# Fonds de recherche du Québec



Nature et Technologies Santé Société et Culture

# College research: from foundations to practice

How can the FRQ enhance the student experience in the college research network?

Intersectoral Student Committee December 2019



Contact the Committee: cie@frq.gouv.qc.ca

ummary of courses of action and prioritization	5
. MANDATE	6
. CONTEXT	9
. UNDERSTANDING THE COLLEGE RESEARCH ECOSYSTEM	10
3.1 Supervision, environment and dissemination of college-level research	
3.1.1 Status of college network researchers	
3.1.2 College network research environments	11
3.1.3 Production and dissemination of research carried out by student researchers	3 12
3.2 Place occupied by college-level student researchers	13
. RESEARCH FUNDING	14
4.1 MEES programs	14
4.1.1 PREP (Pedagogical Research and Experimentation Program)	14
4.1.2 PAREA (Programme d'aide à la recherche sur l'enseignement et l'apprentissa	age) 15
4.1.3 PART (Programme d'aide à la recherche et au transfert)	15
4.2 MEI programs	16
4.3 FRQ programs	17
4.3.1 FRQSC	17
4.3.1 FRQNT	17
4.3.1 FRQS	17
. AVENUES FOR ACTION	18
Better understand the reality of college research and its student researchers, and growth	
2. Areas of improvement for current FRQ programs and initiatives	19
3. Stimulate interest and support introduction to research for college-level students	20
4. Promote interaction between university students and the college community	22
5. Avenues for collaboration between the FRQ and other public and private bodies	23
. REFERENCES	24
DDENIDIV 1	26

# List of acronyms

Acfas: Association francophone pour le savoir

ACPQ: Association des collèges privés du Québec

AQPC : Association québécoise de pédagogie collégiale

ARC : Association pour la recherche au collégial

CCTT: College centre for technology transfer

CDC : Centre de documentation collégiale

CERESO: Centre d'expertise et d'accompagnement en innovation sociale

CERSÉ: Centre d'étude en responsabilité sociale et écocitoyenneté

ISC: Intersectoral student committee of the Fonds de recherche du Québec

CIHR: Canadian Institutes of Health Research

CIRADD: Centre d'initiation à la recherche et d'aide au développement durable

CNETE: National Centre in Environmental Technology and Electrochemistry

CRITAC: Centre for Circus Arts Research, Innovation and Knowledge Transfer

ÉCOBES: Centre d'Étude des conditions de vie et des besoins de la population

INRS: Institut national de la recherche scientifique

MEES: Ministère de l'Éducation et de l'Enseignement supérieur

MEI: Ministère de l'Économie et de l'Innovation

NSERC: Natural Sciences and Engineering Research Council of Canada

OBNL: Organisme à but non lucratif

PADRRC: Programme d'aide à la diffusion des résultats de recherche au collégial

PAREA: Programme d'aide à la recherche sur l'enseignement et l'apprentissage

PART : Programme d'aide à la recherche et au transfert

PREP: Pedagogical Research and Experimentation Program

SIPE: Scholarship for internships in a practice environment

SSHRC: Social Sciences and Humanities Research Council of Canada

TAC: Technology access centre

TOPMED: Centre collégial de transfert de technologie en orthèses prothèses et

équipements médicaux

# Summary of courses of action and prioritization

# 1. Better understand the reality of college research and its student researchers, and foster its growth

- 1.1 Consider a concerted intersectoral action on the situation of student researchers at the college level
- 1.2 Help promote college-level student research

#### 2. Areas of improvement for current FRQ programs

- 2.1 Extend and enhance the FRQNT's college summer internship program to the two other funding agencies
- 2.2 Ensure the eligibility of all college research environments for graduate student research internship programs
- 2.3 Evaluate the place given to college-level students in funding applications
- 2.4 Promote the programs
- 2.5 Pursue efforts to standardize FRQ programs

# 3. Stimulate interest and support introduction to research for college-level students

- 3.1 Promote the diversification of college students' contact with different research environments
- 3.2 Continue to reward research efforts with initiatives such as the ARC Prix étudiants
- 3.3 Encourage the participation of college-level students in knowledge dissemination activities
- 3.4 Give a voice to college-level students through the creation of a permanent working group within the CIE

#### 4. Promote interaction between university students and the college community

- 4.1 Create an internship scholarship exclusively for CCTTs and college research centres
- 4.2 Promote the creation of an information bank

#### 5. Avenues for collaboration between the FRQ and other public and private bodies

5.1 Encourage an initiative to monitor college research produced by student researchers

#### 1. MANDATE

This document presents key reflections of the <u>Intersectoral Student Committee</u> (CIE) based on the work of its subcommittee on college research. The purpose of this subcommittee was to explore the potential role that the college setting can play in helping to train the next generation of student researchers. In doing so, it aimed to gain a better understanding of the functioning of the college research system and the place of the Fonds de recherche du Québec (FRQ) within this system.

This subcommittee was composed of:

**Nicholas Cotton,** PhD student in French literature, Université de Montréal and teacher at Cégep Édouard-Montpetit

Francis Houde, PhD student in radiation sciences and biomedical imaging, Université de Sherbrooke Olivier Lemieux, PhD in administration and education policy, Université Laval Stéphanie Luna, PhD student in biomedical sciences, Université de Montréal Simon Massé, PhD student in environmental sciences, Université du Québec à Rimouski Samuel Turcotte, erg., PhD student in clinical and biomedical sciences, Université Laval

Sarah Bitter as ISC coordinator.

