

Cape Breton University
Annual Research Report
2015

Introduction

This is the third annual research report for Cape Breton University. This report covers the period April 1, 2014 to March 31, 2015. The fiscal year was chosen as the reporting period to coincide with the CAUBO annual financial reports. As was the approach in past reports, much of the data presented is based on rolling three year averages in order to provide a more realistic picture of the research environment at Cape Breton University, as one or two grants individually can have a large impact on the figures by year.

In an effort to present a more holistic view of all research activity taking place at CBU, the data reported here covers a range of activities. These include success in obtaining research funding, scholarly articles published, dissemination of research findings and commercialization and industry engagement. While these factors are important, we also illustrate how the research that takes place here has an impact outside of CBU. Our intention is to highlight research successes and note challenges that CBU faces moving forward.

Data sources used in the preparation of the report: Financial data were taken from the CAUBO website. Some data for academic publications was obtained from *Web of Knowledge*¹. Industry engagement metrics were taken from the annual Springboard Atlantic reports. In addition, CBU researchers were asked to self-report via a survey related to research activities to gather some of the other data². Profiles of researchers were taken from the upcoming edition of CBU's research magazine, *Research Matters*.

1. Research Highlights

As is evident throughout this report, CBU researchers remain active and engaged in research across the fields. The three stories presented here serve as example of some of the research on-going at CBU.

Peter MacIntyre, Professor of Psychology, Winner of the 2015 President's Award for Excellence in Research

Dr. Peter MacIntyre is Professor of Psychology and the 2015 winner of the Cape Breton University President's Award for Excellence in Research. Having published extensively on the psychology of language learning, Dr. MacIntyre has over the course of his career become a leading innovator in his field. Most recently he co-authored *Capitalizing on Language Learners' Individuality* (2014) with Tammy Gregersen and co-edited *Motivational Dynamics in Language Learning* (2015) with Zoltán Dörnyei and Alastair Henry. The latter boldly reimagines the methodology of data collection in language learning.

According to Dr. MacIntyre, one of the most interesting innovations in his work has been investigating the use of happiness in language learning. "There has been surprisingly little research on positive emotion in language learning. I think most everyone recognizes the value of positive emotion but it simply has not been a research area. Anxiety has been well studied and we

¹ *Web of Knowledge* is a Thomson Reuters product that searches Science Citation Index Expanded 1989 – present, Social Sciences Citation Index 1989 – present, Arts & Humanities Citation Index 1989 – present, Conference Proceedings Citation Index- Science 1990 – present, and Conference Proceedings Citation Index- Social Science & Humanities 1990 – present.

² 68 responses were obtained

know quite a lot about the cognitive, academic, social, and even physical effects of anxiety arousal. We know much less about the specific consequences of enjoyment, for example.”

Dr. MacIntyre is currently preparing to release another book in the same field in 2016.

Marcia Ostashewski, Assistant Professor of Ethnomusicology, Tier 2 Canada Research Chair (Communities and Cultures)

Since Dr. Marcia Ostashewski’s first academic inquiries in Cape Breton in 2008, there has been a strengthening bond between academics and local ethnic communities—between the people, their histories and practices. Supported by a Visiting Research Fellowship with the Centre for Cape Breton Studies, and then a Postdoctoral Research Fellowship from SSHRC, Dr. Ostashewski first worked with local Ukrainian communities but has since expanded her research program to include a greater diversity of Eastern and Central European communities in Cape Breton to include Cape Bretoners of Polish, Croatian, Jewish, Hungarian descent; Nova Scotians of African ancestry; and other local ethnocultural communities. Since 2005, Ostashewski has been involved in collaborative projects with First Nations and Metis, particularly ones that explore encounters between indigenous and non-indigenous groups. In 2015, she expanded her research beyond ethnocultural communities to work with at-risk youth and other local interest groups.

The scholarly work of Dr. Ostashewski tends to align with a broader project of community engagement. She explains that “my aim, in working with communities, is to find ways in which I can contribute - and I am very grateful to those communities who have welcomed me, my students and colleagues to work with them as they build on their strengths, address their challenges, and celebrate their communities.”

