution and recognition in the domain of applied critical thinking. While each focus area is presented separately, the elements are interrelated. This plan centers on impacting the student experience, and therefore, student engagement is THE key part of our efforts.

Highlights of Accomplishments in 2018-19

In **2018-19, significant accomplishments** included twelve events with over 1400 participants with the same operational budget first allocated in 2011. This included the hosting of Marco van Hout, Head of Programmes & Impact of the Digital Society School of Amsterdam as part of three days of Signature events in October 2018, including multiple student-centered opportunities and a



culminating signature lecture. Alum Ben Meunier, VP of R&D, Advanced Product Development at Oakley joined us for two days in March 2019, also offering multiple student-centered events and delivered our most popular Fram Speaker Series event to date. Other accomplishments included an expanded social media presence, growing the community of practice with the addition of eleven new members, two Fram Awards at Imagine RIT and the submission of the Interfaith Civic Fellows grant proposal to the PACE Foundation in collaboration with Monica Sanford and Kerry Fox of Student Affairs. As the Fram Chair, Dr. Schneider is a contributor to other RIT initiatives, for example, Predictive Analytics (student retention & resilience) and RIT Alumni Relations efforts including RIT 4 Life, etc.

### **Management & Continuous Improvement (Process):**

- Successfully completed the 2015-18 Fram SAP, with all required university level and department standard operating procedures elements now implemented.
- Confirmed a new strategic action plan (SAP) with the FAB, updated to reflect the university plan.
- Continued to integrate and advance the initiative, in accordance with the drafted 2018 plan.

### **Creating Engagement:**

- Communication Plan: There is a marked increase in engagement in social media during the AY 2018-19. The Fram website attracted 3,671 hits, an increase of 405 over the prior AY total of 2,944 hits. This is accompanied by a significant increase in Twitter activity, with our reach rising to 46,103, a 253% increase over the previous AY total of 18,213; Facebook totals reached 2,244 in the same period (see Appendix 2). In addition to increasing our social media presence, nine issues of the Fram Focus were published. These highlight upcoming Fram events, co-sponsored events, Community of Practice recognition for excellence in Applied Critical Thinking, and feature relevant news and scholarly articles selected by Eugene H. Fram.
- The Office of the Fram Chair was featured in 3 articles in RIT's University News and also featured in one podcast during this academic year.

### **Events:**

- Fram Signature Events – Critical Thinking to Making Workshops with Marco van Hout followed by an evening “Concert Projection.” (220 Attendees)

- Fram Signature Lecture “Design for Transformation, Needs a Transformation in Design” with Marco van Hout, Head of Programmes & Impact of the Digital Society School of Amsterdam. (300 Attendees)
- The Fram Speaker Series speaker welcomed RIT alumnus Ben Meunier, Vice President of R&D, Advanced Product Development at Oakley. Mr. Meunier graduated from RIT with a degree in Electrical-Mechanical Engineering Technology in 2003. (150 Attendees)
- Teachers on Teaching: The goal of these workshops is to support and increase faculty-driven pedagogy in Applied Critical Thinking
  - December 3, 2018 – Bob Barbato, Saunders College of Business – " Teaching Critical Thinking - A Modeling Approach" (24 Attendees)

### **Co-Sponsored Events:**

The purpose of sponsoring events across RIT is to create domain-specific engagement with the university-wide initiative.

- Gray Matter
  - September 14, 2018 – "Diversity...again???" (25 Attendees)
  - March 22, 2019 – ‘News, Friends, and Yourself: Is it Naïve to Trust?’ (15 Attendees)
- College of Health Sciences and Technology
  - April 18, 2019 – "Critical Thinking about Unconscious Bias: What is it and why does it matter in healthcare?" (10 Attendees)
- College of Liberal Arts
  - February 26, 2019 – "CRISPR and Risk” A Critical Discussion of Gene Editing" with Dr. Kristoffer Whitney (100 Attendees)
- Student Affairs – Q Center
  - February 14, 2018 – “Designing Queer Games: A Conversation with Avery Alder” (100 Attendees)
- Student Group Events
  - October 19-21, 2018 – Thought at Work Conference and Events (382 Attendees)

