

PEDAGOGICAL RESEARCH, THE DRIVING FORCE BEHIND THE EVOLUTION OF TEACHING



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Above all else, the real influence behind educational practices is the research done in colleges by teachers and professionals such as educational advisors, who are constantly questioning practices and making recommendations for novel solutions to problems that hinder learning, teaching and ultimately, student success.

The answers supplied by research enlighten not only teachers but also professional and administrative staff, not to mention key decision-makers.

To teach at collegial level requires a solid knowledge of the subject matter. College personnel include over 6,500 people with master's degrees and approximately 900 with doctorates. But, with or without a doctorate or a master's degree, teachers at this level have developed and continue to develop know-how proper to the teaching profession. Over time, they have constructed a pedagogy adapted to the needs of the educational environment. Proficiency activities and improvement programs—for example, Performa's teaching workshops, symposiums, conventions and pedagogical days—have been offering guidance for 35 years in the construction of pedagogical and didactic expertise. General reforms, competency-based approaches and program approaches have, more recently, provided a new conceptual framework (cognitivism, socioconstructivism) for current practices at collegial level. Moreover, professionals such as educational advisors as well as advisors in program development, review, evaluation and, even, its successful outcome, make up a group of major players in teaching innovations that contribute to the evolution of educational practices.

► BASIC RESEARCH, TECHNOLOGICAL RESEARCH AND RESEARCH IN EDUCATION

For close to thirty years now, three types of research have taken place in collegial establishments in Québec: Basic research, technological research and research in the field of education.

Basic research, alternately subsidized by a grant from Fonds de recherche sur la société et la culture (FQRSC), or Fonds de recherche sur la nature et les technologies (FQRNT), the Social Sciences and Humanities Research Council of Canada (SSHRC) or the Natural Sciences and Engineering Research Council of Canada (NSERC), contributes unquestionably to the production of new disciplinary skills, many of which are applicable to the field of Education. Until recently and on a yearly basis, approximately 30 collegial researchers were also active members of university research teams or research centres, in fields ranging from organometallic chemistry and nuclear physics to history, psychology and education. It is not unusual to see these researchers contribute personally to the transfer of their expertise and invest their own time and effort in educational research projects.

Technological research in 30 collegial technology-transfer centres (biotechnology, chemical processes, aerospace, agri-food, industrial ecology, etc.) affiliated to collegial institutions, represents, on a regional level, a source of technological innovation resources that contributes to economic development while bringing institutions and their student bodies closer to local companies. Applied research in partnership with industry, in turn, contributes to the updating of competencies developed in

college students and, consequently, to the updating of study programs and the increased proficiency of teaching personnel.

Studies in education and pedagogical research have not ceased expanding since the birth of cégeps. They remain incredibly dynamic and productive at collegial level, asserting themselves and bringing to the collegial network and its educators new solutions and new ideas on learning and teaching processes, as well as factors that hinder or favour academic success. We would be remiss not to also mention the research done daily in school (classroom research) by teachers who do not receive grants but for whom teaching and reflection go hand in hand. As a factor in innovation, research has always played—and will continue to play—a key role the evolution of educational practices in support of academic success.

► SOME DATA ON COLLEGIAL RESEARCH IN EDUCATION, IN PARTICULAR AS CONCERNS PEDAGOGY

For over 25 years, the ministère de l'Éducation du Québec has subsidized up to 40 teaching research projects per year, initially through PROSIP (Programme de soutien à l'innovation pédagogique) then with PAREA (Programme d'aide à la recherche sur l'enseignement et l'apprentissage). Following budgetary cuts in 1996, the annual PAREA budget was reduced from \$6.2M to \$0.7M. As a result, PAREA now subsidizes an average of 15 projects.



Over the years, college teachers and professionals carried out 450 research projects relating to a variety of problems well rooted in collegial reality. Among research topics: didactic and pedagogical practices, critical thought, support measures for success, learning among recent immigrants, an evaluation of the implementation of a virtual diploma of college studies, problem-based learning, social logic that conditions success, the accessibility of students with physical disability, and the review of personal practices through metacognition, to name but a few¹.