The subcommittee carried out its work from the fall of 2017 to the fall of 2019. The main objective of this report is to examine the role of the college research environment as a research setting for student researchers (college, undergraduate, graduate and postdoctoral). To do so, the subcommittee adopted the following approach:

<u>Step 1</u>: Meet with various members of the college research community and representatives of interest groups;

<u>Step 2</u>: Visit research environments in the college network selected on the basis of their sectoral representation;

<u>Step 3</u>: Provide a summary of the subcommittee's work to the CIE and the three Boards of Directors of the FRQ;

<u>Step 4</u>: Formulate proposals on ways for the FRQ to support college-level student research;

<u>Step 5</u>: Organize two round tables with representatives of interest groups to validate the proposals made in the previous step.

The summary profile and proposals put forward in this document are the result of reflections based on discussions and exchanges in Steps 2 and 5.

People interviewed in Step 2:

- Simon Boyer, Coordinator of College Affairs, Fédération étudiante collégiale du Québec;
- **Céline Desjardins**, Scientific Research Coordinator, Fédération des Cégeps;
- Nancy Déziel, CEO of CNETE, FRQNT administrator and President of Réseau Trans-tech at the time of meeting;
- Alexandre Jobin-Lawler, teacher and researcher at Campus Notre-Dame-de-Foy de Saint-Augustinde-Desmaures, interviewed as a researcher not affiliated with a research centre (private subsidized college);

- Fanny Kingsbury, teacher at Cégep de Sainte-Foy and former CEO of AQPC;
- **Isabelle Laplante**, professional librarian at the CDC;
- **Lynn Lapostolle**, CEO of the ARC and FRQSC administrator;
- **David Pelletier**, teacher and researcher at Cégep de Rimouski, interviewed as a researcher not affiliated with a research centre (researcher affiliated with a public CEGEP);
- **Sébastien Piché**, Assistant Director, Service des programmes techniques et du développement pédagogique, Cégep régional de Lanaudière à L'Assomption;
- Michel Trépanier, professor at INRS;
- Researchers and student researchers from the following research environments:

**CERESO**, Centre d'expertise et d'accompagnement en innovation sociale, affiliated with Cégep régional de Lanaudière in L'Assomption;

**CERSÉ**, Centre d'étude en responsabilité sociale et écocitoyenneté, affiliated with Collège de Rosemont;

**CRITAC**, Centre for Circus Arts Research, Innovation and Knowledge Transfer affiliated with the National Circus School;

**ÉCOBES**, Centre d'Étude des conditions de vie et des besoins de la population, affiliated with Cégep de Jonquière;

**TOPMED**, Centre collégial de transfert de technologie en orthèses prothèses et équipements médicaux, affiliated with Collège Mérici in Québec City;

# People who took part in round-table discussions in Step 5:

- Adriana Andrade, Ministère de l'Économie et de l'Innovation, organization support;
- Marie-Ève Blackburn, FRQS administrator;
- Manon Bouchard, project leader, Association des collèges privés du Québec;
- **Isabelle Cabot**, teacher/researcher, Cégep de Saint-Jean-sur-Richelieu;
- Mia Caron, student, Cégep de Sherbrooke;
- Julien Coll, student, Centre de développement et de recherche en imagerie numérique;
- **Caroline Cormier**, teacher/researcher, Cégep André-Laurendeau;
- Marielle Côté-Gendreau, student, Cégep André-Laurendeau;
- Stéphane Delisle, teacher/researcher, Collège Ellis;
- **Céline Desjardins**, Scientific Research Coordinator, Fédération des Cégeps;
- Chantal Dumont, Ministère de l'Éducation et de l'Enseignement supérieur;
- Christophe Fortin, teacher/researcher, Cégep de Terrebonne, Université d'Ottawa, IUSMM;
- Marie-Josée Fraser, Educational Advisor, Service de soutien à l'enseignement et à la recherche, Cégep de Sherbrooke;
- Marie Gagné, CEO of Synchronex;
- Catherine Gagnon, Ministère de l'Éducation et de l'Enseignement supérieur;
- Nicolas Giguère, Director, Québec Metallurgy Centre;
- Malika Habel, FRQNT administrator;
- Paulette Kaci, Executive Director, Vestechpro;
- Lynn Lapostolle, FRQSC administrator;
- Catherine LeBel, Dean of Academic Development, Dawson College;
- Alex Lussier, student, Dawson College;
- Édith Martin, researcher, TOPMED;
- Pierre Michaud, researcher-teacher, Collège LaFlèche;
- Robert Poulin, ARC administrator.

Note that the subcommittee tried unsuccessfully to meet with union representatives of the Fédération nationale des enseignantes et des enseignants du Québec.

Finally, we would like to thank David Côté, Director of Financial Services for the FRQ, for his invaluable assistance in establishing financial frameworks for some of the measures proposed in this report. We also thank FRQSC administrator Lynn Lapostolle; FRQNT administrators Malika Habel, Nancy Déziel and Nathalie Quirion; FRQS administrator Marie-Ève Blackburn; the Ministère de l'Éducation et de l'Enseignement supérieur; and the Ministère de l'Économie et de l'Innovation for their insightful comments.

<sup>\*</sup> All references to the stakeholders who were interviewed were removed from this report to ensure confidentiality.

#### 2. CONTEXT

After slowing in the late 1990s and early 2000s, college research has gained momentum in recent years, though it still largely depends on the willingness and involvement of a small number of people in college-level institutions. Such is the claim of Sébastien Piché in *La recherche collégiale*: 40 ans de passion scientifique (2011). This book shows how college research came into being with the creation of CEGEPs in 1967, and that it remained fragmented and disorganized for a long time. The 1980s were also characterized by the opening of university grant programs to college-level researchers, a movement to structure the province's research centres, and the creation of key groups such as the ARC. In 1993, CEGEPs' research mission was even integrated into the *General and Vocational Colleges Act*. However, college research experienced a demobilization owing to massive budget cuts in the mid 1990s that brought about a brain drain toward university and administrative institutions. Since the 2000s, CCTTs have been leading college research, despite the fact that funding has never returned to the level it reached in 1995. Sébastien Piché proposes the quantification of the importance of college research by evaluating it from three angles: funding, governance and outreach<sup>1</sup>. The CIE believes that a fourth angle should also be studied, namely the potential role of the college setting in the introduction and training of the next generation of student researchers<sup>2</sup>.