Catherine Leviten-Reid, Associate Professor, Community Economic Development

Dr. Catherine Leviten-Reid, Associate Professor in the MBA in CED program, does research on housing and social economy organizations (non-profits and co-operatives). She is currently conducting an inventory of rental housing in the Cape Breton Regional Municipality in partnership with Cape Breton Community Housing. This project involves capturing vacancy rates, rents, and the location of rental housing vis-à-vis important services in the community. Tenants of this rental housing will also be approached as part of the research project as a way to understand the quality, affordability and security of rental housing in the community in which CBU is located. That research is funded by the Homelessness Partnership Strategy.

Dr. Leviten-Reid’s research is not only helping local organizations transition to ‘housing first’ (meaning that individuals on the margins are placed in housing and have access to services as a way to help them get back on their feet), but is also informing policy and housing literature. Most of the housing research in this country is conducted in cities like Winnipeg and Toronto. Meanwhile, at a policy level, the Canada Mortgage and Housing Corporation takes the pulse of the rental housing market in communities like CBRM by collecting data from buildings with three or more units in them. In CBRM, however, the rental housing universe looks quite a bit different.

2. Research Funding

To create a picture of where CBU is situated in regards to research activity, we have selected a group of universities across Canada that we consider comparable to us based on their programming and overall size in terms of student numbers. We do so, recognizing that exact comparisons are not possible given the unique nature of research and institutions. Our comparison group for our purposes here are: Acadia University, Bishop's University, Brandon University, Mount Allison University, Mount Saint Vincent University, Nipissing University, Saint Francis Xavier University, Saint Mary's University and Université de Moncton. The data for these individual universities is presented in anonymous form in the following tables and charts. The total research funding presented below was taken from Table 3.1 from the annual CAUBO reports³. The number of faculty at each university was taken from the Statistics Canada University College Academic Staff Survey⁴ in the absence of any current consistent sources of such information. It is noted that this data will need to be reviewed and updated in time for the 2015/16 Annual Report.

Table 2.1 and Chart 2.1 show the average funding per faculty member between 2008-10 and 2012-14 (CBU data is available for 2013-15). Recently, overall funding at all but one of the universities has increased. While from 2008 to 2014, the total research funding at Canadian universities increased by 9% from \$6.1 billion to \$6.5 billion, the total research funding awarded to CBU and its peers has dropped from \$57 million to \$52 million, resulting in a decreased share of the research budget from 0.9% in 2008 to 0.8% in 2014. The three-year rolling figures also reflect this decrease, with CBU and its comparators receiving over \$5 million less of the research budget in 2012-14, compared with 2008-10. CBU maintained a rank of fifth among these universities.

Table 2.1 Total Research Funding per Faculty Member

University	2008-10	2009-11	2010-12	2011-13	2012-14	2013-15
CBU	\$23,878	\$20,902	\$21,832	\$22,528	\$28,033	\$32,699
A	\$8,513	\$7,596	\$8,602	\$12,058	\$13,877	
B	\$12,564	\$10,624	\$10,092	\$10,828	\$12,341	
C	\$23,387	\$23,375	\$22,331	\$19,579	\$19,508	
D	\$24,601	\$24,705	\$26,506	\$27,142	\$28,087	
E	\$17,069	\$12,804	\$13,588	\$13,721	\$14,903	
F	\$28,051	\$26,356	\$28,737	\$31,404	\$33,489	
G	\$25,699	\$25,211	\$23,020	\$22,309	\$24,336	
H	\$38,241	\$34,455	\$32,840	\$31,893	\$33,291	
I	\$41,653	\$33,965	\$31,485	\$32,063	\$33,815	
Average	\$26,361	\$23,824	\$23,331	\$23,626	\$25,416	
CBU Rank	6	7	7	5	5	

^a Average over the three year period indicated

^b 2014-15 Data for other universities will not be available until June 2016

³ There was a change in reporting practice for CBU in 2011. To enable an accurate comparison, the values for 2008 – 2010 were adjusted to use the current reporting practice. The unmodified values are reported in the 2013 Research Report.

⁴ The survey ended in 2010 and since were assumed to be the same as the 2010 data. This may lead to slight inaccuracies in the comparisons. It is recognised that a more accurate data source needs to be identified for 2015/16, as this information continues to lose currency and value.