In 1981-1982 and again in 2000-2001, PAREA-subsidized reports garnered all the honorary mentions and awards in the category of pedagogical research reports, save one, at the Concours des prix du ministre de l'Éducation. After being temporarily suspended, this category of pedagogical research is back again this year thanks to the recommendation of a work group mandated to study the question. It goes without saying that the quality of the reports produced by

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research subsidized through PAREA is top-notch as confirmed by their many awards and also through evaluations which will be discussed a little later.

Another hot topic, the integration of new information and communication technologies (ICT) in learning and teaching, was the subject of close to thirty research projects carried out by college researchers from 1985 to 2003. After drawing up an inventory of these

reports (2003), the ARC (Association pour la recherche au collégial) used them to carry out a meta-synthesis that was published elsewhere (Barrette 2004a, Barrette 2004b, Barrette 2005), but whose conclusions appear in this issue. Currently, the ARC plans to carry out a 2nd mega research on academic success. Results of this eagerly awaited study were scheduled for compilation and distribution throughout the collegial network at the end of the 2004/2005 academic year.

► RECOGNIZED EXPERTISE AND BENEFITS FOR TEACHING AND THE PEDAGOGICAL WORLD

Collegial level research adheres to rules of excellence and competitiveness similar to those which prevail in other research sectors and has thus earned well-deserved recognition. Since 1978, the white paper² has only praise for its “contribution to the creation of a pedagogy adapted to colleges and the development of teaching methods [and...], its contribution to the development of curriculum and institutional analysis”. In 1987, the University Council (conseil des universités) concluded that the performance of college researchers was similar to those at university level. Two years later, an inter-ministerial committee made up of members of subsidizing institutions, universities, the ministry of Industry and Trade, the Science and technology board (CST), the Conseil des collèges, the Fédération des cégeps and the ministère de l'Enseignement supérieur, highlighted the exceptional performance of collegial research accomplished within programs established by Fonds pour la formation des chercheurs et l'aide à la recherche (FCAR), with technological research and with research on teaching and learning.

More than 10 years later, Brochu (1996) stated that the research files of collegial researchers were comparable to those at university level, regardless of their field of research. The same comments were made regarding technological research. The firm SOM (July 1996), for its part, evaluated the PAREA program and stated that teaching innovations and subsequent benefits resulting from research in education were considerable. It concluded by stressing the importance of maintaining research within a context where pedagogical, computer science and technological changes occur with lightning fast speed, which colleges must absorb. Lastly, the Science and technology board (1999) also concluded that college-level researchers should have greater accessibility to financial backing and funds.

At the collegial level, the research potential is huge and should continue to grow. There will soon be a new generation of teachers who are even more qualified than their predecessors. Even more interesting, new second cycle educational programs are currently being established in colleges—for example, Performa is offering the Diplôme d'enseignement (D.E.) and the Master Teacher's Program (MTP)—both of which can lead to a Master Degree in Vocational Teaching. These programs are quite popular with the teaching body, in whom they nurture the need for research and the practice of reflective thought.

¹ The Web site of the ministère de l'Éducation is open for consultation of the list of projects subsidized by PAREA in the past years. On line [www.meq.gouv.qc.ca/ens-sup/ens-coll/subvention/mparea.asp].

² MINISTÈRE DE L'ÉDUCATION, *Les collèges du Québec, nouvelle étape: projet du gouvernement à l'endroit des CÉCEP*, Québec, ministère de l'Éducation, 1978.



A new conception of the teaching profession is taking shape in colleges, a concept that likens a teacher to a practitioner of reflective thinking, concerned with understanding the factors that favour success or cause failure, whether it has to do with learning styles, teaching strategies, student attitudes, class management, motivation, affective factors or the learning environment, to name a few. Well-established associations such as the Association québécoise de pédagogie collégiale (AQPC), the Association pour les applications pédagogiques de l'ordinateur au postsecondaire (APOP) and the Association pour la recherche au collégial (ARC), not counting the various disciplinary associations, bring together college-level teachers, promote pedagogical exchanges and disseminate the results of research in Education.

As we can see, research has made multiple contributions to the development and practices of colleges: A contribution to technological research, to regional development and to collaborations between colleges and universities, and, of course, the contribution of research in Education to pedagogical innovation, the quality of teaching, the advancement of the different types of personnel, the production of teaching software, evaluation tools and didactic material. To conduct research is also to study what is being done elsewhere on the planet as regards education and, on occasion, introduce in our colleges new approaches or methods of teaching, such as the pedagogy of mastery, or learning to learn. Research results are also very useful for decision-making purposes, as was the case for the college administrators and ministers who consulted this research to set up 'welcome and integration' sessions for new students.