<sup>&</sup>lt;sup>1</sup> S. Piché, "Le rôle de la recherche collégiale dans la modification du paysage éducatif et scientifique", in 50 ans d'éducation au Québec, Pierre Doray and Claude Lessard (dir.), Québec, Presses de l'Université du Québec, 2016, p. 199-206.

<sup>&</sup>lt;sup>2</sup> For the purposes of this report, "student researcher" refers to all individuals (college students, undergraduate and graduate students, postdoctoral fellows) engaged in research activities in the college network.

#### 3. UNDERSTANDING THE COLLEGE RESEARCH ECOSYSTEM

Within the college network, research takes different forms depending whether it is being carried out in a CEGEP, a private subsidized college, a CCTT, a research centre, through research grants awarded to a researcher or to a team of two or three researchers from different college institutions. We note that college research, particularly in CCTTs, is often more applied than university research<sup>3</sup>. Its objective is generally to find concrete solutions to a specific practical problem and to develop knowledge in order to propose actions that are achievable immediately or in the short term. As a result, the college research community is characterized by its dynamism and a by a certain heterogeneity of practice environments and types of activities. In order to better understand the potential role of the college setting in the introduction and training of the next generation of student researchers, it is necessary to paint a general portrait of the college research ecosystem<sup>4</sup> and to demonstrate the place student researchers occupy within it.

#### 3.1 Supervision, environment and dissemination of college-level research

# 3.1.1 Status of college network researchers<sup>5</sup>

A "research" component was added to the *General and Vocational Colleges Act*<sup>6</sup> in 1993. However, it is not mandatory:

"A college may, in addition:

- a) contribute, by labour training activities, applied research, technical assistance to enterprises and the provision of information, to the development and realization of technological innovation projects, the implementation and diffusion of new technology and the development of its region;
- b) carry out studies or research in education and support those members of its staff who take part in subsidized research programs<sup>7</sup>".

Unlike university faculty members, the duties of a college teacher do not include research. As a result, college research is sometimes carried out in addition to teaching activities, or may be conducted during a temporary release from teaching duties. Because of this limited time spent on research, college teachers find themselves at a disadvantage compared to university faculty in funding competitions from granting agencies<sup>8</sup>; the former produce less scientific output in the form of journal publications and science conferences, and are therefore less competitive than the majority of their university counterparts for whom hours of research and outreach activities are an integral part of their duties. It should be noted that the situation is different for researchers in the college network who have no teaching duties and who devote themselves full-time to the research

<sup>&</sup>lt;sup>3</sup> Association of Canadian Community Colleges, *College and Institute Applied Research: Incremental Innovation for Growth and Prosperity*, online: <a href="https://www.collegesinstitutes.ca/wp-content/uploads/2014/05/201202">https://www.collegesinstitutes.ca/wp-content/uploads/2014/05/201202</a> AR-EnvScan2010-11.pdf

<sup>&</sup>lt;sup>4</sup> For information purposes and because it is not the specific subject of this report, the main actors of Québec's college research ecosystem are presented in Appendix 1.

<sup>&</sup>lt;sup>5</sup> "Researcher" refers to any professional carrying out research activities in the college network, whether or not they perform teaching duties.

<sup>&</sup>lt;sup>6</sup> General and Vocational Colleges Act, CQLR, c-29.

<sup>&</sup>lt;sup>7</sup> Id, art. 6.0.1.

<sup>&</sup>lt;sup>8</sup> College researchers are rarely completely funded by their institution; they often receive funding through programs offered by MEES, MEI, ACPQ, the FRQ or federal granting agencies (e.g. the Canada Research Chairs program).

activities of their research centre. Another obstacle in college settings is the tenure process. Most of the time, college teachers must spend several years with part-time status before obtaining tenure, making them less competitive for some research grants. In this regard, several stakeholders suggested that their teaching duties be supplemented by research during these precarious years. These problems reported by the different stakeholders interviewed have repercussions for student researchers, who are largely dependent on research funding and the willingness of researchers in the college network to provide supervision.

# 3.1.2 College network research environments

The *General and Vocational Colleges Act* allows CEGEPs and private subsidized colleges to create research centres:

"A college may, with the authorization of the Minister, establish a college centre for technology transfer which may, in a particular field, engage in applied research, furnish technical assistance to enterprises and provide information in accordance with subparagraph a of the first paragraph of section 6.0.1. Before giving authorization, the Minister shall consult any minister concerned with such a centre's activities.

The college may, to the extent and on the conditions it determines, entrust the management of such a centre to a legal person it designates or to a committee it constitutes for that purpose<sup>9</sup> ".

Institutional college research centres<sup>10</sup> and independent researchers are involved in the research community in a more diverse manner, particularly with respect to funding from the institution to which they are attached and other sources of funding. They operate differently from CCTTs, which are recognized by the MEI and the MEES. Institutional research centres are recognized by their CEGEP or private subsidized college, with which they maintain close ties, but have neither the title of "CCTT" not the funding that comes with it.

# According to the MEES:

"Based on a legal provision, the mandate of CCTTs consists of carrying out, in a specific area, applied research, technical assistance, training and information dissemination activities to assist in the development and accomplishment of technological and social innovation projects and the implementation and dissemination of innovation within companies and organizations. The participation of college teachers and students in CCTT activities contributes to enriching the teaching provided and to stimulating an interest in scientific careers among young people.

