ITIF INSTRUCTIONAL TECHNOLOGY INNOVATION FUND

FOUR YEAR REVIEW
2017 - 2020

From a small seed a mighty trunk may grow

ABOUT THE FUND

The Provost's Instructional Technology Innovation Fund (ITIF) is a seed fund designed to catalyze initiatives that immediately and directly impact University of Toronto education and teaching programs through innovation and development. It is funded by the Provost, and administered by Academic and Collaborative Technologies, a partnership between the Centre for Teaching Support & Innovation and Information Technology Services. The ITIF is focused specifically on the practical applications of technology in design, implementation, evaluation, curriculum renewal, faculty development, or continuing education initiatives that enrich learning. The ITIF is intended to support strategic directions in education broadly, across all disciplines. The proposed deliverable and outcomes must be closely aligned with the ongoing goals and objectives of the departments and programs from which they emerge.

256
Projects funded
over 18 years

(2003 - 2020)
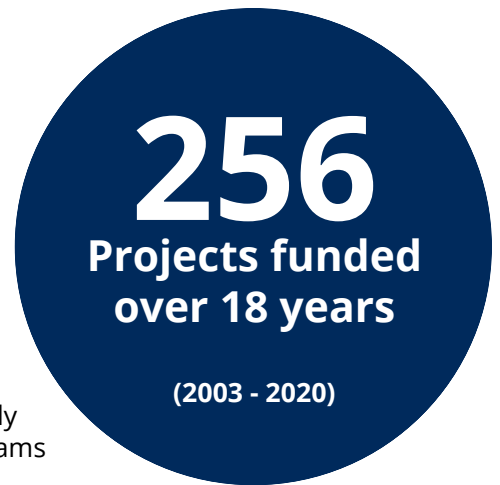
Funding is provided in 3 streams:

ITIF's three-tiered system is intended to provide opportunities for technology-mediated teaching and learning projects that explore and implement promising practices at different stages of their development and implementation, and creates a pathway for projects from their initial inception to their full potential. Awardees have up to two years to complete their project:

Seed Funding: Maximum $2,000 with no matching requirement

Matched Funding: Maximum $5,000 with matching funds from another source

Support Stream: Access to an educational technology or instructional design specialists for up to 150 hours per year per project. This is a non-cash award, but it's worth an equivalent of $20,000 that can be used as an in-kind contribution when applying elsewhere for funding.

FUNDED PROJECTS 2017 - 2020

23 Support Fund projects

14 Matched Funding projects

19 Seed Fund Projects

For a list of funded projects 2017- 2020 and their development status, please see ITIF website:

Support Projects 2017 - 2020
Matched Fund Projects 2017 -2020
Seed Fund Projects 2017 - 2020

53
Projects funded
2017 - 2020

CURRENT ITIF STAFF ACTIVITIES:

ITIF Coordination and Support is provided by staff from Academic & Collaborative Technologies (ACT), and the Centre for Teaching, Support, and Innovation (CTSI), under the leadership of **Avi Hyman (**Director, ACT).

In November 2020, **Teddy Cameron** joined the staff of ACT as the Faculty Liason Coordinator. Teddy brings 20 years of experience at U of T as a Project Coordinator and a Biomedial Communications professional, building multimedia and development projects that include learning objects and teaching tools.