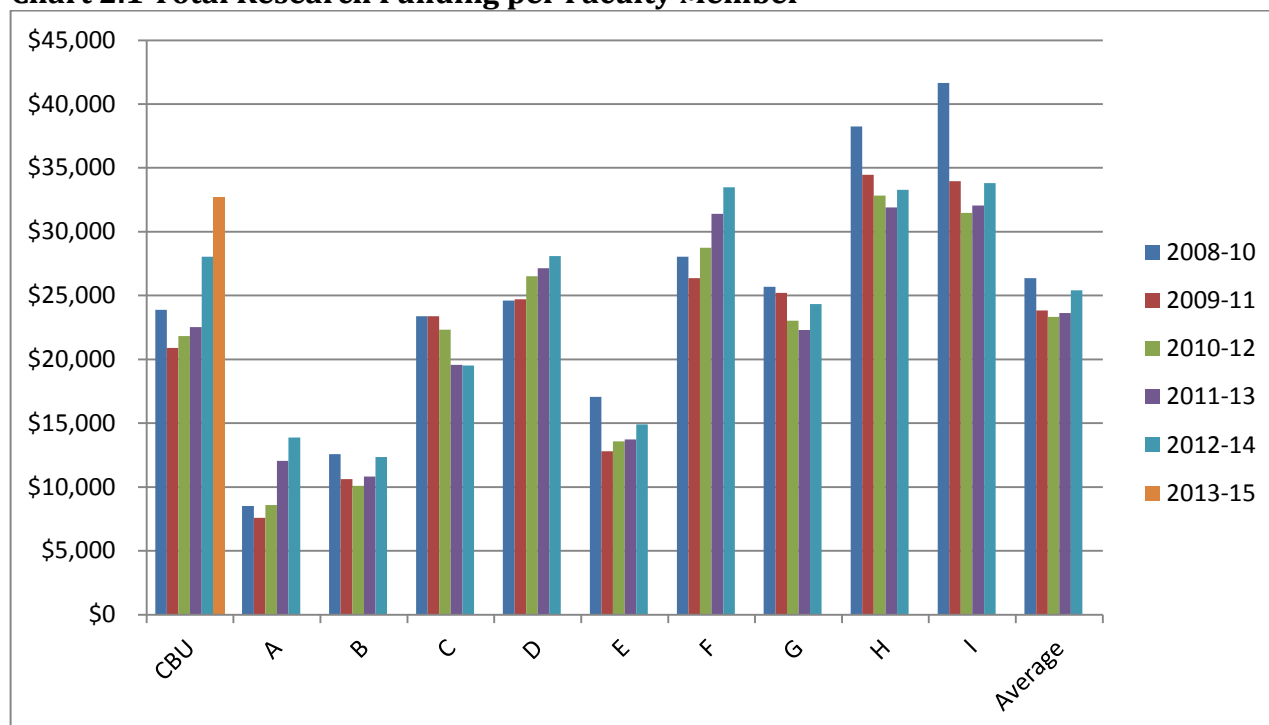
Chart 2.1 Total Research Funding per Faculty Member

Table 2.2 shows the breakdown of CBU research funding by source.

Table 2.2 CBU Research Funding^a

Funding Source	2008-10	2009-11	2010-12	2011-13	2012-14	2013-15
SSHRC	\$107,000	\$86,000	\$198,000	\$173,000	\$217,000	\$196,000
Health Canada	\$6,000	\$6,000	\$6,000			
NSERC	\$203,000	\$184,000	\$134,000	\$173,000	\$157,000	\$173,000
CIHR	\$12,000	\$14,000	\$13,000	\$14,000	\$13,000	\$11,000
CFI	\$156,000	\$32,000	\$183,000	\$289,000	\$284,000	\$341,000
CRC	\$490,000	\$457,000	\$419,000	\$350,000	\$291,000	\$258,000
Other Federal	\$471,000	\$475,000	\$482,000	\$462,000	\$760,000	\$1,281,000
Nova Scotia	\$291,000	\$196,000	\$321,000	\$340,000	\$891,000	\$855,000
Not for Profit	\$140,000	\$159,000	\$219,000	\$126,000	\$173,000	\$156,000
Business		\$63,000	\$246,000	\$395,000	\$385,000	\$421,000
Miscellaneous	\$985,000	\$900,000	\$465,000	\$450,000	\$276,000	\$331,000
Total	\$2,862,000	\$2,571,000	\$2,685,000	\$2,771,000	\$3,448,000	\$4,022,000

^a Average over the three year period indicated.