CCTTs therefore contribute to the economic development of their respective regions and of Québec in general in their sectors of expertise, and to ensuring a better alignment between labour needs and specialized training.<sup>11</sup>"

Thus, many of these institutional centres take steps to become recognized as a CCTT, in some cases more than once, but they do not always manage to qualify. Nonetheless, ten new CCTTs were created in June 2018,

<sup>&</sup>lt;sup>9</sup> See note 7, art. 17.2.

<sup>&</sup>lt;sup>10</sup> By "institutional college research centre" we mean any research group that does not have CCTT status but is located in a CEGEP or private subsidized college that funds it.

<sup>11</sup> http://www.education.gouv.qc.ca/colleges/enseignants-et-personnel-de-college/recherche-cctt/

bringing the number of CCTTs in Québec to 59, representing more than 1,300 experts<sup>12</sup> across the network. These CCTTs can be "integrated" into the college or their management can be delegated to an NPO. In the first case, the CCTT is attached to the college structure and is firmly rooted in the college environment, while in the second case, the CCTT enjoys administrative independence while maintaining sometimes tenuous links with the institution and its students.

The objective of CCTTs is to foster technology transfer to businesses, while CCTTs in innovative social practices (CCTT-ISP, 11 out of 59) focus on the transfer of technology to community organizations and educational and health institutions, which are their primary clientele. By mutual agreement with CCTTs, businesses benefit from equipment that they may even partially subsidize.

The mandate of CCTTs is primarily technical in nature, which may limit contact between this research environment and students in regular study programs. Several CCTTs operate almost independently of the CEGEP or private subsidized college with which they are affiliated. Thus, students may very well complete their entire college program without realizing that such a research infrastructure exists within their CEGEP or private subsidized college.

#### 3.1.3 Production and dissemination of research carried out by student researchers

All the parties we met with confirmed that college research does not receive the dissemination it deserves. This is a long-standing concern for organizations such as the ARC, which considers the "limited dissemination of college research results and impacts" to be a major obstacle "not only to promoting the research, but also to the recognition of college institutions as an integral part of our higher education system"<sup>13</sup>. Indeed, little is heard about the research that takes place at the college level, and many people are surprised to learn that research is being carried out in Québec colleges, The situation is even worse when it comes to research produced in collaboration with student researchers.

The research produced by CCTTs and how they operate is generally not well known, and even less so for college research conducted outside these centres. There are few links between researchers, or their students, particularly since the dissemination of their research results is often lacking.

Within the college community itself, it is common to be unfamiliar with the researchers at one's own institution and to be unaware of their areas of expertise. The primary means of dissemination reported by researchers at CEGEPs and private subsidized colleges are conference presentations and dissemination activities on platforms intended for a more general public such as the media.

Given that college researchers' main activity is teaching, and that funding cycles for their research projects are short (+/- one year), they are left with very little time to disseminate their research in media traditionally associated with the academic community, such as scientific periodicals and international or disciplinary

<sup>12</sup> https://synchronex.ca/en/about/synchronex/

<sup>13</sup> https://www.acfas.ca/publications/decouvrir/2012/11/recherche-collegiale-sur-lancee

conferences. When it comes time to disseminate their results, researchers at CEGEPs and private subsidized colleges are often forced to begin preparing a new grant application. This was reported during the discussions held, where participants raised the example of the PREP program, which requires funded research to be completed within a period of one academic year.

#### 3.2 Place occupied by college-level student researchers

Students at CEGEPs and private subsidized colleges can carry out research as part of their studies, under an internship, or as a research assistant. College-level student researchers can therefore have three statuses: "student", "intern" or "employee". The presence of students and the nature of the work they perform are highly variable, regardless of research setting. Their task description can range from project management to database processing. Student presence depends, among other things, on whether the research being conducted is related to a study program offered by the CEGEP or private subsidized college and whether or not students are involved in research assistantship duties.

When it comes to the specific case of CCTTs, there are two student researcher profiles: 1) college or university undergraduate students with "intern" or research assistant status, and 2) university graduate students who are supervised by a researcher working at the CCTT.

It should be noted that the situation of college students is not inherently conducive to research, as they have many hours of courses and internships spread throughout the week and must cope with a rather restrictive schedule. Other factors that hamper the research activities of college-level student researchers include the academic calendar (short terms, exam periods, etc.), the number of students per cohort, the disparity between study programs, possible changes in students' direction of study, and the more targeted nature of the research conducted at college institutions and CCTTs. However, this did not prevent college and CEGEP students from raising a number of positive points, including wages (higher than minimum wage), flexible schedules (during their free time at CEGEP), the proximity of the workplace to the place of study, the opportunity to learn software and different work tools that may be of use in the study project or a future career.

Moreover, the contribution of college students is not viewed equally among all the parties with whom we met. In fact, opinions differ sharply. On the one hand, we encountered a form of skepticism regarding the actual introduction to research provided to student researchers, who constitute a labour force that is inexpensive but can be costly in terms of training and errors. On the other hand, some stakeholders mentioned the considerable value of student contribution, which revitalizes the research environment and is seen as a kind of "cross-contamination" that benefits both the supervisor and the student. It forces established researchers to do things differently and to question their own methods. The issue that then arises from this collaboration is accepting that the project may take longer and that some training will be required.

#### 4. RESEARCH FUNDING

There are several types of organizational funding for research conducted within the college network. In some cases, this funding directly benefits student researchers, while in other cases it is more indirect. This section presents the main provincial programs<sup>14</sup> mentioned by participants.

#### 4.1 MEES programs

# 4.1.1 Pedagogical Research and Experimental Program (PREP)

"The Ministère de l'Éducation et de l'Enseignement supérieur (MEES) contributes to the development of research in the college network by financially supporting various research assistance programs, including the Pedagogical Research and Experimental Program (PREP), which is administered by the ACPQ.