- November 14, 2018 – Graduate Education Week: How Thinking... (15 Attendees)

### **Critical Thinking Course Highlights**

- **Year One/365 course:** Dr. Schneider continued her association with Year One or 365 by serving on their advisory board as they have offered this newly enhanced course and student experience.
- **The World Making Graduate Salon:** The salon continued in 2018-19, taught by Dr. Carlos Lousto and Dr. Tim Engstrom. Dr. Schneider supported this through transfer of AA budget and set up through SOIS for registration. The salon focused on how disciplines engage in “world making” and, especially, on the borders that are produced or crossed as disciplines interact with each other. The salon began with an exploration of “translation”: how do different disciplines and “worlds” talk to each other; what are the assumptions that guide translation between and among languages, fields, and cultures. This was followed by discussion of “the tyranny of metrics”: In effect, how has the drive for objective and measurable metrics affected how we think about different fields, how we assess and judge knowledge claims, how we “translate” the underlying assumptions of different fields into a shared “language”, and how we administer and manage the institutions responsible for producing knowledge and guiding society more broadly.

These two topics of “translation” and “metrics” provided the foundation for explorations of the following additional themes: The nature and limits of computation and AI; the fundamental assumptions of explanation, causation and reductionism in physics; constructions and conceptions of consciousness and cognition; the implications of chaos and complexity theory on the nature of description and prediction. Other related topics were pursued and discussion was wide-ranging.

Students contributed both to the topics explored and the readings that guided discussion. The salon was capped with student presentations and leadership of discussion, on the basis of themes and readings selected by the students. The salon successfully achieved its primary goals of enhancing student capacity for critical thinking, for thinking about and across the borders of students’ own fields of research, and for taking intellectual and conversational responsibility for the group’s rigor and quality of engagement.

- **RIT edX** (part of RITx Soft Skills Professional Certificate):