From 2008–2015, the Tri-Agency funding has shown an increase from \$322,000 to \$380,000, with the majority (ranging 88 – 100% over the 7 year period) coming from NSERC and SSHRC combined funding. The shift in distribution of funds from NSERC to SSHRC also continues to be noticeable; during the period covered by 2011-13, these funding sources had parity, whereas by 2013-15, SSHRC constitutes approximately 52% of these income streams. In reality, this reflects the impact of changes to the respective programs and the funding landscape.

CFI funding has increased since 2008-10 and has grown substantially over the past three years. This is related to faculty hires in the previous year and the continued focus by the ORGS on ensuring that CBU's CFI allocation is used. While the current CFI allocation is close to depletion, a new CFI allocation will be available in 2017. CRC funding declined from \$490,000 in 2008-10 to

\$258,000 in 2013-15. This is due to a reduction of CBU's chair allocation from 5 to 4 (in 2008) to 3 (2010)⁵. This reduction is directly due to a reduction in Tri-Agency funding (while CBU's Tri-Agency funding actually increased, it accounts for a smaller percentage of the total Tri-Agency funding). The funding received from the NS government through the NSRIT has stabilized at \$855,000 in 2013-15.

Business funding reached \$421,000 in 2013-2015. The sustained growth in this area of funding reflects the work undertaken by the Industry Partnerships & Research Commercialization Manager in generating this income. Research funding from other federal sources remained steady around \$475,000 from 2008-10 through to the 2011-13 time period. That number increased in 2012 and again in the 2013-15 reporting period sitting now at \$1,281,000. Miscellaneous research funding decreased over the last 8 years from \$985,000 to \$331,000.

In 2013, the total research funding had stabilized around \$2.8 million. Significant jumps in the past two years have caused the total to grow to \$5.3 million in 2015. This is summarized for individual years in the Table below.

Table 2.3 CBU Research Funding by Year (in 000s)

Funding Source	2008	2009	2010	2011	2012	2013	2014	2015
SSHRC	\$ 118	\$ 47	\$157	\$53	\$384	\$ 81	\$187	\$320
Health Canada			\$17					
NSERC	\$244	\$303	\$62	\$186	\$153	\$179	\$138	\$202
CIHR		\$7	\$30	\$4	\$6	\$33		
CFI	\$403	\$65		\$31	\$517	\$320	\$16	\$686
CRC	\$500	\$513	\$458	\$400	\$400	\$250	\$223	\$300
Other Federal	\$447	\$379	\$586	\$459	\$402	\$525	\$1,353	\$1,965
Nova Scotia	\$373	\$313	\$187	\$89	\$686	\$245	\$1,743	\$576
Not for Profit			\$420	\$56	\$181	\$140	\$199	\$129
Business				\$190	\$548	\$446	\$162	\$656
Miscellaneous	\$777	\$1,649	\$530	\$522	\$342	\$485		\$507
Total	\$2,862	\$3,276	\$2,447	\$1,990	\$3,619	\$2,704	\$4,021	\$5,341

3. Highly Qualified Personnel (HQP) Training

Figures presented in the HQP section of the Annual Report are drawn from the 2015 employee survey and covers the period between April 1, 2014 and March 31, 2015. The results of this survey are presented in Table 3.1. While primarily an undergraduate university, 18 researchers reported holding adjunct appointments at other universities giving them the opportunity to supervise or co-supervise graduate students. In the past year there has been a dramatic increase in supervision/co-supervision activities for graduate level and above and for technicians. Since becoming functional and growing over the past two years, a number of CBU's CFI spaces have taken on many more undergraduate and graduate students. Similarly, as predicted in last year's Annual Report, the number of postdoctoral researchers and technicians has increased substantially. These numbers allow us to conclude confidently that faculty are supervising more students and disseminating more research. This trend is doubly impressive since there was a decline of almost 20% in the number of respondents to the 2015 faculty research survey.

⁵ Total of Tier I and Tier II chairs with Tier I counting as two Tier II chairs.