# The objectives of PREP are to:

- develop and maintain a culture of educational research, experimentation and evaluation at the subsidized private college level
- develop the next generation of researchers
- encourage innovative research
- enrich and renew college-level pedagogy
- foster collaboration between established researchers
- support the dissemination of research in the subsidized private college network<sup>15</sup>."

Led by	ACPQ
Eligibility	<ul><li>Teachers</li></ul>
	<ul> <li>Professionals in a private subsidized college</li> </ul>
Funding	<ul> <li>Release from teaching duties or in addition to teaching duties</li> </ul>
	<ul> <li>Other eligible expenses:</li> </ul>
	<ul> <li>Compensation for researcher/research team;</li> </ul>
	<ul> <li>Support and consulting fees;</li> </ul>
	<ul> <li>Costs incurred to communicate research benefits;</li> </ul>
	<ul> <li>Administration fees (student contracts, general administration, technical and IT support);</li> </ul>
	<ul> <li>Material and supplies (photocopies, stationery,</li> </ul>
	telecommunications, software, computers, books and articles, interlibrary loans);
	<ul> <li>Linguistic revision fees</li> </ul>
	<ul> <li>Costs to draft and disseminate the research report<sup>16</sup>.</li> </ul>
Requirements	<ul> <li>Topic, benefits, dissemination, bibliography, schedule, budget</li> </ul>

<sup>&</sup>lt;sup>14</sup> While it is not detailed here, we would like to point out the significant contribution of the federal granting agencies (SSHRC, NSERC and CIHR) in funding research conducted by college-level researchers and students. College researchers are eligible for all regular funding programs, in addition to the College and Community Innovation Program (https://www.nserc-crsng.gc.ca/Professors-Professeurs/RPP-PP/Info-Info eng.asp), intended for college researchers.

<sup>15</sup> https://www.acpq.net/en/research

<sup>&</sup>lt;sup>16</sup> https://www.acpq.net/static/uploaded/Files/documents/recherches/Guide prep-2018-2019.pdf

Note: No component is of direct relevance to students.

Teachers may apply to PREP for funding to draft an application to a funding agency or program, including the Programme d'aide à la recherche sur l'enseignement et l'apprentissage (PAREA).

#### 4.1.2 Programme d'aide à la recherche sur l'enseignement et l'apprentissage (PAREA)

"The Programme d'aide à la recherche sur l'enseignement et l'apprentissage (PAREA) provides financial resources to college institutions to support research that contributes to their pedagogical development<sup>17</sup>."

"The research projects targeted by the Program are initiatives by teaching or professional staff in college educational institutions. Projects should last between one and three years and fall within one of the following areas of application: teaching, learning or the educational environment<sup>18</sup>."

Led by	MEES	
Eligibility	_	Teacher or professional in a public or private college (for at least one
		year)
	_	Lecturers are not eligible
Funding	_	Up to 80% of duties (the college may add 20%) <sup>19</sup>
	_	Operating costs
	_	Travel costs
	_	Costs of report production
Requirements	_	Relevance of the project, clarity of the method, realism, aptitude of the
		researcher, impact for the educational institution and the college
		network as a whole, etc.

Note: No component is of direct relevance to students, but they are eligible for grant funding as members of the research team.

As of 2020, changes will be made to the PAREA program, two of which are of interest here:

- 1. The participation of college students and interns is now mandatory;
- 2. New teacher-researchers are now eligible.

#### 4.1.3 Programme d'aide à la recherche et au transfert (PART)

"PART (Programme d'aide à la recherche et au transfert, volet Innovation technologique (IT)) allows institutions to conduct applied research activities related to technological and social issues to meet the needs

15

 $<sup>^{17}\,\</sup>text{http://www.education.gouv.qc.ca/le-ministere/programmes-de-soutien-financier/programme-daide-a-la-recherche-et-autransfert-part/}$ 

 $<sup>\</sup>frac{18}{\text{http://www.education.gouv.qc.ca/fileadmin/site}} \underline{\text{web/documents/enseignement-superieur/collegial/PAREA-Guide-subvention-2020-2021-VF.pdf}}$ 

<sup>&</sup>lt;sup>19</sup> As of January 2020.

of target users and communities. It also enables them to transfer the results of this research to the various communities<sup>20</sup>".

Led by	MEES
Eligibility	Mandatory participation of a teacher-researcher
	Mandatory participation of a college student or intern
	<ul><li>Professionals</li></ul>
	<ul><li>Technical staff</li></ul>
	<ul> <li>Research associates and retired researchers</li> </ul>
Funding	Release of teaching staff (maximum 60%)
	<ul> <li>Release of non-teaching staff</li> </ul>
	Material resources
	<ul> <li>Consulting fees</li> </ul>
	<ul><li>Travel expenses</li></ul>
Requirements	Relevance of the project, clarity of the method, quality of the research
	(ethics, budget, bibliography, etc.), aptitude of the research team,
	benefits, quality of application, impact for the educational institution
	and the college network as a whole, etc.

As of 2018, new elements were added to PART, including two that are of interest here:

- 1. All projects must include the mandatory participation of college students;
- 2. New teacher-researchers are now eligible.

# 4.2 MEI programs

College institutions are also eligible for the Programme de soutien aux organismes (PSO)<sup>21</sup> Program component 1 funds the operations of CCTTs and components 3 and 4 support CEGEP and CCTT infrastructures. Component 2 aims to finance collaborative research and innovation projects: structuring projects with businesses and research institutions. In addition, colleges may provide services to businesses and other organizations granted funding under the Programme Innovation<sup>22</sup>. The MEI's Programme NovaScience (premier emploi en recherche)<sup>23</sup> and paid internships programs<sup>24</sup> (Mitacs Acceleration, Elevation, Globalink) for graduate students <sup>25</sup> also provide additional funding.