Avi Hyman

Teddy Cameron

Consultation & recommendations, UX & Multimedia Design

In addition to project coordination for ITIF as a whole, Teddy is also providing hands-on development to projects in the Support portfolio. She is providing **consultation, UX design, and graphic design assets** for mobile games such as *CQ™* (2020, Family & Community Medicine), and *PT Games: O2 Titration* (2020, Physical Therapy). Similar activities will be provided for *VR to Manage High-Stress Exam Anxiety* (2019, Pharmacy); Teddy has also been involved with the successful application of this client to eCampus Ontario, which will expand from their ITIF project.
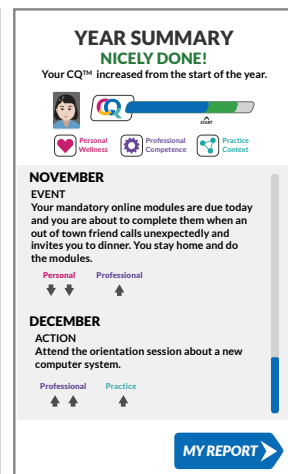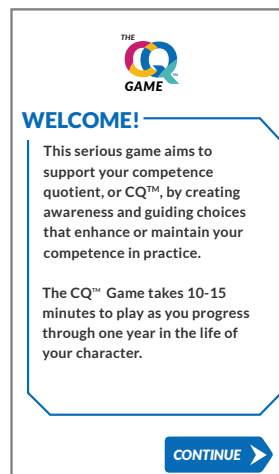
She is also working on **planning and technical recommendations** for *Quizzical 5.0* (2020, Biology), *Adaptive Testing for Korean Language Placement* (2020, East Asian Studies) and *Learning Objectives in Quercus* (2020 Engineering). She will be providing **multimedia module creation** for projects including *Best practices for Online Learning* (2019, Occupational Therapy) and *Learning Skills Development* (2018, Academic Success).


Screens from CQ™, a serious game for health care professionals to manage their competencies .

Analysis, Design & Development

Other important staff activities include development work by **Peter Cheung** (Projects & Development Manager, ACT), **Thomas Lynch** and **Abe Kanofsky** (Projects & Development, ACT). Peter, Thomas and Abe are providing **analysis, design and development** to create *Comparative Judgement Classroom Response System* (2019, Engineering).

Peter Cheung
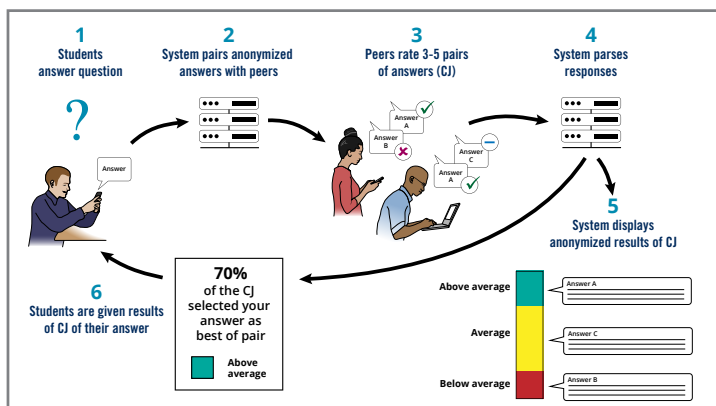
Process flow for Comparative Judgement Classroom Response system, where students are given a question to answer, and their peers judge pairs of answers.

CURRENT ITIF STAFF ACTIVITIES

Building solutions for the Educational Toolbox

The ACT team worked on *Quizzical 4.0* (2017, Biology) and are now creating a major upgrade with *Quizzical 5.0* (2020, Biology). All these projects are exciting developments that are expected to have multi-faculty uptake; indeed Quizzical orginally came to ITIF from Dr. Dan Riggs, and is now getting further development done with Dr. Naomi Levy-Straus taking the lead. Quizzical is now part of the Educational Toolbox available in Quercus.

PeppeR (2017, OISE) is another initiative that started as an ITIF support project, and has since gone on to further development with other faculty as *QA Community of Practice Using PeppeR* (2020, Pharmacy) through an ITIF Seed grant. Peter and Thomas are providing analysis, design and development support for *PT Games: O2 Titration* (2020), and will be needed for *Adaptive Testing for Korean Language Placement* (2020 East Asian Studies).

Mobile & Game Development

Michael Spears (Manager, MadLab, ACT) has already begun work on *CQ™* and has provided his **mobile development expertise** to the process of interviewing work-study students to fill 3 positions for Unity development associated with CQ™.

Pedagogical Expertise

Other contibuting ACT staff includes **Tamara Bahr** (ACT Support & Training Manager, CTSI) who, as the previous coordinator of ITIF, provided leadership and development to all the Support project cohorts of 2017 - 2019, including *Accessible Branching Decision Tree Games* (2018, Psychology), and *Clinical Faculty E-Development Program* (2019, Nursing.) Tamara continues to offer **expertise in educational technology and pedagogy** to these projects.