Table 3.1. Research Assistants Supervised and Co-Supervised

Research Assistants	Supervision			Co-Supervision		
	2013	2014	2015	2013	2014	2015
Undergraduates	123	119	134	31	31	59
Graduates	40	50	92	25	35	95
Post-doctoral Fellows	2	7	7	2	0	10
Technicians	7	15	13	1	8	18
Other	15	28	53	7	9	24

4. Industry Engagement

CBU's commitment to working with industry partners has continued over the last year as faculty from across many disciplines continued to be engaged in a variety of small and larger collaborative projects aimed directly at solving industry research and development problems. These projects take advantage of faculty expertise and benefit from our well-equipped labs and involve undergraduate and graduate students as well as post-doctoral fellows. Many of these projects start off as small R&D collaborations but, as research progresses and results are delivered new areas for exploration are identified and the partnership grows into larger partnerships.

Table 4.1 Industry Engagement Activities

Activity	2013	2014	2015
NRC-IRAP Projects	2	14	13
Tri-Agency Industry Partnership Grants	2	3	6
Provincial Funded Industry Projects	3	4	5
Industry R&D Contracts (no sponsored funding)	-	14	10
ACOA AIF Projects (subcontract)	1	1	1
Industry Workshops	8	9	9

Collaborative R&D projects have benefited from access to a variety of government funded programs including Springboard Atlantic Inc., NSERC, NRC/IRAP and Mitacs. Additionally, industry sponsored projects, research for government departments and community organizations, knowledge mobilization initiatives and various mentorship engagements through working with SMEs and startups have grown. Outreach to the business community continues through a commitment to leading regular industry-university workshops, seminars and educational sessions which have been run by internal and external experts. These sessions are aimed at increasing the expertise within the community while developing new opportunities for collaborations.

"Chelation Partners has been working closely with Cape Breton University and we have benefitted enormously from the exceptional team that has worked with us over the past year. Technically, the staff is absolutely top notch. Administratively, the staff is flexible and extremely supportive. The infrastructure that CBU has is amazing. It has been a real pleasure to work with CBU."

Bill Cheliak, PhD
VP Business Development
Chelation Partners Inc

5. Knowledge Creation and Mobilization

As CBU's research culture continues to grow, so too do the methods of dissemination. As seen in the table below, the annual employee survey collects data on numerous methods of dissemination. Knowledge Creation and Mobilization activities were captured through the faculty survey and are reported for the period April 1, 2014 to March 31, 2015. Table 5.1 present the results obtained from this survey.

Table 5.1 Knowledge Creation and Mobilization

Dissemination Method	2013	2014	2015
Academic Articles	96	103	131
Arts Exhibitions			7
Books	14	9	14
Chapters	48	42	39
Introduction/Preface	9	5	4
Conference Presentations	234	227	227
Conference Organization	40	41	38
Journal Editor	30	35	15
Articles Reviewed	197	247	294
Community Events	120	135	133
Newspaper Articles	39	43	79
Radio	96	83	104
Television	29	19	12
Expert Advice	61	59	113
Policy	23	20	30
Blogs	56	37	13
Videos	31	21	32
Websites	27	31	45
Other Media	5	14	25

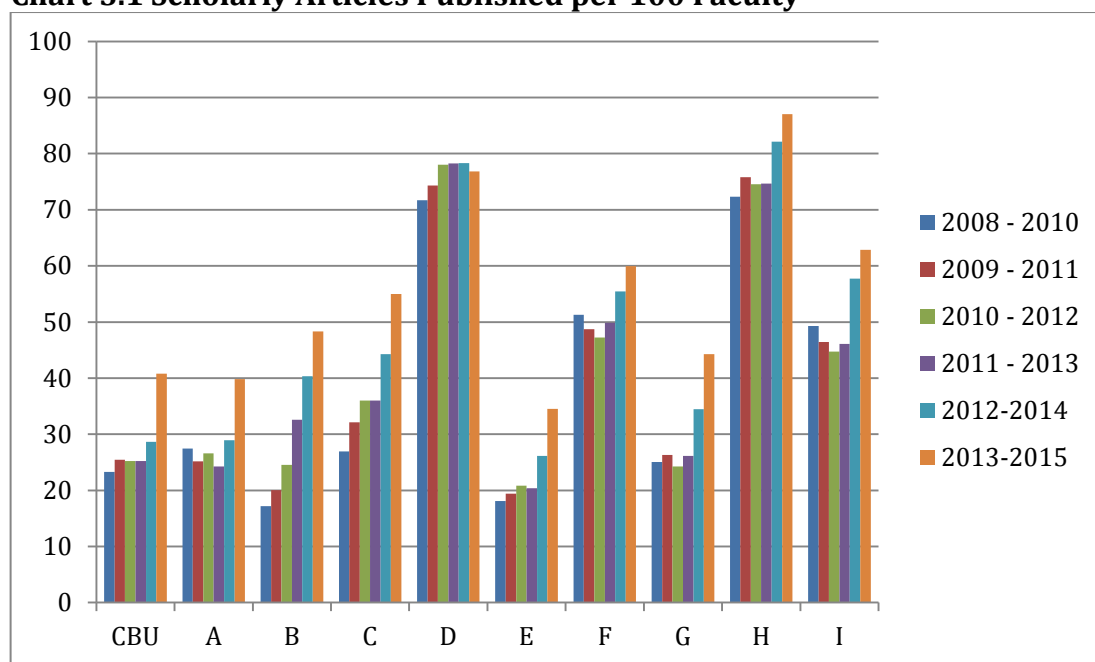
Chart 5.1 Scholarly Articles Published per 100 Faculty

