



The College of Biological Science Office of
Educational Scholarship and Practice
at the University of Guelph:
Year Three Report

August 2019

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Prepared for:

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EXECUTIVE SUMMARY

After setting foundations and processes in Year One, building effective communication during Year Two, the goal of Year Three of the COESP (roughly June 2018 to June 2019) was to act on our value of Inclusivity, broadening our reach by creating the COESP Teaching Network (CTN) and actively including Graduate Students and Postdoctoral Fellows in our work. Success in this endeavour was demonstrated through a large contingent of graduate students attending COESP Day and robust participation by both graduate students and postdocs in a 10-week summer seminar group focused on SoTL in STEM coordinated and facilitated by COESP. Further, we initiated postdoctoral representation on the COESP Steering Committee, recruiting Marjorie Sorensen to the position. Finally, we hired Dr. Jason McAllister as a part-time staff member to organize, build, research and facilitate COESP activities. Having Jason on the COESP has made a fantastic impact!

Establishing the CTN ushered in a new era of engagement among the teaching community in CBS. With over 300 members, including Faculty, Graduate Students, Postdoctoral Fellows, Teaching Staff, and affiliated individuals across CBS and the University, the CTN represents a unique opportunity to promote COESP to a large and inclusive audience. Weekly posts provide content within the teaching and learning sphere, with a specific focus on CBS.

Year Three also saw COESP conduct a survey with three goals: to determine the awareness of COESP, its perceived value, and how to increase the value of COESP. Results indicated that awareness and perceived value of COESP was high. Results of the survey indicated potential gains by reducing barriers to classroom observation, and this will be a focus of resources developed in Year Four. Appendix I contains a full report of survey results.

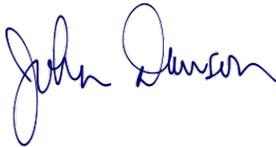
COESP was well represented at a multitude of conferences throughout Ontario and beyond, providing the opportunity for COESP-sponsored participants to share their research and network, as well as return with interesting research and applications to share with the teaching and learning community in CBS. Specifically, COESP Travel Awards sponsored attendance at conferences for Graduate Students, Teaching Staff, and Postdoctoral Fellows; further increasing our support of these important groups that were our focus in Year Three.

COESP funding of Course Improvement Grants in Year Three saw four fantastic innovations initiated, with interest extending far beyond the individual course or instructor. For example, the implementation of Raspberry Pi microcomputers in a botany lab was shared with groups within CBS and internationally, and the development of an electronic textbook funded by a Course Improvement Grant perpetuated the initiation of similar projects in other courses.

In Year Three, COESP organized a schedule of speakers and events to bring advances in scholarship and innovation in teaching and learning to CBS. From creating and utilizing video in teaching, to collecting data on learning activities in the classroom, COESP-sponsored speakers brought directly applicable resources to CBS. Sharing applications was a continued theme at the COESP Day, as CBS Teaching Staff demonstrated their recent innovations in teaching and learning, and 3M National Teaching Fellow Tom Haffie from Western University shared his constructivist views on teaching.

Looking forward to Year Four, COESP will develop resources to provide faculty, staff, graduate students, and postdoctoral fellows with information about how to demonstrate effective teaching. First will be the requirement of producing a document outlining effective teaching, followed by resources to develop Teaching Dossiers for Faculty, and Teaching Philosophies and Diversity Statements as Professional Development activities for Postdoctoral Fellows and Graduate Students.

Looking back at three years, and forward to more, COESP has evolved into an essential resource within CBS, and our Year Four will bring new resources and programs to CBS that are forward-thinking and responsive to our needs.



John Dawson, Director

Administration

The COESP steering committee expanded in Year Three, including Postdoctoral representation.