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In a research project, college professors participate actively in international seminars and conferences and the ministère de l'Éducation places at their disposal a subsidy program called programme de Soutien aux chercheurs et chercheuses de collèges (PSCCC) to help them disseminate their research results in the form of scientific articles or papers.

In 1996-1997, the ARC carried out a consultation among college researchers, collecting information on their viewpoints and the impact of their research on their establishments. They mentioned, among themselves, the effect of their research on the definition of curricula and teaching content, notably in social sciences, information technology, mathematics, French, in secondary languages, physical education, office automation, nursing care, police techniques and guard service techniques.

According to them, research impacts the organization of teaching, the definition of exit profiles and comprehensive program assessments, the development of institutional policies on the evaluation of learning, the evaluation of programs, the implementation of welcoming and integration programs, the detection of high-risk students, and the fine-tuning of transition measures between the secondary and collegial levels, to name a few. They also mention the impact on pedagogical

activities in colleges, multiculturalism, student characteristics, failure and abandonment, male student success, school dropouts, the use of computers and information technologies for teaching and learning purposes, and the accessibility of college studies for students with physical impairments, among others.

► HOW TO FOSTER SYNERGY BETWEEN PRACTICE, RESEARCH AND INNOVATION

The question of synergy between practice, research and innovation is a keen point of interest for the ARC. We just established the credibility and pertinence of research at collegial level. To favour the synergy between practice, research and innovation, we need to position research in a broader context, as illustrated in figure 1. The synergy between practice, research and innovation depends on the dynamics that regulate the three poles of this triangle.

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For decision-makers it is important to recognize the primary and central role of the practitioner and support his research initiatives, his efforts for innovating in the field and help him reinvest in the classroom and in the college what he learns from research to favour synergy. On this line of thought, the ARC proposed in 2002 to the now-defunct ministère de la Recherche, de la Science et de la Technologie—the current ministère du Développement économique, de l'Innovation et de l'Exportation—32 measures (see text in box on page 5).



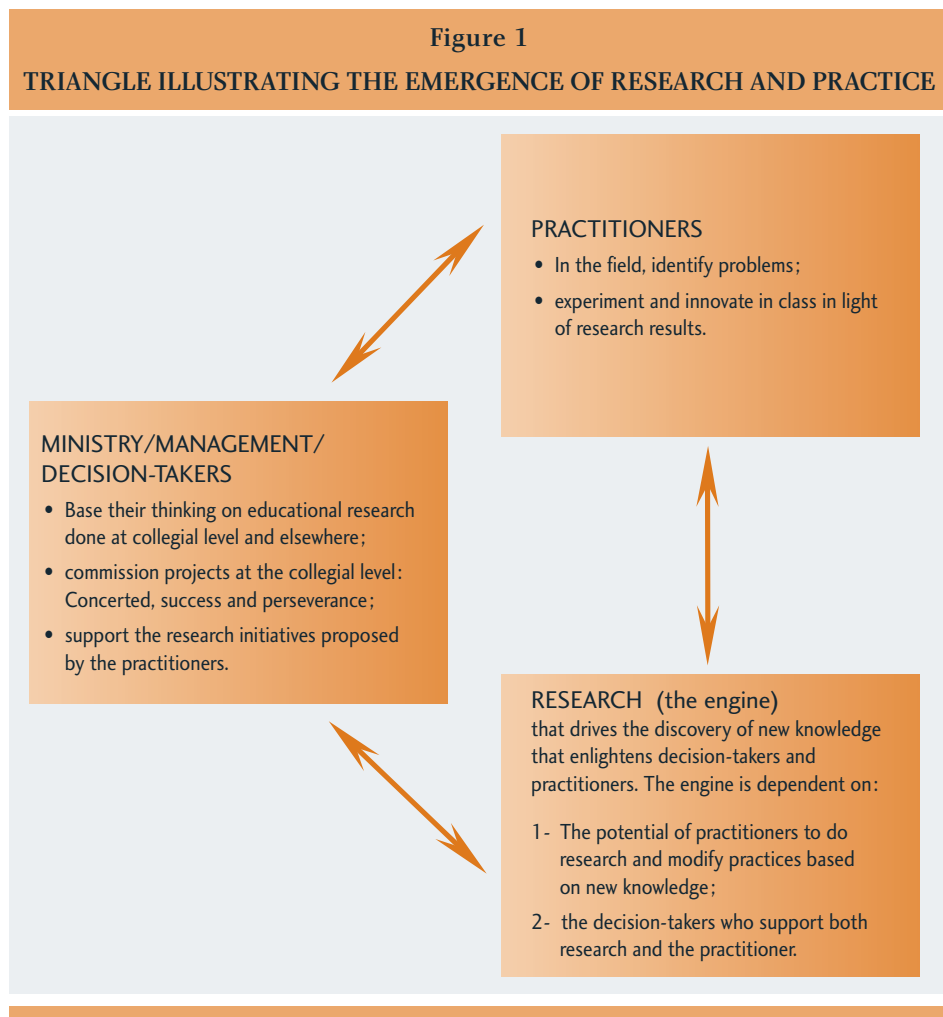
For decision-makers, it is crucial to acknowledge the primary and central role that could adopt the ministries, universities, research funds, college administrators and the Fédération des cégeps to support collegial research. It would also be desirable for the government to review the mission of colleges to include research in a less timid role, which would enable the teacher to assume his role as a practitioner of reflective thinking. It would be beneficial to regularly assess the effects of research on the quality of teaching.