#### **RITx Critical Thinking:**

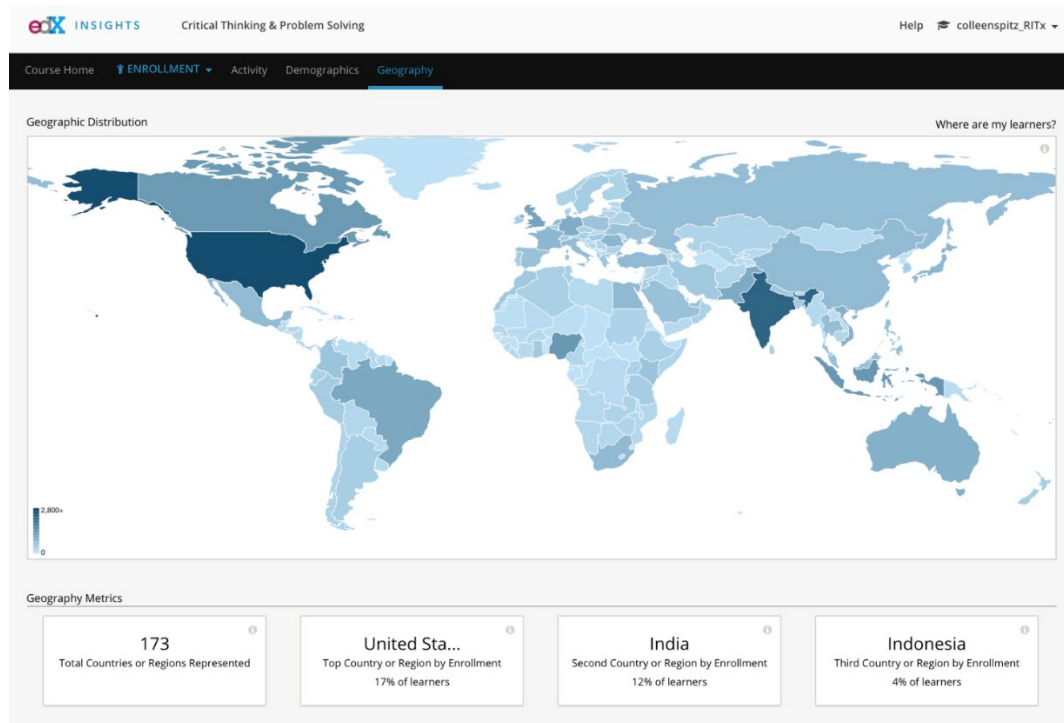
Enrollments (to date) – 42,365

Verified Enrollments – 760

Passing Learners – 483

The graphic below illustrates the geographic distribution of learners in this course.

**Figure 3 – Leaner Distribution**



## **2019 Fram Award at Imagine**

These awards highlight student achievements in critical thinking as part of the process of developing the exhibit. The annual awards are given for both small group and large group categories. (See Appendix 4 for abstracts):

- **Small Group Award: Food Waste Survey**



**Exhibitor: Jessica Peterson**

- **Large Group Award: Forensics and Tech Tactics**



**Exhibitors: Tia Hose, Balen Wolf, Gabriel Corales, Jesse Pickard, Holly Elder, Jade Mullen, April Dumlao, Lin Hui Jiang, Luke Nearhood, Mariam Dzamukashvili, Mary Yuen, Sakinah Abdul-Khaliq, Tommy Tran**

## **Pedagogy & Practice**

- Community of Practice & Exemplars: Our current Community of Practice membership now includes twenty-seven RIT faculty and staff members, broadly representing the university. Please note that three of these individuals have since retired or left RIT.
- Provost's Learning Innovation Grants (PLIGs): Begun in 2017-18 and continued in 2018-2019, this effort invited PLIG recipient faculty to engage in a teaching circle to support their unique curricular development efforts. All PLIGs have a link to ACT in some form. Faculty continue to participate in a working group. ACT-related grants awarded included:
  - Jeanne Christman, Associate Professor, CET (Maureen Valentine & Rob Garrick) "Design Thinking and Problem Based Learning"
  - Clark Hochgraf, Associate Professor, CET "Autonomous Robot Systems as a Context for Critical Thinking"
  - Carlos Rivero, Assistant Professor, GCCIS "Why am I getting this? Helping Students Understand Unexpected Results in Big Data Databases"
  - Cory Stiehl, Senior Lecturer, KGCOE (Iris Asllani) "Development of Companion Projects for Vertical Integration of Design Experiences Through the BME Curriculum"
  - Hadi Hosseini, Assistant Professor, GCCIS "An Interactive Online Platform for Artificial Intelligence Education"
  - Daniel Worden, Visiting Assistant Professor, SOIS (Steven Galbraith & Rebekah Walker) "The History of Comics: Archive and Analysis"
- Assessment: There are approximately 600 general education courses with ACT components and many program-level courses that support ACT@ RIT, by continuing to build our assessment strategy for ACT through these courses. Examples include:
  - Piloting of Longitudinal Study: In Fall 2018, in conjunction with Year One/365 and First Year Writing course, the Fram Chair implemented a new assessment survey that gathered information on student's personal evaluation of their ACT knowledge and skill set. This data will be used to inform and forward a broader longitudinal study examining the growth of student ability to apply critical thinking across their RIT student experience.

- Student Learning Outcomes & Rubrics: Dr. Schneider participated in the creation of the creative and innovative rubric with the assessment office and faculty team. All rubrics have now been written. Creative and innovative approaches has been piloted. Working with the Gen Ed advisory, The Fram office has begun to review, edit, and possibly amend the ACT SLOs. Dr. Schneider has also collected information regarding the possible establishment of a problem solving SLO for ACT.
- International Faculty Teaching Survey: In collaboration with our international campus partners, Fram/ACT created and conducted a faculty survey to ascertain where and how the best practices are used at RIT's international campuses. This information will be used going forward to inform our individual campus programming and strategy, with the goal of increasing faculty engagement and student impact.