Tamara Bahr

FROM OUR RECIPIENTS

We have had an incredibly affirming and rewarding experience with our ITIF award....Together, we have been able to bring to fruition the ideas we have been thinking about and discussing for the past 3.5 years. We have been able to respond to clinical faculty feedback/learning needs from over the years and modernize how we support and develop our clinical faculty in a way that aligns with our faculty's strategic plan. We have been able to build and conduct a program evaluation around this project to measure its effectiveness while building our scholarship.

Clinical Faculty E-Learning and Development Program
Manjit Dhanoa-Yasi & Mary Ann Fegan. Nursing

Screen from *Clinical Faculty E-Development Program*, for nursing instructors.

Other ACT staff include **Elana Zatzman,** and **Laura Vanderkraan** who provide **webdesign expertise**, and **Sankhi Liyanage** who has written **project profiles** for our online journal **ACTion.**

Work-study experience for students

Work study students are an important part of the ITIF workforce, and have been involved in many of the ITIF projects from all funding categories. The opportunity to **provide work experience and learning opportunities** to students remains a part of the assessment rubric for ITIF applications.

IMPACT

The impact of ITIF projects has been significant. Some have become part of the Educational Toolbox within Quercus, and are available to all instructors at the University of Toronto, and thus could impact the activities of thousands of students. Examples of these far-reaching projects include *PeppeR*, and *Quizzical.*

Collaboration and assessment for 1000s of students

When the new version of Quizzical is complete, it shoudl be usable for very large classes (1000+ students.) Other projects currently in development that address **assessment** could have similar impacts once completed and implemented— in this group we can put *Comparative Judgement Classroom Response*, *Learning Objectives in Quercus*, *Online Quizzes by Crowdsourcing from Students*, and *Machine-Assisted Learning*. *Adaptive Testing for Korean Language Placement* may have an international impact once implemented, and the underlying technology will a useful tool to adapt for other fields of study.

Our Tri-Campus projects — *Learning Skills Development* and *VEA2 for English Language Learners*, are not faculty-specific, and can also have a wide-reaching impact on the University's students.

Other ITIF projects are more faculty-specific, and thus their inital impact is at a smaller scale of perhaps a 100-150 students per year. However, there are many that can be re-used year after year, and will have a long-lasting impact on how education is delivered in that faculty. This group includes **learning module-style projects** such as *Clinical Faculty E-Development Program, Clinical Management of Cannabis Intoxication, Minor Ailment Prescribing Training,* and *P-A Learning & 360 videos for experiential education.*
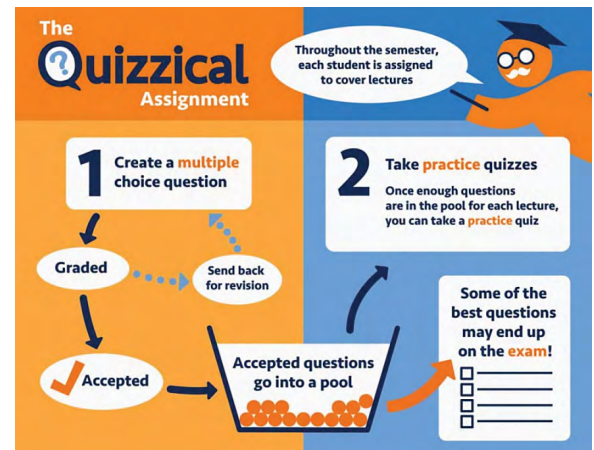
FROM OUR RECIPIENTS

I have received two ITIF grants and my overall experience is outstanding. I am very grateful for the funding so that we can start embodying our ideas and make the ideas into a product that will be used in the classroom to engage with students.