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For the practitioner, it is a question of re-conceptualizing the teaching profession, of blending pedagogical and disciplinary knowledge, of questioning one's own practices and equipping ourselves with research methodology to be in a position to provide valid answers to the challenges of learning and teaching.

The researcher must create new realms of knowledge while respecting the rules of excellence and reliability that prevail in the research community. In this sense, we suggest to aim for and favour inter-level collaborations, that is, between elementary, secondary, university and collegial environments. In addition, we believe that it would be interesting to ensure a broad dissemination of research results and their popularization to enable all practitioners to access and profit from them. Finally, it would be relevant to become aware of the impact of research on practices and innovation.

It is an absolute necessity for these three interdependent poles to work together to create a genuine synergy between practice, research and innovation. ◀





LIST OF 32 MESURES IN SUPPORT OF COLLEGIAL RESEARCH

1. Encourage colleges, via their decision-takers, to clarify their research mission. This measure is aimed, among others, at taking research into account in the actual work of teachers or at freeing up teachers for tasks other than teaching, research for instance. It also recommends to include, in explicit manner, disciplinary or fundamental research in the Law on colleges. In addition, the admissibility of professional staff members to the subsidy program still remains to be clearly defined, since, except for research in Education, they do not have access to programs available to teachers.
2. Take into account research performance for obtaining subsidies, and research productivity when doing institutional evaluations.
3. Provide colleges with incentives to enable them to house, promote and concretely support research activities. It would be necessary to consider an infrastructure budget in order to facilitate the preparation of subsidy requests and the start-up of new research projects. For example, this could take the form of a minor reduction of teaching duties as well as the granting of an operating budget combined with an evaluation mechanism to ensure the good use of this fund.
4. Provide a research local, access to a computer and the Internet, to a research laboratory and to subsidy administration services.
5. Encourage the recourse to consultation, methodology and mentoring services.
6. Financially support teaching establishments so they can assure the coordination of research: Preparation of subsidy requests, management of infrastructure budgets, dissemination of information and promotion of research.
7. Require that each college, whether active or not in research, endow itself with an ethics committee and an institutional research policy, or place at the disposal of the network a provincial ethics committee or regional ethics committees.
8. Enable researchers who retire to maintain an affiliation with their college, grant them, as needed, a (non-salaried) status of professor emeritus or associate researcher. The cost of this measure is quite minimal and could be limited to publication and communication charges.
9. Contemplate official recognition formulas for college researchers who are members of a university team. This would allow, if necessary, a collegial researcher to be in charge of a team.
10. Enable researchers who are not in a collaborative research project with Québec university teams to either develop collaborations with universities outside Québec, or be eligible for individual research subsidies.
11. Facilitate the obtaining of a university status (associate), an adjunct that would give the collegial researcher the right to supervise university students.
12. Within a university team, take into account the real contribution of a collegial researcher to the project to establish the portion of the budget that should be his, rather than limit this portion to a standard amount (often set at \$7,000).
13. Make sure that an amount allocated to a team (with one member from the collegial level) is available in its entirety to the collegial researcher.
14. Enable collegial researchers who are members of a university team to have access to university research locals, given that these locals are entirely funded by the government.
15. Relieve from regular teaching functions, collegial researchers who receive subsidies from the Social Sciences and Humanities Research Council (SSRC) or other research organizations who allocate no resources for freeing up teachers from their teaching functions.