### **External Grant Proposal**

RIT proposed the Interfaith Civic Fellows Program to the PACE foundation for \$48,958 in May 2019. The proposed program combines the efforts of three unique university programs -Spirituality & Religious Life (SRL), the Center for Leadership & Civic Engagement (CLCE), and the Eugene H. Fram Chair in Applied Critical Thinking - to gather and challenge students to reflect on their worldviews, develop the critical skills necessary to engage with society, and pursue action projects that will make a demonstrable difference on campus, in the community and beyond. Fellows will participate in a week-long pre-semester workshop, ongoing collaborative training and teamwork, and a semester-long student-led project to engage with civic/democratic life across religious, secular, and spiritual communities and identities.

The Fellowship Program has three learning goals: 1) foster a self-authored worldview that includes both religious/secular/spiritual identity and political/civic identity; 2) develop an "ethic of caring" that motivates civic and democratic engagement; and 3) develop critical thinking, communication, and collaboration skills necessary for effective change. These outcomes have been selected in relation to RIT's particular challenges and unique opportunities and strengths. Low democratic and civic engagement is specifically addressed by the "ethic of caring," which must be paired with a coherent self-authored worldview supported by competent critical thinking to be effective. Research shows that students with an "ethic of caring" want to make a positive difference in the world and often



engage in political activism and community service.

### **External Engagement Efforts**

RIT continued to engage externally in many efforts, and have begun making strides in creating external partnerships and building reputation over the past year. These efforts include:

- **AITU Summit:** *Advancing Student Thinking for 21st Century Success.*

As institutions known for design and innovation, AITU universities are particularly equipped to transform the approaches used to prepare students to critically think to solve complex problems, innovate and lead. This invitation- only summit is a call to use our collective capabilities to move the needle within individual institutions and for the AITU, in general. Participants will launch a ‘scope, design, develop,’ process to innovate our methodologies for imbuing 21st century critical thinking skills by benchmarking related outcomes and assessment practices, creating action plans to enhance our impact, and framing a strategy to communicate the value of our contributions to the teaching and learning of critical thinking in the future.

Summit goals are to scope the 21st century critical thinking skillset for graduates of AITU schools, create individual institutional action plans to expand or enhance structures to develop student critical thinking for problem-solving, innovation and leadership, determine next steps for sustaining and expanding this community of practice and to frame a strategy to broadly communicate the value of these AITU university efforts.

### **Supporting corollary RIT initiatives:**

- **Predictive Analytics:** Dr. Schneider was also asked to participate in the university committee addressing student retention and resilience to improve persistence and on time graduate rates (OTG). There is much cross over between student success and student ability to critically think about their own self efficacy. Since RIT has built a successful program in critical thinking for professional and citizenship success, and that same frame can be translated to assist students in understanding the use of critical thinking for their personal lives and overall challenges. This effort dovetails with the processes and analytics that are part of ACT@ RIT.
- **Alumni Relations and RIT 4 Life:** Alumni Relations continues to build programming for alumni that is relevant to their goals and creates a relationship to the university. The Fram external advisory board presents a natural opportunity for selected alumni to give back their

time and expertise to the university, by guiding the initiative and acting as ambassadors for the effort and RIT. Since the application of critical thinking continues throughout life, Dr. Schneider presented to the Alum Relations program board, and the group was excited about the possibilities for future collaborations and alumni centered programming. The board also added one of their members to the FEAB and is exploring opportunities to bring this message to their full membership.

## **Integration with RIT's major goals**

The importance of ACT in RIT's long-term strategy is evident. Development of leaders within and at the intersection of technology, art and design requires fostering of complex visionary thinking that is grounded in ACT skills. Applied Critical thinking has a role to play in the integrative learning path that RIT is on.