Faculty Director:

Dr. John Dawson (MCB)

Faculty Representatives:

Dr. Jaideep Mathur (MCB)

Dr. William Bettger (HHNS)

Dr. Amy Newman (IB)

Staff Representative:

Charlene Winchcombe-Forhan

Dr. Jason McAlister

Dr. Justine Tishinsky, HHNS

Dr. Chris Meyer, MCB

Sheri Hincks, IB

Postdoctoral Fellow Representative:

Dr. Marjorie Sorensen

Student Representatives:

Lauren Pace (Undergraduate)

Tina Hobbins (Graduate)

OpenEd Liaison:

Dr. Sara Fulmer

Strategic Planning

Vision:

To be **recognized** as the **national leader** in educational scholarship and practice in the biological sciences.

Mission:

To Support and Promote:

- Evidence-based Teaching Practice
- Learning Outcome Development & Assessment
- Biology Education Research

Values:

The COESP is:

- Inclusive
- Accessible
- Responsive
- Evidence-Based

Comments:

In our first year, the COESP embarked on a promotion plan to get the word out that we existed. It was noted in Year Two that while people tended to know that we were here, what we did and how we can help them was not as widely understood. Based on results of the survey conducted in Year Three, we are more confident that the purpose and action of COESP is understood and recognized within CBS, suggesting that the actions of COESP, coupled with an additional year of time, have resulted in the heightening of our profile within CBS.

Given our Mission of supporting and promoting Evidence-based Teaching Practices and Biology Education Research, in Year Three the COESP Summer Book Club was initiated and a book focused on SoTL in STEM was selected for reading and discussion. In addition to introducing the topic and techniques of SoTL in STEM, the book club resulted in the development of a community of interested, and established, SOTL practitioners within CBS.

Additionally, Year Three saw the creation of the COESP Teaching Network (CTN). A primary goal of the CTN is the ability to provide the values of Inclusivity and Accessibility, as hosting the CTN on Courselink seeks to remove temporal and geographic barriers to participation.

Needs and Challenges in Biology Higher Education Today

Activities at both COESP Day and on the CTN identified challenges faced by all those that teach in CBS, often highlighting student motivation and engagement. COESP supports the development of learning activities and learning resources intended to increase student motivation and engagement through our activities, including invited speakers, facilitated workshops and meetings, and Course Improvement Grants.

Promotion of the COESP

Website:

Our website is updated regularly, and in Year Three we have worked to increase structural clarity; going forward we may consider a more extensive reorganization. From our website, you can find links to our award applications, updates on our award winners, a list of our activities and plans, and links to resources from our presentations.

Social Media:

We primarily use Twitter to promote activities and highlight events and research. Our Facebook page is not updated and we might discontinue its use.

In Year 3, the undergraduate blog did not enjoy the great success of Year 2, and we recognize that ebbs and flows are likely inevitable given the turnover within the undergraduate community. In Year 4 we will re-evaluate the purpose for the undergraduate blog and explore other ways of connecting with our undergraduate students.

Conference and meetings:

The COESP continues to be promoted at conferences. The Director attended the 2019 Western Conference on Science Education (WCSE) and the 2019 oCube UnConference to promote the Office to the community. Through COESP Travel grants, the Office has broadened its presence at conferences across North America. Notably, we supported the participation of three CBS members at the Western Conference on Science Education (WCSE) in the summer of 2019, including the newly appointed COESP Postdoc representative. Additionally, we supported two members of the CBS Teaching Staff to attend the Association for Biology Laboratory Educators (ABLE) Conference in Ottawa, as well as a Graduate Student to present at the Experimental Biology Conference in Florida.

COESP Teaching Network (CTN):

In Year 3 the COESP initiated development of an online network to connect everyone that teaches in CBS. The primary impetus for this project was the recognition of time constraints on the participation of members of CBS in COESP events, as identified in our survey (Appendix 1). Availability of the CTN through Courselink provides an avenue to promote COESP that is removed from temporal constraints. Promotion of COESP via the CTN is achieved through weekly posts that are promoted to CBS through a Courselink-distributed email. We will continue to leverage the opportunities of this promotional platform throughout Year 4.