<sup>20</sup> http://www.education.gouv.qc.ca/fileadmin/site\_web/documents/enseignement-superieur/collegial/PART-Guide-IS-2019-2020.pdf and http://www.education.gouv.qc.ca/fileadmin/site\_web/documents/enseignement-superieur/collegial/PART-Guide-IT-2019-2020.pdf

<sup>&</sup>lt;sup>21</sup>https://www.economie.gouv.qc.ca/bibliotheques/programmes/aide-financiere/programme-de-soutien-aux-organismes-de-recherche-et-dinnovation-pso/

<sup>&</sup>lt;sup>22</sup> https://www.economie.gouv.qc.ca/bibliotheques/programmes/aide-financiere/programme-innovation/

<sup>&</sup>lt;sup>23</sup>https://www.economie.gouv.qc.ca/bibliotheques/programmes/aide-financiere/programme-novascience/premier-emploi-enrecherche/

<sup>&</sup>lt;sup>24</sup> https://www.economie.gouv.qc.ca/bibliotheques/programmes/aide-financiere/stages-dinnovation-en-entreprise/

<sup>&</sup>lt;sup>25</sup> It should be noted that only the Mitacs Acceleration program is open to college students.

# 4.3 FRQ programs

Most FRQ funding programs for the college research community are aimed at researchers. Although raising research awareness among college students is stated in the program objectives, their presence is not included in the eligibility criteria. Furthermore, few programs are directly targeted to college students and the availability of such programs varies from one Fonds to another. The following is a summary of funding opportunities for student researchers in college settings.

#### 4.3.1 FRQSC

- Scholarship for Internship in a Practice Environment (BSMP):
  - Only CCTTs are eligible as internship hosts;
  - Open to PhD students only;
  - \$3,000 to \$9,000.
- College Research Initiation Internship Scholarship:
  - Only CCTTs are eligible as internship hosts;
  - Open to college students;
  - **–** \$3,000.

#### 4.3.1 FRQNT

- Bourse pour stage d'été au collégial :
  - All college and university research settings are eligible as internship hosts;
  - Open to non-graduating college students;
  - Limited to the summer period;
  - **–** \$5,000.
- Bourse de 2<sup>e</sup> et 3<sup>e</sup> cycles pour stage en CCTT :
  - Only CCTTs are eligible as internship hosts;
  - Open to graduate students only;
  - **–** \$7,000.

#### 4.3.1 FRQS

No funding opportunities for student researchers in college settings.

#### 5. AVENUES FOR ACTION

From the summary profile presented here and discussions with key college research stakeholders, it is possible to establish a number of findings and proposals. These avenues for action are mainly concerned with five areas:

- 1) Better understand the reality of college research and its student researchers, and foster its growth;
- 2) Areas of improvement for current FRQ programs and initiatives;
- 3) Stimulate interest and support introduction to research for college-level students;
- 4) Promote interaction between university students and the college community;
- 5) Avenues for collaboration between the FRQ and other public and private bodies.

# 1. Better understand the reality of college research and its student researchers, and foster its growth

1.1 Consider a concerted intersectoral action on the situation of student researchers at the college level

Following our discussions and exchanges, we found that data on the nature, results, dissemination and impact of college-level student research is incomplete, fragmented or not publicly available. That is why we propose to launch a broad study aiming, among other things, to:

- Increase knowledge of college research environments and practices;
- Explore the impacts and vitality of research conducted by student researchers and those who supervise them in all college research environments (e.g. CCTTs, institutional research centres, independent researchers, urban and regional environments, etc.);
- Explore the role of college-university collaboration in the training of student researchers;
- Document the evolution of research funding (public and private sources, criteria, etc.) for student researchers and those who supervise them over the last 20 years.

The purpose of this study, which could be the subject of a concerted action, should be to explore the impact and understand the real role played by college students and university student researchers in the college research ecosystem, in addition to highlighting its impacts on their training. Such an assessment would make it possible to effectively target the means used to promote the growth and recognition of college research, as well as fostering interest and the emergence of a new generation of scientists in college institutions. It should be noted that, in a similar collaborative effort, the three Fonds de recherche jointly launched a concerted action on "Responsible Conduct in Research" in 2015.

#### 1.2 Help promote college-level student research

At the same time, we feel it is important to increase awareness of research produced within the college network. This outreach could take the form of a stronger presence of the FRQ in college research dissemination activities, as well as an increase in visibility of research conducted both within and outside CCTTs. This greater visibility could be achieved through the Chief Scientist, social media, the FRQ websites, their news bulletins, etc. Mechanism should be developed to support research dissemination and communications. The FRQ can play a leadership role in promoting college research, but the

communications and research departments of CEGEPs must also contribute. In addition to the MEES Programme d'aide à la diffusion des résultats de recherche au collegial (PADRRC)<sup>26</sup> program, additional funding, administered by the FRQ, should be dedicated to outreach and the dissemination of college research. It could, for example, be used for the creation of journals or a research sharing platform.

#### 2. Areas of improvement for current FRQ programs and initiatives

FRQ programs and initiatives aimed at student researchers would benefit from making colleges, CEGEPs and college research settings into eligible host environments conducive to student research.

2.1 Extend and enhance the FRQNT's college summer internship program to the two other funding agencies

In the course of our work, we found that the presence of college students in the different college research settings to be extremely variable. Accordingly, we believe it is important to consider extending the FRQNT college summer internship program<sup>27</sup> to the FRQS and the FRQSC. If students are adequately supported through attractive and motivating programs, faculty and researchers will respond to the demand. This type of program also raises awareness among established researchers of the importance and relevance of the role of student researchers in research done at the college level. We propose, however, that the internship scholarships not be limited to the summer period. Since the summer does not constitute a break from classes for all college students, some cannot apply for this funding opportunity due to the structure of their program.