Chart 5.1 shows the scholarly articles published per 100 faculty member per year for the comparison group. These data were obtained from *Web of Knowledge* and are for calendar year as opposed to fiscal year used for the rest of the data in this report. It is important to note that *Web of Knowledge* databases do not capture all publications and hence this data does not represent a complete picture of publication activity at CBU. Chart 5.1 shows that while the numbers of scholarly articles published annually has increased significantly in the last three years, CBU continues to be ranked 7th or 8th in its comparison group.

6. Research Collaborations - Internal, regional (Atlantic), national and/or international

Table 6.1 Collaborations

Collaboration	2013	2014	2015
Internal to CBU	68	74	124
With Community	39	56	70
With Other University	92	97	135
With Industry	17	41	73
With Nongovernmental Organization	27	30	53
With Government Agency	30	28	65

7. Research Environment

CBU's research environment continues to benefit from increased external funding in 2014-15 as well as from the vibrant research culture that has flourished at the same time. The research culture that continues to grow and deepen continues to foster student engagement. As exemplified through the SnapShot Thesis series that allows students to refine and orally present their major research projects in a challenging forum, high participation in the Summer Student Lecture Series and the steadily increasing presence of undergraduates in CFI labs, CBU's research culture appears to be successfully permeating undergraduate experience.

Student Profile: Yvette Sylliboy BA (Sociology) 2015

L'nui'sultimkeweyo'kuom, the language lab at Unama'ki College, has become a training ground for new students in Mi'kmaq studies and linguistics. Recent CBU graduate Yvette Sylliboy for the last year has been part of the important work happening at L'nui'sultimkeweyo'kuom. Yvette grew up and currently lives in Eskasoni and has been working in L'nui'sultimkeweyo'kuom since May of 2015. Yvette took classes with Dr. Stephanie Inglis of Unama'ki College and began working alongside her at L'nui'sultimkeweyo'kuom. Though she started her university career in Sociology, Yvette contextualized her education in her community.

Community Inroads: Cooperative Study Club

The Cooperative Study Club is an addition to CBU's robust community initiatives, but it draws upon principles of cooperation that have been well ensconced in Cape Breton for nearly a hundred years.

The CSC draws its inspiration from the study clubs famous during the Antigonish Movement. These Clubs would meet in homes on an ongoing basis and each member would read and research, sharing their knowledge with the group. In the spirit of Rev. Jimmy Tompkins, the Cooperative Study Club brings together academics and people in the community in a level, unpretentious knowledge-sharing environment. The Cooperative Study club was initiated by CBU's Major Research Projects Officer, Dr. Jodi McDavid and is supported by funding from SSHRC and CBU.

Internal Funding

The CBU research environment continues to support researchers via its internal grant process which is overseen by the ORGS and provides funding for both Start-up and Research Policy (RP) Grants. Start-up grants, aimed at new tenure-track faculty, provide up to \$2,000 and during 2014/15, 8 projects were granted support. RP grants are managed in a calendar year, with funding rounds held up to twice a year (Winter and Fall terms) to fund a maximum of \$8,000 per applicant. During 2014-15, the Winter and Fall rounds resulted in 39 projects being funded.