Fliers for Events:

COESP events are promoted via fliers distributed throughout the SSC and HHNS. Fliers are fixed to walls and doors along strategic corridors, with the aim of capturing the eyes of faculty, teaching staff, and graduate students within CBS. We have also experimented with small postcard size advertisements distributed directly to Graduate Student offices and grad lounges. Many of our events are paired with registration via Qualtrics, allowing us to monitor promotion of the event. In Year Four we may experiment with use of fliers and registration for promotion of COESP Services, in addition to Events.

Programming and Resource Development

In our third year (roughly June 2018 - June 2019), the COESP moved forward with the development of programming for the College and producing information and resources for the community.

Seminars and Workshops

Date	Event Title
November 6, 2018	BioEd Graduate Student Award Seminar – Sean McWatt
November 15, 2018	Speaker: Peter White: How Instructional Videos changed Teaching and Learning in an Introductory Biology Course
December 18, 19, 20, 2018	Instructional Skills Workshop (ISW) for CBS Post Doctoral Fellows
March 11, 2019	Speaker: Megan Barker: COPUS (Classroom Observation Protocol for Undergraduate STEM)
March 21, 2019	COPUS Training and Calibration
March 13, 2019 March 20, 2019 March 26, 2019	New MCB Faculty Discussions – <i>John Dawson</i> Before Class – course outlines, midterms, policies, test and exams During Class – classroom technology, response systems, management After Class – email, office hours, grading, teaching journal
May 2, 2019	COESP Day 2018 Keynote Speaker: Tom Haffie, Western University Activity highlighting teaching innovations in CBS
June 4 – August 6, 2019	COESP Summer Book Club: SoTL in STEM
June 4, 5, 6, 2019	CBS Instructional Skills Workshop – Teaching Staff and New Faculty

COESP Resources Development

January 2019	Multiple Choice Questions Handbill 2
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CBS Instructional Skills Workshop

COESP has continued to facilitate successful 3-day Instructional Skills Workshops (ISWs) for members of the CBS community. Year Three saw us offer an ISW for postdoctoral fellows, as well as an ISW for both new faculty and existing Teaching Staff in CBS. We will continue to offer these transformational workshops going ahead into Year Four.

The CBS Teaching and Learning Community

Graduate Students – We have continued with very motivated and involved graduate student representation on the COESP Steering Committee. To hear the perspective of our graduate students, we organized a meeting of CBS graduate students to ask about their Teaching and Learning needs. Responses centered around having the opportunity to teach, and the struggle with gaining respect for their time and interest in teaching from both faculty and fellow graduate students. It was very heartening to note that many of the graduate students recognize the transferrable skills aspect of teaching with respect to their future careers. Additionally, graduate students were a consistent presence at our COESP events throughout the year. Looking ahead to Year Four, we recognize the potential among graduate students in CBS, and must determine how to most effectively engage this group. Such options could include support in developing Teaching Philosophies for future applications, and peer observation of teaching.

Teaching Staff – Our COESP Steering Committee has benefited as a result of Teaching Staff representation from all three CBS departments joining in the Summer of 2018. Justine Tishinsky from HHNS, Chris Meyer from MCB, and Sheri Hincks from IB have provided important perspective and help from a viewpoint that was previously absent from COESP. Our Teaching Staff members have been very involved in COESP events, both as organizers and presenters. For example, at our COESP Day Justine shared about creating a digital textbook with students, and Chris shared details of his work bringing stop-action photography controlled by Raspberry-Pi computers to his teaching lab.

Postdoctoral Fellows – While postdoctoral fellows have traditionally represented an under-represented group in CBS, COESP worked in Year Three to ensure they have both a voice and professional development opportunities. Marjorie Sorensen is our first postdoctoral fellow representative on the COESP Steering Committee and was sponsored attend the Western Conference on Science Education (WCSE). Additionally, at the request of Marjorie, COESP offered an Instructional Skills Workshop (ISW) exclusively for postdocs. We look forward in Year Four to continuing our offerings as new postdocs join CBS.

Undergraduates – Looking ahead to Year Four, we would like to determine how best to engage with undergraduate students and attempt to determine what specifically COESP activities they might find directly beneficial.