2.2 Ensure the eligibility of all college research environments for graduate student research internship programs

We believe that it would be beneficial to strengthen the links between university students and the various research environments offered by colleges. The FRQSC's BSMP program and the FRQNT's graduate student CCTT internship program already provide graduate students with access to CCTTs, but networking opportunities are limited to CCTTs only. We therefore recommend extending these programs to include all college-based research environments as eligible internship hosts. It should be noted that the FRQS does not offer any similar funding opportunities, and that a program should be created to allow graduate students to complete an internship in a college setting.

http://www.education.gouv.qc.ca/le-ministere/programmes-de-soutien-financier/programme-daide-a-la-diffusion-des-resultats-de-recherche-au-collegial-padrrc/

<sup>&</sup>lt;sup>27</sup>http://www.frqnt.gouv.qc.ca/bourses-et-subventions/consulter-les-programmes-remplir-une-demande/bourse/bourses-de-stages-d-ete-pour-les-etudiants-de-niveau-collegial-mow60xsj1489758824130#

#### 2.3 Evaluate the place given to college-level students in funding applications

Programs should be revised with a view to evaluating their benefit to students, as was done in 2018 by the MEES for its PART and PAREA programs (research teams are now required to include at least one student member). This program revision could have the following specific objectives:

- 1) Better define the notion of "benefit" to students;
- 2) Emphasize the real involvement of students in order to avoid superficial justifications of student resources (for example, the Program to Release College Researchers from their Teaching Duties does not include the use of student resources);
- 3) Increase the level of student involvement in the evaluation of applications.

# 2.4 Promote the programs

During our visits to CCTTs, we found that there was a great lack of awareness of internship programs within CEGEPs and subsidized private colleges, which only benefit those who are familiar with them. It is suggested that the FRQ publicize their programs more widely, and that college and university faculty contribute to their dissemination efforts.

# 2.5 Pursue efforts to standardize FRQ programs

In the interest of moving towards the goal of inter-Fonds standardization, here are a few general remarks on FRQ programs aimed at college-level student research:

- Programs intended for student researchers in college settings should have more flexible eligibility criteria in order to make funding opportunities more accessible to different research environments;
- The amounts of internship scholarships must remain competitive compared to the salaries of jobs outside the college sector in order to attract student researchers;
- Following the implementation of Proposition 2.1, if applicable, a "College Students" tab should be created on the FRQS website (as for the other two Fonds);
- The FRQS should offer a comparable number of programs for college-level student researchers as the other two Fonds.

# 3. Stimulate interest and support introduction to research for college-level students

Introduction to research at CEGEP is of key importance. It is a societal issue, even if it means devoting a great deal of time to supervision and training. In general, we believe that it would be in our best interest to orient the introduction to research towards achieving greater autonomy without, however, limiting opportunities for more *passive* contact with research. For an effective introduction to research, students must be able to take charge of complex research projects, in whole or in part, and not simply provide labour. Several

interesting models were explored during an Acfas conference in 2016 on the integration of students in college research<sup>28</sup>.

#### 3.1 Promote the diversification of college students' contact with different research environments

Whether through summer internships, introduction to research scholarships or BSMP scholarships, we believe it is important to maintain, and even improve, opportunities for college students to go beyond a strictly academic setting to carry out research "in the field" with teams or seasoned researchers, in the three sectors covered by the FRQ. Whether this involves closer networking between CCTTs and their colleges or a partnership agreement between universities and colleges, a diversity of contacts should be promoted. In the same vein, lists of potential partners by sector could be made available online so that students can contact CCTTs or university research environments during their college training. In this way they will be able to quickly gain research experience and potentially better orient their academic career towards graduate research studies. Consideration should be given to offering a similar platform allowing researchers to access the profiles of students interested in undertaking research.

# 3.2 Continue to reward research efforts with initiatives such as the ARC Prix étudiants

College students have few opportunities to present and be recognized for their research. The ARC's Prix étudiants program—funded by the FRQ, AQPC, Acfas and the COOPSCO network—encourages student researchers in CEGEPs and private subsidized colleges and has a real impact on the careers of these students. Three scholarships of \$1,000, \$600 and \$400 are awarded annually as well as three "Relève étoile collégiale" prizes (one per sector, accompanied by a \$1,000 award). We believe that the recipients should receive the same exposure as those of the university-level "Relève étoile" awards. The FRQ could also consider enhancing their offer so that more college-level student researchers are rewarded for their work. In addition, they could fund a "Relève étoile en recherche-création" prize for students in the arts and literature sector.

#### 3.3 Encourage the participation of college-level students in knowledge dissemination activities

The contribution of CEGEP and college students could also be giver proper recognition through provincial showcases and dissemination opportunities adapted to their reality. We believe that the FRQ, with the help of the CIE, could play an important role in the organization of this type of intersectoral activity. The logistics organizational model could draw on initiatives such as the CIRADD symposium, the Forum international Sciences et société, or certain local intercollegiate events. In addition, this provincial symposium would be an opportunity to create an event offering college students their first experience in oral presentation, with the possibility of presenting their research work and discussing their results among themselves. Funding should be made available for the organization and logistics of the event as well as travel costs for college students who do not benefit from university mechanisms to support mobility and the transfer of research results.

21

<sup>&</sup>lt;sup>28</sup> http://lescegeps.com/f/nf190prc

Such an initiative on the part of the FRQ would have positive effects on students, the college research community, and the mobilization of student researchers. Each of the three Fonds could gain recognition during the event, which would bring together many future university graduate students.

3.4 Give a voice to college-level students through the creation of a permanent working group within the CIE

While the reality of college research is difficult to grasp as a whole, that of student researchers at the college level is just as difficult, if not more so. We felt that, in order to better understand and take into consideration this reality in the long term, it would be appropriate to create a permanent CIE working group that would meet three or four times a year. The role of this working group would be to advise the CIE and the FRQ on the situation of students who have not yet started a graduate program in research. It could be made up of two CIE members, five college students (pure and health sciences, humanities, arts and literature and two technical programs) drawn from research student committees already in place in the college community. This subcommittee could also, among other things, examine issues submitted by the CIE or the FRQ.