## **Challenges to ACT integration**

The ACT at RIT initiative faces challenges that must be overcome collaboratively. RIT must continue to foster engagement of our own RIT community by establishing both top-down and bottom-up support, and build connections at both the general education and program level. This may be best accomplished through the fundamental problem structure and problem solving curricula that is an integral part of our academic programs. Achieving notoriety is of paramount importance. It is a simple truth that there are many priorities and distractions on a college campus that make it difficult to emerge from the crowd of opportunities, particularly without a clear connection to the disciplines that attracted students to RIT. The educational community, as well as popular media and literature, paints a somewhat negative picture of college students' ability to think and focus beyond self. This view is not lost on our students and does not make it easy to build a rapport and inspire interest in engaging in critical thinking activities. Further, learning and practicing critical thinking is difficult, takes time, and is resource-intensive for faculty, students, and classes, requiring a significant commitment on the part of all, including the university itself. In RIT's case, the next steps will require commitment. To be truly integrated, it must be an expected *and* obvious part of each student experience, so that the students see and understand their role in developing their own capabilities.

## **ACT Recommendations**

Our efforts in ACT now give us the opportunity to make a significant impact both inside and outside of RIT. the processes, engagement and curricular structures and best practices are now in place to

allow our effort to mature and evolve. The Fram Chair is ultimately responsible for the leadership of the ACT initiative by creating community engagement and integration across the student experience. Our immediate goal is to increase faculty, staff, and student capacity to practice ACT by significantly enriching (or expanding) the student impact.

ACT also plays a particular formative role in these university goals:

- GOAL 1: Enroll and support a diverse mix of increasingly creative, multi-talented students.
- GOAL 3: Improve graduation rates across all demographics.
- GOAL 4: Continue to attract and retain world-class faculty committed to elevating RIT's collective excellence in scholarship, teaching, and service.
- Goal 8: Design and integrate unique curricular experiences at the intersection of RIT's programs in Technology, Art, and Design (TAD). Design new and revise existing programs in non-STEM disciplines that increase enrollment through this same distinctive integrated core.
- GOAL 16: Create a distinctive RIT brand and develop a supporting content marketing strategy that makes use of all relevant media.

The opportunity to leverage our ACT@RIT initiative to advance RIT on many fronts is apparent. In 2019, the Fram chair office will focus on:

- Increasing engagement and connections between traditional and experiential education experiences to develop student ACT skills, including ACT as the key lynchpin and pivot point to support the growth of the broad mindset, leveraging interdisciplinary efforts, innovation and creativity, and the arts and technology, and individual resilience (critical thinking for self) as well as society.
- Integration of the Fram/ACT effort, throughout the student experience through the development of data-informed continuous improvement.
- Dissemination of the ACT model and methodology beyond the RIT community.

## **Conclusion**

The applied critical thinking initiative has the required components in place to achieve our goals of creating an environment that cultivates advanced critical thinking skills for RIT students and alumni and establishes national prominence and recognition for RIT.

Fram/ACT will continue to cultivate an integrative and future-minded presence at RIT and beyond. The initiative continues to develop critical thinking to support effective citizen-leaders that can successfully face the challenges of our evolving world and create a compelling future.

Leading the AITU Summit in August 2019 is a big step towards our future impact. Through the sharing of our message to our peers, we have kick-started RIT's contribution to the national conversation on critical thinking, and shown to other universities the power of RIT. Our next steps hold promise and opportunity both within and beyond the RIT community.

## Appendix 1 History

The Eugene H. Fram Chair in Applied Critical Thinking was funded in 2011 by an anonymous RIT alumnus to honor Professor Eugene H. Fram. Gene Fram is a Professor Emeritus of Marketing who retired from RIT in 2008 after 51 years of teaching at Saunders College of Business. He is known for his expertise in the study of retail malls and shopping, Internet retailing, nonprofit and corporate governance, and advertising. Professor Fram received his Ed.D. in Higher Education from the State University of New York at Buffalo, his MS degree in retailing from the University of Pittsburgh, and served as the J. Warren McClure Research Professor of Marketing at RIT. Gene is the recipient of the 1997 Eisenhart Award for Outstanding Teaching and the RIT Presidential Medallion in 2008.