Tactile Response Experimental Analysis Toolkit (TREAT)
**Sohee Kang, Statistics**

IMPACT

Learning modules and virtual labs during lockdown

Since many ITIF projects use technology to provide learning tools and opportunities online and asynchronously, their value has been truly shown during the lockdown due to Covid19. We expect that this online learning is not a temporary change, and ITIF projects will become an integral part of either completely online or a blended learning space. ITIF 2017-2020 has **13 projects using Simulation or Virtual Labs** to provide an online version of in-person laboratory experiences.

Reaching an international audience

Other projects have used a **broadcast model** using podcasts and YouTube videos to achieve a wide-ranging impact. *YouTube for medical and graduate disciplines*, for example, has 6000+ subscribers and over 250,000 views to date; a 25-fold increase in traffic from its inception. Others in this category are *Public Health Video from Multiple Perspectives, Podcast on Quality Improvement and Leadership, and Education in International Perspective: Piloting Courses for Enhanced Accessibility and Internationalization.*
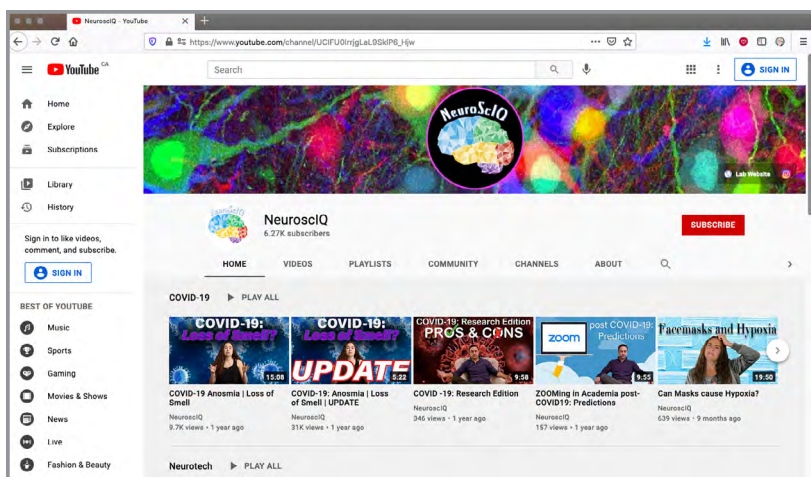
Screen from *YouTube for medical and graduate disciplines*
https://www.youtube.com/c/NeurosciIQ

FROM OUR RECIPIENTS

We are extremely thankful for the valuable support the ITIF award has provided us for this unique project and the opportunities it has brought us to work with a talented and dedicated team at MADLab. We hope we will be able to secure future funding either through ITIF again or LEAF grants to continue and finish this project, such that it is an app that can be disseminated widely to all the UofT community and across all the chemistry disciplines at different departments.