16. Do everything possible to see to it that collegial teachers benefit from conditions comparable to those of the university researchers on his team.
17. Encourage the three Québec research funds, that is, the Fonds de la recherche en santé (FRSQ) the Fonds de recherche sur la nature et les technologies (FQRNT) and the Fonds québécois de la recherche sur la société et la culture (FQRSC) to offer individual subsidy programs.
18. Encourage the three Québec research funds, that is, the FRSQ the FQRNT and the FQRSC to allow the formation of collegial teams.
19. As is the case in universities, continue to offer individual subsidy programs to retired collegial researchers, enable them to keep an ongoing affiliation with their alma mater and even allow them to continue their research as members of a team.
20. Increase the resources available to collegial researchers, come back provisionally to a bank of 125 positions, and increase this according to need.
21. Grant an exemption from teaching to collegial researchers who receive a subsidy from the SSCHRC or the Natural Sciences and Engineering Research Council of Canada (NSERC) or other research organizations that only allocate operating budgets—and do this systematically.
22. Clarify the eligibility rules of the MEQ that govern assistance to researchers, as regards publication and communications, within the programme de Soutien aux chercheurs et aux chercheuses de collèges (PSCCC). While we fully understand the sound basis for insisting that researchers initially present their research results here in Québec, mechanisms should be put in place so as to not penalize those who present their results at international conferences before presenting them in Québec.
23. Within the scope of a research project subsidized by the PAREA program, make it possible for researchers to call on the services of second-cycle students to carry out certain parts of the work, in order, among others, to provide additional training environments for these students.
24. Make sure that collegial researchers are well represented on various committees of subsidizing organizations, including evaluation committees.
25. Assure the electronic transmission, to all colleges, of updated lists of all available subsidy programs and organizations.
26. Facilitate the connection between collegial researchers subsidized by the Programme d'aide à la recherche sur l'enseignement et l'apprentissage (PAREA) and university education faculties to increase the number of collaborations and mixed teams.
27. Allow collegial research teams to apply for grants in fundamental and applied research provided by research subsidizing agencies or organizations.
28. Allow teachers who do not yet hold a doctorate degree to be eligible for the subsidy programs of the FRSQ, the FRSQ, and the FQRSC.
29. Favour the creation of research centres originating in colleges.
30. Assess the relevance of having the ministère du Développement économique, de l'Innovation et de l'Exportation designate someone to oversee this file and all connected matters that relate specifically to the collegial environment.
31. Facilitate the access of researchers to information by providing the ARC with the means of setting up and keeping up to date a repertory on the Association's Internet site. Such a repertory could include a databank of collegial researchers, the list of subsidy programs, a resource databank (consultants, mentors, coaches, data analysis services, and others), as well as the list of organizations and associations in the field of research. This complete repertory dedicated to collegial research would constitute a powerful information tool to counter the current fragmentation of information and isolation of collegial researchers.
32. Provide the ARC with the means to implement a communication plan whose goals would be the sensitization, support, and revival of collegial research as regards the teaching staff at cégeps.



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Since her early days in collegial teaching, Lynn LAPOSTOLLE has always shown a keen interest in "Remedial pedagogy" in French. During her career, she assumed co-responsibility for the French assistance centre and the Project to improve written French at Cégep du Vieux Montréal, and was editor in chief of the newsletter *Correspondance*, dedicated to improving French in the collegial environment. In 2000, she undertook a two-stage research: *Les garçons et les mesures d'aide* followed by *Pour une amélioration du français chez les garçons* and, in 2004, another one entitled, *Famille, réseaux et persévérance aux études collégiales*, carried out by an inter-level and intercollegial team. Secretary of the Association for la recherche au collégial from 1998 to 2004, Lynn is now general manager of the organization.

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