# 4. Promote interaction between university students and the college community

The committee is of the opinion that the possibility of creating two-way exchange programs to help introduce college-level students to research and enable university student researchers to benefit from the research equipment, infrastructure and expertise of CEGEPs and colleges should be explored. In addition, it might be relevant to increase opportunities for productive exchanges between college and CEGEP students and their university counterparts through internships, for example.

#### 4.1 Create an internship scholarship exclusively for CCTTs and college research centres

A university student cannot be funded directly by a college research grant (PREP, PART, PAREA) that is intended to benefit colleges. We propose dedicating an internship scholarship program to encourage university students to conduct research exclusively at CCTTs or institutional college research centres. The creation of such a program could promote both the value of CCTTs and institutional college research centres as research settings and the contribution of university students.

# 4.2 Promote the creation of an information bank

There needs to be increased communication and information sharing between CCTTs, institutional college research centres and students looking for employment or internships. The FRQ could, in the manner of the FRQSC's List of partners interested in hosting interns<sup>29</sup> used in the BSMP program, create a portal where students could see which CCTTs are looking for interns. It would also be relevant to initiate reflection on a way for CCTTs and institutional college research centres to get in touch with university students. Indeed, this is a question that came up several times in our visits to research centres. The

<sup>&</sup>lt;sup>29</sup> http://www.frqsc.gouv.qc.ca//bourses-et-subventions/liste des partenaires interesses par des stagiaires

centres would like to work with graduate students, but do not necessarily know how to reach them and who to contact based on their expertise and the needs of the research environment.

#### 5. Avenues for collaboration between the FRQ and other public and private bodies

5.1 Encourage an initiative to monitor college research produced by student researchers

In order to obtain an ongoing inventory of Québec college research conducted by student researchers, the FRQ should encourage the creation of a monitoring initiative that would serve to centralize and publicly disseminate tools to support college research, and paint a portrait of the research conducted in Québec's college institutions. This type of initiative would meet the needs expressed by researchers, providing access to this relevant information which would henceforth be publicly available. We believe that university and college students could play an important role in this initiative.

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#### **APPENDIX 1**

For information purposes, the following are the key actors in Québec's college-level research ecosystem:

#### ACPQ 2

The Association des collèges privés du Québec is a grouping of subsidized private colleges in Québec offering pre-university and technical programs. Accessibility to higher education and the success of their students is at the heart of all their actions. Consequently, member colleges have created models and types of intervention adapted to the needs of high school graduates, adult students, students with learning disabilities, pervasive developmental disorders or with mental health disorders, immigrant students and international students<sup>30</sup>.

#### AQPC 🗹

The Association Québécoise de pédagogie collégiale (AQPC) was founded by a group of educators eager to stimulate pedagogical progress in colleges and enhance the teaching profession. It is a non-profit organization open to all employees of public and private colleges, universities and other educational organizations within Québec and in other regions. The mission of the AQPC is to promote, stimulate and support the development and evolution of college pedagogy. The AQPC strives to be a reflection and beacon for all those who work in education at the college level so as to ensure the quality of learning for all students whether enrolled in regular courses or in continuing education. The AQPC contributes to the development and evolution of pedagogy in conjunction with diverse partners in the field of higher education. The AQPC contributes to the development and evolution of pedagogy in conjunction with diverse partners in the field of higher education. The AQPC publishes a journal, *Pédagogie collégiale*, four times a year. It focuses on the basics of pedagogy: teaching and learning, teaching disciplines and curricula. The AQPC also offers ongoing training activities in the form of turnkey pedagogical days in colleges.

#### ARC 🗹

The ARC is an association whose mission is to promote college research. Its three lines of action are representation, service to the scientific community and the promotion of college research. Founded in 1988, the Association pour la recherche au collegial aims to promote college research through initiatives including information, skills-building and dissemination sessions and activities, as well as its annual conference, awards and positions on research-related issues.<sup>32</sup>

#### Fédération des cégeps 🗹

Founded in 1969 to promote education at the college level, and more specifically in the general and vocational colleges known as CEGEPs, the Fédération des cégeps is a voluntary umbrella organization of the 48 public CEGEPs in Quebec.

<sup>30</sup> https://www.acpq.net/a-propos

<sup>31</sup> http://www.aqpc.qc.ca/nous-connaitre

<sup>32</sup> http://vega.cvm.qc.ca/arc/1 1 presentation.php

As the CEGEPs' official spokesperson, the Fédération defends their common interests and represents them on matters of concern to the whole network before government bodies, agencies in the sphere of education and the work world, social groups, the media and the public at large.

The Fédération facilitates concerted work by CEGEPs on major college issues, the voicing and adoption of common positions, and the exchange of know-how between colleges.

CEGEPs avail themselves of the services and advice provided by the Fédération in the areas of education, student affairs, international affairs, continuing education and professional development, research and development, information technology, financing, legal matters, human resources, credential assessment, bargaining and labour relations<sup>33</sup>.

# Synchronex (formerly Trans-Tech)

Synchronex is a network that brings together and represents Québec's CCTTs. Synchronex also serves as a liaison and consultant between companies and CCTTs.

#### Tech-Acces Canada 2

Based in Ottawa, Tech-Access Canada facilitates the sharing of best practices between member TACs, works to harmonize service models across regions and promotes college applied research to external audiences<sup>34</sup>. A number of CCTTs are part of Tech-Access Canada through the CEGEP with which they are affiliated.

27

<sup>33</sup> http://www.fedecegeps.qc.ca/federation/mission-et-roles/

<sup>34</sup> http://tech-access.ca/fr/page-daccueil/

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