**Using 3-D Visualization Technology for Enhanced Student Lear
Shadi Dalili, Statistics**

FROM OUR RECIPIENTS

We learned quite a bit about how to balance synchronous and asynchronous online learning and how to engage students using different modalities. The main challenge facing us was that students are based internationally and on different time-zones and are all fully employed professionals. They highly valued synchronous engagement with the professor and other students but their time was limited... The project provided important resources and support for launching a new online program and experimentation with use of new synchronous and asynchronous modalities for content delivery and interaction.
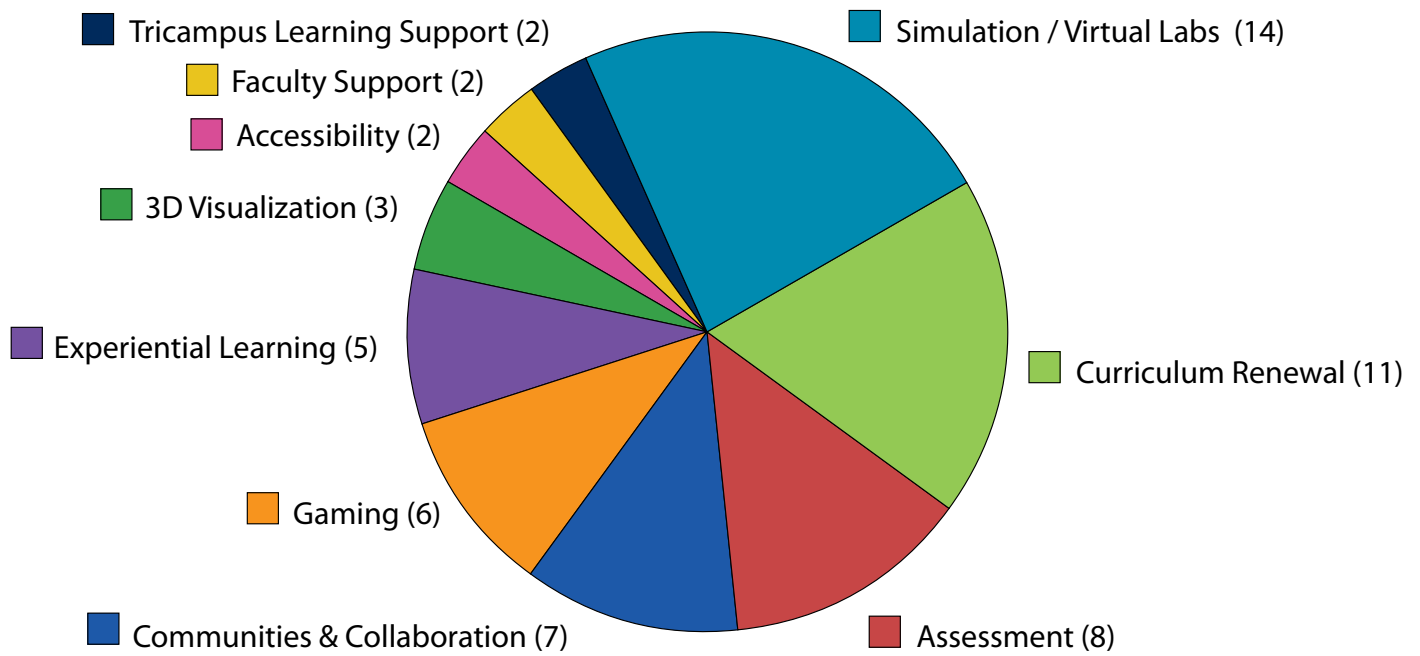
**Education in International Perspective: Piloting Courses for Enhanced Accessibility and Internationalization
Karen Mundy, OISE**

2019 - 2020 PROJECTS AT A GLANCE

ITIF projects have produced a wide range of teaching tools, including:

Learning objects
e-Modules
Educational games
AR/VR assets
Mobile apps
Open educational resources
Virtual Labs
LORs
Hybrid and fully online courses
Physical objects
Educational Software

PROJECTS BY DEVELOPMENT TYPE

- Tricampus Learning Support (2)
- Faculty Support (2)
- Accessibility (2)
- 3D Visualization (3)
- Experiential Learning (5)
- Gaming (6)
- Communities & Collaboration (7)
- Simulation / Virtual Labs (14)
- Curriculum Renewal (11)
- Assessment (8)