Dr. Clarence Sheffield served as the inaugural Fram Chair from 2012 to 2015, and laid the foundation for the effort, including establishing the first faculty advisory board, writing of the *Critical Thinking Across the Curriculum* report, adoption of general education student learning outcomes for critical thinking, engaging faculty and students through small group events and hosting of five speakers.

The effort was reorganized in 2015-16 with the appointment of Dr. Schneider, with the goal of impacting the student experience through faculty engagement and transparent communication. Since that time, major accomplishments have included the included seating of three advisory boards comprised of Rochester faculty and staff, international campus faculty, and an external alumni advisory board; creation of two successive action plans that dovetail with university strategy; ongoing measurement and continuous improvement of student critical thinking through data gathering and analysis; implementation of a communication plan including the Fram Focus Newsletter, website, and social media; support of learning initiatives for faculty and students both on campus and through distance learning, and establishment of the Fram Awards at Imagine. In 2015-16, Dr. Schneider was also supported part-time by Dr. Evelyn Brister of COLA, Philosophy, who created a new course in 'Responsible Knowing'. Dr. Schneider initiated and continues the practice of disseminating an ACT annual report that summarizes efforts and accomplishments. This initiative expanded in 2016-17 with increasing engagement and integration of the effort on the Rochester campus. External and internal engagement accomplishments include establishment of the Fram External Advisory Board, a social media presence in Facebook and Twitter, a new student-directed introductory video, and a partnership with University News as part of an expanding external outreach effort. The internal curricular efforts include three applied critical thinking experimental courses, an updated information literacy rubric and implementation of an

argumentation rubric. Significant campus engagement resulted from fourteen events, Fram signature and collaborative programming, and the beginnings of a faculty/ staff community of practice. In addition to the regular applied critical thinking programming at RIT, more than 600 participants actively engaged in specific Fram opportunities over the course of the academic year.

2017- 2018 saw substantial increase of social media presence in both Facebook and Twitter, proposal of an Association of Independent Technological Universities (AITU) Applied Critical Thinking summit with peer university administrators for 2019, publishing of papers related to the implementation and evaluation of applied critical thinking at RIT, and a critical thinking-centric proposal to Misk-Gates Foundation. Internal efforts include establishment of the International Fram advisory board (IFAB) that includes members from our international campus locations, the very first Provost's Learning Innovations Grants (PLIG) awards, and creation of rubrics for ACT-related analysis and evaluation of creativity and innovation student learning outcomes. Thirteen Fram events and collaborative programming created significant campus engagement. The year-over-year participation increased 4%, more than 850 participants actively engaged in specific Fram opportunities.