Chart 7.1 RE/AC submissions

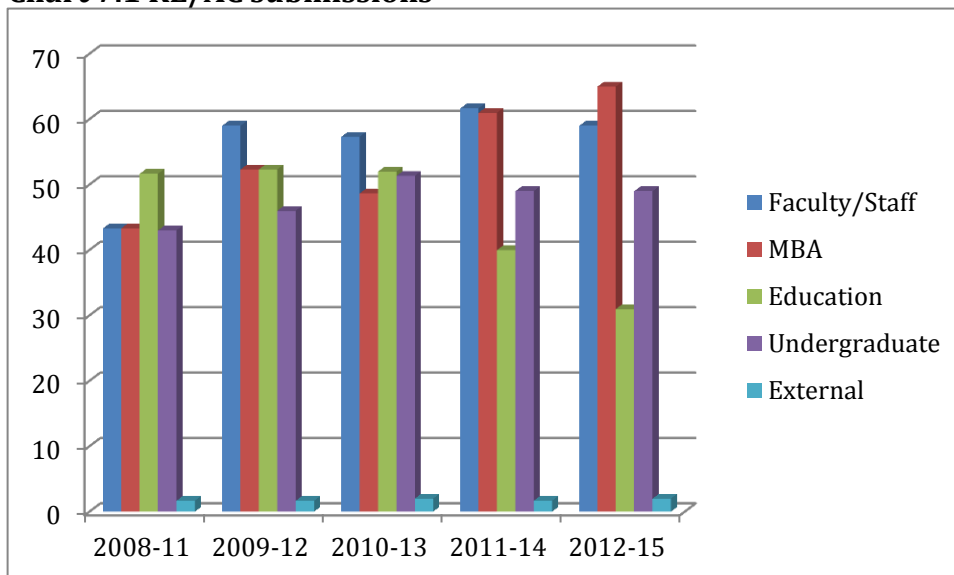


Chart 7.1 shows the Research Ethics Board and Animal Care Committee submissions over the period of 2008-11 to 2012-15. Submissions by faculty have increased by 37% in that period. MBA students' applications have increased by nearly 50%. Submissions from the post-degree Education diploma and certificates are showing a continued decrease in numbers of submissions, as are undergraduate projects. This may reflect the fact that projects are more likely to be undertaken by groups rather than individuals. Overall, there is an increase of 13% in RE/AC activity which reflects the increasing trend in research activity at CBU. REB also continues to conduct reviews for a small number of external research projects.

8. Concluding remarks

The consistent growth we've seen in past years is undoubtedly linked to the incremental increases in external funding grants over the past number of years. The extraordinary increase in overall research funding may not be anomalous, but rather reflects the culmination of a deluge of excellent work in a number of fields. It is also consistent with the gradual upward trend in research funding over the last seven years. CBU provides excellent opportunities for students to become directly involved in supporting research activity, in part through its policy of awarding internal grants to faculty and research staff. Table 8.1, which is based on summary data drawn from other sections of this report, demonstrates the growth in research activity across a number of areas:

Table 8.1 Growth of Research Activity in CBU Between 2013 and 2015

Activity	% change since 2013
Dissemination (all categories)	15.8
Dissemination (publications, conferences, reviewing)	11.7
Collaborations (all)	47.5
Supervision (all)	50.1
Adjunct appointment	0
Industry engagement activities (all)	73.7
RE/AC submissions (all)	9.8

Last year, the Annual Report cautioned that in spite of the positive trends, CBU still faced serious challenges in attracting new external funding. Funding challenges for smaller universities overall, particularly from traditional sources, are still a concern. Still, this year's substantial increase in total external funding bodes well for facing that challenge. Rather than a statistical aberration, this increase might be understood as part of a consistent and sustainable trend in CBU's research environment.

List of Abbreviations

AC	Animal Care
ACOA AIF	Atlantic Canada Opportunities Agency – Atlantic Innovation Fund
CAUBO	Canadian Association of University Business Officers
CCBS	Centre for Cape Breton Studies
CFI	Canada Foundation for Innovation
CIHR	Canadian Institutes of Health Research
CRC	Canada Research Chair
FYE	Fiscal Year Ending
HQP	Highly Qualified Personnel
NRC-IRAP	National Research Council – Industrial Research Assistance Program
NSERC	Natural Sciences and Engineering Research Council
NSRIT	Nova Scotia Research and Innovation Trust
ORGS	Office of Research & Graduate Studies
RE	Research Ethics
SSHRC	Social Sciences and Humanities Research Council