2019 - 2020 PROJECTS AT A GLANCE

Arts and Science

Biology

Centre for Drama, Theatre and Performance Studies

Computer Science

Department of Chemical and Physical Sciences

Department for the Study of Religion

East Asian Studies

Psychology

Physical & Environmental Sciences

St. Michael's College, Book and Media Studies

Engineering

Mechanical & Industrial Engineering

Transdisciplinary Engineering Education & Practice

Institute of Communication, Culture, Information and Technology

Library & Information Sciences

Medicine and Health Sciences

Family and Community Medicine

Laboratory Medicine & PathobiologyNursing

Occupational Therapy

Pharmacy

Physical Therapy

Public Health

Ontario Institute for Studies in Education

Leadership Adult and Higher Education

School of Graduate Studies

Student Life

Academic Success

PROJECTS BY FACULTY

- iSchool (1)
- Music (1)
- Social Work (1)
- Arts & Science (9)
- Public Health (1)
- Engineering (3)
- UTM (3)
- Medicine (8)
- UTSC (3)
- Pharmacy (6)
- OISE (5)
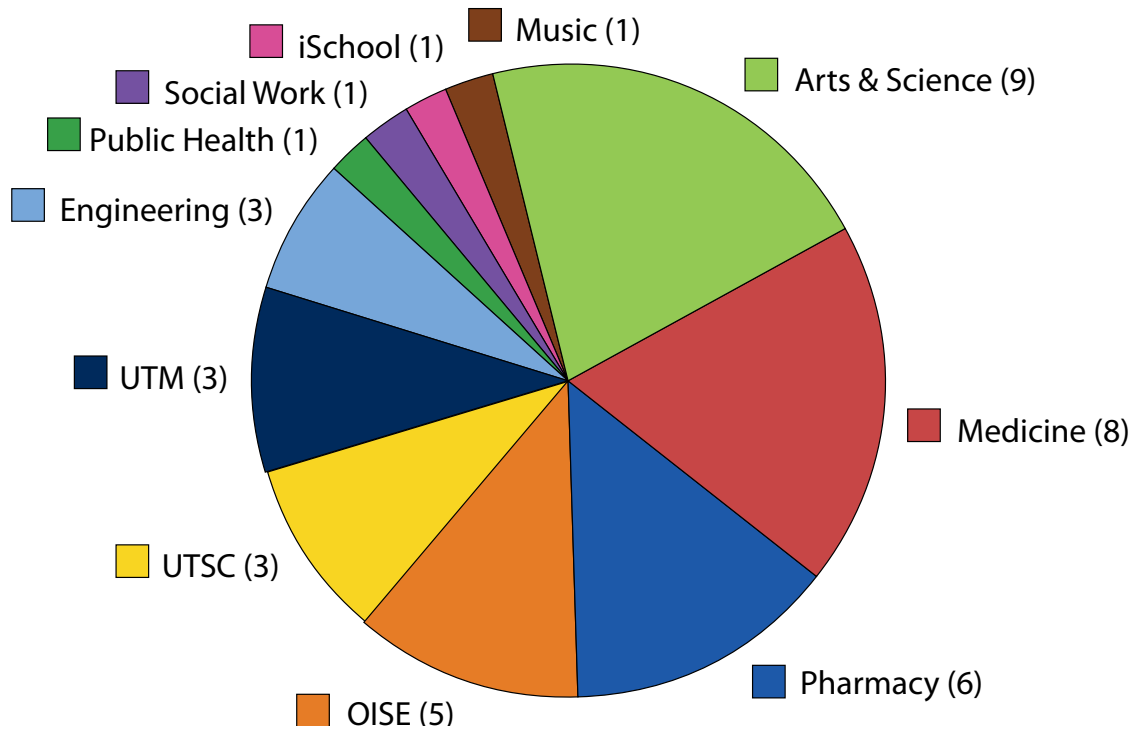
2017 - 2020 PROJECTS AT A GLANCE