## Appendix 2 – Learning Outcomes

### RIT Essential Outcomes | Critical Thinking

<b>Critical Thinking</b> refers to those processes required to understand and evaluate complex claims of various sorts. It involves the evaluation of information, evidence, arguments, and theories, and the contexts in which these are encountered. It entails the questioning of different and competing perspectives, and challenging the (sometimes hidden) assumptions and inferences that determine what will count as evidence or argument. Critical thinking is learning to think in a disciplined and evaluative manner, to analyze and interpret the processes by which various claims are made and reliable conclusions are reached. (Source: RIT current Essential Outcome Definition)				
Data Sources	Academic Programs	Co-op Employer Evaluation 2013-14	NSSE 2013	Alumni Survey 2014
<b>Measure and Results</b>	100% of programs identified at least one program goal/slo  Other: TBD	<b>Critical Thinking:</b> <i>Effectively solves problems by integrating a diverse body of knowledge and skills.</i> (n=3134)  4.1 out of 5.0 <b>Met</b>  <b>Information Literacy:</b> <i>Accesses and synthesizes information from appropriate sources</i> (n=1461)  4.2 out of 5.0 <b>Met</b>	NSSE 4b <i>Applying facts, theories, or methods to practical problems or new solutions</i>  Senior <b>Approaching</b> RIT 3.1, Carnegie Peer 3.2	<b>Critical Thinking</b> (n=~1350) Importance: 94% RIT Effective: 86% Gap Score: 8%  <b>Problem Solving</b> (n=~1340) Importance: 97% RIT Effective: 90% Gap Score: 7 %  Note: check to see if % are at top end of scale – see below
			NSSE 4c. <i>Analyzing an idea, experience, or line of reasoning in depth by examining its parts</i>  Senior <b>Approaching</b> RIT 3.0, Carnegie Peer 3.1	
			NSSE 4d: <i>Evaluating a point of view, decision, or information source</i>  Senior <b>Not Met</b> RIT 2.7, Carnegie Peer 3.0	
			NSSE 4e. <i>Forming a new idea of understanding from various pieces of information</i>  Senior <b>Approaching</b> RIT 2.9, Carnegie Peer 3.0	
<b>University Level Benchmark</b>	100% of programs will identify at least one program goal/slo aligned to Critical Thinking	Employers will rate RIT students 4.0 or higher Scale 1(poor) - 5(excellent)	RIT Seniors will report a mean that is higher than or on par with their Carnegie Peers (n= 1500)	Needs to be determined Importance Scale: Not at All to Very Important Effective Scale: Not at all – A Great Deal
<b>Preliminary Action Items</b>	Develop faculty team to determine criteria, core assignment(s) and set benchmark	Review/analysis co-op student evaluation responses to qualitative questions re: CT	Review NSSE 2015 data for trends	Determine benchmark

RIT Student Learning Outcomes Assessment Office 2015

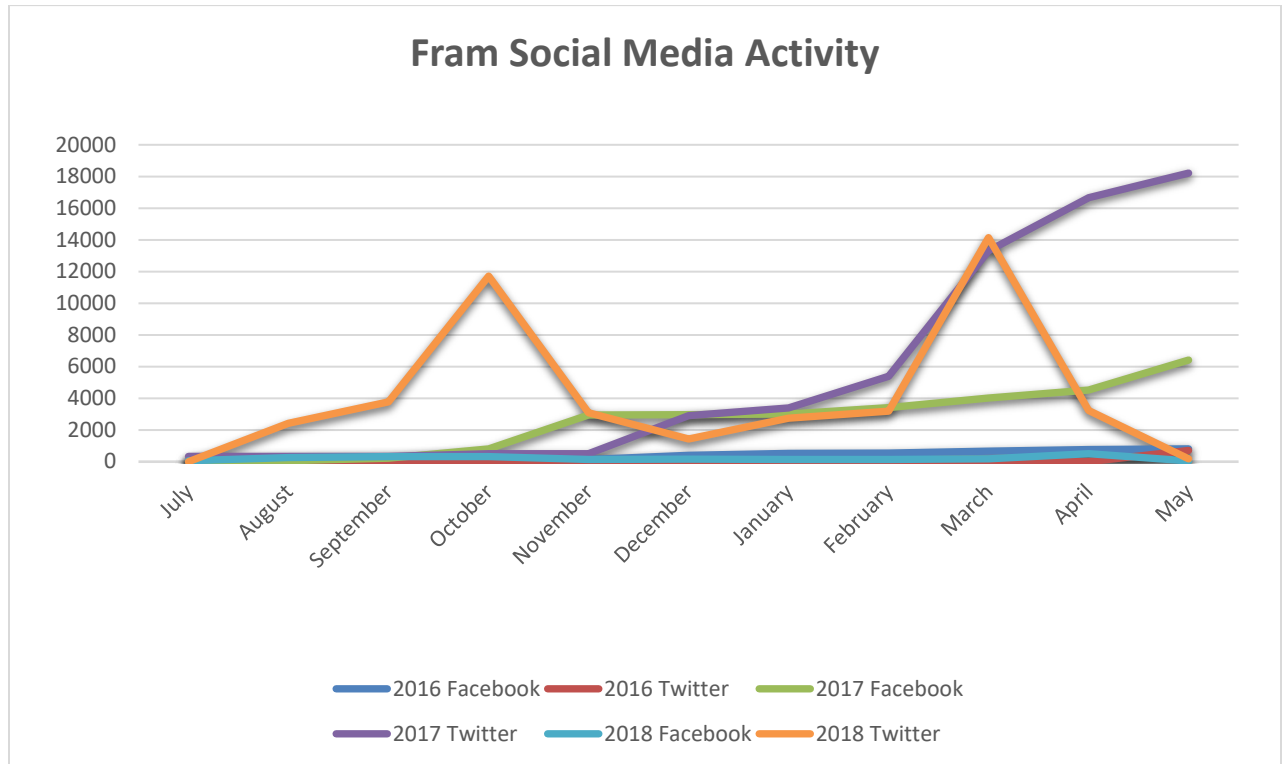


## General Education Student Learning Outcomes Assessment Schedule 2016-2022

Framework	General Education Student Learning Outcome	2016.17 Assessment		2017.18 Assessment		2018.19 Assessment		2019.2020 Assessment		2020.21 Assessment		2021.22 Assessment	
		Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring
Communication	Express oneself effectively in common college-level written forms using standard American English						X						X
	Revise and improve written products		X						X				
	Express oneself effectively in presentation, either in spoken standard American English or sign language			X						X			
	Demonstrate comprehension of information and ideas accessed through reading				X						X		
Critical Thinking	Use relevant evidence gathered through accepted scholarly methods and properly acknowledge sources of information				X						X		
	Analyze or construct arguments considering their premises, assumptions, contexts, and conclusions, and anticipating counterarguments	X						X					
	Reach sound conclusions based on logical analysis of evidence					X						X	
	Demonstrate creative or innovative approaches to assignments or projects						X						X
Social	Analyze similarities and differences in human experiences and consequent perspectives					X						X	
Global	Examine connections among the world's populations						X						X
Ethical	Identify contemporary ethical questions and relevant positions	X						X					
Scientific Principles	Demonstrate knowledge of basic principles and concepts of one of the natural sciences		X						X				
Natural Inquiry of Science	Apply methods of scientific inquiry and problem solving to contemporary issues and scientific questions		X						X				
Mathematical	Comprehend and evaluate mathematical or statistical information			X						X			
Mathematical	Perform college-level mathematical operations or apply statistical techniques			X						X			
Artistic	Interpret and evaluate artistic expression considering the cultural context in which it was created	X						X					



### Appendix 3 – Fram Social Media Statistics



## Appendix 4 – Fram Award for Excellence in Applied Critical Thinking at Imagine

Since applied critical thinking at RIT is an active process, awards are based upon the applicant's ability in their response to show evidence of the quality of the critical thinking process used to arrive at the final outcome of the exhibit. Responses are evaluated to the degree with which they demonstrate excellence in applied critical thinking. <https://www.rit.edu/academicaffairs/applied-critical-thinking/awards>.

### 2019 Winners

#### 2019 Small Group



#### 2019 Small Group Award: Food Waste Survey

##### Exhibitor: Jessica Peterson

**Abstract:** One of the greatest challenges of managing food waste is participation; we must have participation from people in order to keep food waste out of the landfill and divert it so it is utilized as a resource, not a waste. Households account for about 48% of food waste in the US. This means participation at the household level is key to managing food waste as a resource. The survey seeks to understand household perceptions about food waste management to identify the barriers so we can generate solutions or new services to overcome these challenges and get more household participating!

## 2019 Large Group



## 2019 Large Group Award: Forensics Tech and Tactics

**Exhibitors:** Tia Hose, Balen Wolf, Gabriel Corales, Jesse Pickard, Holly Elder, Jade Mullen, April Dumlao, Lin Hui Jiang, Luke Nearhood, Mariam Dzamukashvili, Mary Yuen, Sakinah Abdul-Khaliq, Tommy Tran

**Abstract:** Our exhibit looks at the different forms of collecting and analyzing forensic evidence. We compare and contrasts various methods and try to determine how reliable each one is. We have interactive games to test the crowd on their crime solving abilities.