NUMBER OF PROJECTS FUNDED EACH YEAR BY FUNDING TYPE

Matched Funding   Seed Funding   Support Funding

Year	Matched Funding	Seed Funding	Support Funding
2017	2	6	10
2018	4	7	3
2019	4	3	5
2020	4	3	5
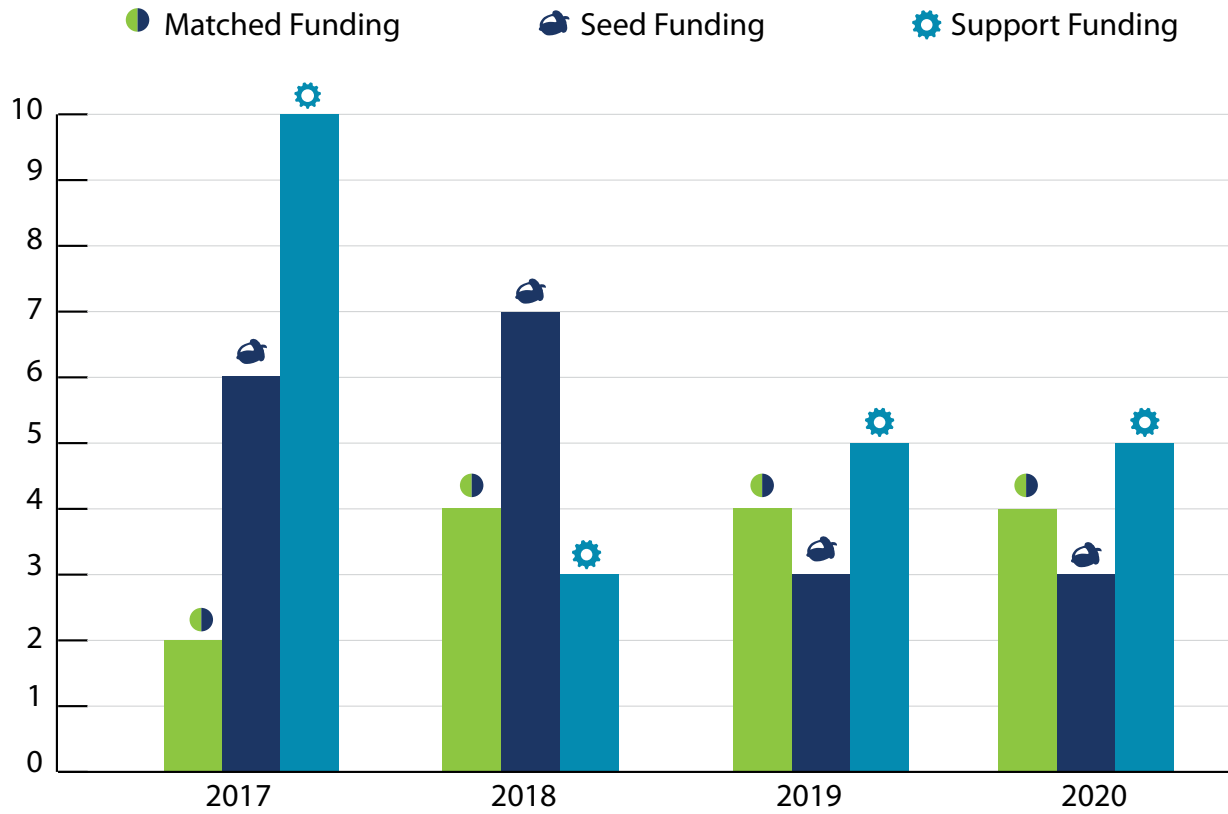
PROJECT TYPES

⚙ Support Fund   ☁ Seed Fund   ◖ Matching Fund

* Denotes projects that appear in more than one category

14 Simulation/Virtual Labs:

- ⚙ 2020 Tools to Support Virtual Simulation (Nursing)
- ⚙ 2020 PT Games: O2 Titration*   (Physical Therapy)
- ◖ 2020 ISchool Digital Archives Lab* (Faculty of Information)
- ◖ 2020 Movement Analysis with Web-based Eye Tracking* (Physical Therapy)
- ⚙ 2019 VR to manage High-Stress Exam Anxiety (Pharmacy)
- ⚙ 2019 Clinical Management of Cannabis Intoxication (Nursing)
- ⚙ 2019 Minor Ailment Prescribing Training* (Pharmacy)
- ◖ 2018 VR in Communication, Culture and Digital Media (ICCIT)
- ◖ 2018 Livestreaming: Artistic and professional explorations (CDTPS)
- ⚙ 2018 Tactile Response Experimental Analysis Toolkit (TREAT) (Statistics)
- ⚙ 2018 VR to promote Empathy & Learning in Nursing (Nursing)
- ⚙ 2017 Virtual Labs in Genomic Medicine (Genetic Medicine)
- ◖ 2017 Simulations in Community Health Settings (Nursing)

11 Curriculum Renewal:

- ◖ 2020 Anti-oppressive OT teaching module (Occupational Therapy)
- ◖ 2020 ISchool Digital Archives Lab* (Faculty of Information)
- ⚙ 2019 Best practices for online learning (Occupational Therapy)
- ◖ 2019 Competencies in Mental Health Social Work (Social Work)
- ◖ 2019 YouTube for medical and graduate disciplines (Lab Medicine and Pathobiology)
- ⚙ 2019 Minor Ailment Prescribing Training* (Pharmacy)
- ⚙ 2019 Public health video from multiple perspectives* (Dalla Lana School for Public Health)
- ◖ 2018 Enhancing accessibility and internationalization (OISE)
- ⚙ 2018 Machine-Assisted Learning* (Biology)
- ⚙ 2018 Geoscience experience using Raspberry Shake (Chemical & Physical Sciences)
- ⚙ 2018 Podcast on Quality Improvement and Leadership (Pharmacy)
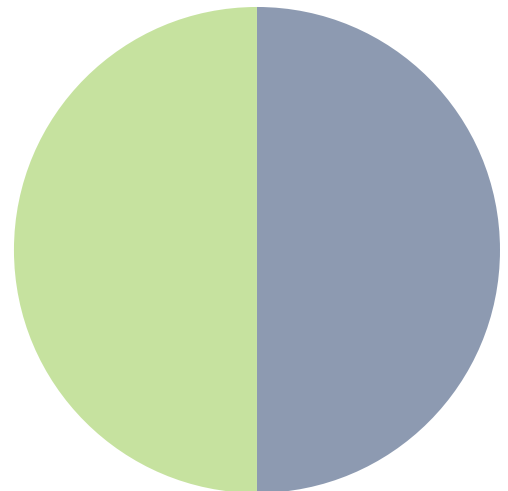
8 Assessment:

- 2020   Movement Analysis with Web-based Eye Tracking* (Physical Therapy)
- 2020   Quizzical 5.0* (Biology)
- 2020   Adaptive Testing for Korean Language Placement (East Asian Studies)
- 2020   Learning Objectives in Quercus (Engineering)
- 2019   Comparative Judgement Classroom Response* (Engineering)
- 2018   Online Quizzes by Crowdsourcing from Students (Computer Science)
- 2018   Machine-Assisted Learning* (Biology)
- 2017   Quizzical 4.0* (Biology)

7 Online communities and collaborative spaces:

- 2020   QA Community of Practice Using PeppeR* (Pharmacy)
- 2020   Quizzical 5.0* (Biology;
- 2019   Comparative Judgment Classroom Response* (Engineering)
- 2019   Public health video from multiple perspectives* (Dalla Lana School for Public Health)
- 2018   P-A Learning & 360 videos for experiential ed* (Pharmacy)
- 2017   Quizzical 4.0* (Biology)
- 2017   PeppeR (OISE);

5 Experiential Learning:

- 2019   Comparative Judgement Classroom Response* (Engineering)
- 2019   3D Gutenberg (Book & Media Studies)
- 2019   Mobile app to group people in TEAL classrooms (Engineering)
- 2018   P-A Learning & 360 videos for experiential ed* (Pharmacy)
- 2017   Instrumental Instruction with Live Video Playback (Music)

5 Gaming:

- 2020   CQ™ Game (Family & Community Medicine)
- 2020   PT Games: O2 Titration*   (Physical Therapy)
- 2020   Sugar Scramble (Biomedical Communications)
- 2018   Accessible Branching Decision Tree Games (Psychology)
- 2018   Gaming & Virtual Patients for Clinical Reasoning Skills (Nursing)

3 Accessibility:

- 2019   Facilitation for Online Sanskrit Character Entry (Religion)
- 2018   Enhancing accessibility and internationalization (OISE)
- 2017   Making Laboratory Assistive Devices (LAD) (Physical & Environmental Sciences)

2 **3D Visualization**:

- 2020 Sugar Scramble (Biomedical Communications)
- 2017 ARChemy (Environmental Sciences)
- 2017 Kinundrum (Surgery)

2 **Faculty Support**:

- 2019 Clinical Faculty E-Development Program (Nursing)
- 2017 Connecting Technology and Pedagogy (OISE)

2 **Tri-Campus Learning Support**:

- 2018 Learning Skills Development (Student LIfe)
- 2017 VEA2 for English language learners (OISE)

FUTURE PLANS:

Our suggested theme for ITIS 2021 is Learning Analytics.