Sessionals – In Year Three, COESP met the recognized need for supporting Sessionals in CBS by contributing to a handbook providing logistical support to Sessional Instructors, based on our Year Two work on a new faculty / teaching staff handbook. This Sessional handbook provides an essential resource with information including scheduling exams, SAS, and contact lists for administrative support. Handbooks are available via both the COESP Teaching Network (CTN) and the COESP website.

The COESP recognizes that the number of sessionals delivering undergraduate courses has risen across CBS in recent years and that sessionals are common in HHNS. It is also observed

that sessionals are commonly sought for instructional supply to cover sabbaticals or emergency situations with little lead time. It is known that bringing on sessionals to backfill gaps on short notice without longer term commitment raises the chances of lower quality teaching and learning. Since sessionals are likely a permanent fixture in CBS, the COESP advocates for sessional hiring practices that raise the probability of providing the best teaching and learning experience possible. One plan is to provide the College with guidelines for sessional hiring.

New Faculty – Year Three continued the COESP Program for New Faculty that was developed in Year Two. New Faculty meet with the COESP Director for three meetings to cover practical considerations of teaching CBS courses, divided into activities 1) before class, 2) during class, and 3) after class. The during-class session reviewed the technology available in classrooms on campus, classroom management considerations, lecture capture and classroom response systems, while the after-class session covered handling email, grading and submitting grades, and keeping a teaching journal. These important introductory sessions will continue in Year Four, building on the successes of Year Three.

CBS Teaching Discussion Groups

Our previous Annual Report highlighted the need for facilitated Discussion Groups. In the summer of 2019, COESP developed and facilitated a Summer Book Club centered around the book a book outlining conducting SoTL in STEM. Participation in the group was robust, with approximately 15 members and weekly attendance of 8-10, given other demands inherent during summer. Weekly meetings provided an opportunity to discuss a chapter of the book, often featuring a guest speaker with connection to the weekly topic. In addition to gaining knowledge of SoTL in STEM, a community was developed of CBS members interested in SoTL research. Looking ahead to Year Four, we would like to emulate the success of this COESP Book Club with another title, perhaps centered around reflective practice in teaching, with associated activities and community development.

The BioEd Research Hub

The BioEd Research Hub is a group of faculty who are engaged in discipline based education research in biology. Dr. Gen Newton from the HHNS Department is the Coordinator of the BioEd Research Hub.

HHNS	IB	MCB
Gen Newton Kerry Ritchie Coral Murrant John Zettel William J Bettger	Shoshanah Jacobs Karl Cottenie Patricia A. Wright	John Dawson Steffen Graether

Based on our successful Learning Enhancement Fund application from Year One, Gen Newton supervised research about how faculty in CBS and then the entire University perceive Student Evaluations of Teaching and how those evaluations are used for summative and formative teaching development. In Year Two, the research was conducted and now in Year Three, we have seen the dissemination of the Hub's work from the research focused on CBS:

Newton, G., Pong, K., Laila, A., Bye, Z., Bettger, W., Cottenie, K., et al. (2019). Perception of Biology Instructors on Using Student Evaluations to Inform Their Teaching. *Int. J. High. Educ.* 8, 133. doi:10.5430/ijhe.v8n1p133.

The results of the University-wide research have been presented nationally at a special seminar at the University of Calgary in Summer 2019 and the manuscript outlining the work is in the final stages of revisions for publishing in Year 4.

Following up on our research theme around Student Evaluations of Teaching, the BioEd Research Hub plans on conducting its next project around the new SET questions approved by the U of G Senate.

In Year Three, we saw the Integrative Biology department hire faculty in the area of Biology Teaching and Education Innovation. Dr. Shoshanah Jacobs was hired at the level of Associate Professor and will take over from Dr. Amy Newman as the IB representative on the COESP. With the hiring of another teaching focused faculty in IB on the horizon, the need to support these faculty in their research through graduate programs and SoTL scholarships will be more prominent. The implementation of MSc SoTL scholarships in CBS commencing in February 2018 is a positive step forward and we encourage the College to continue offering these scholarships to allow for greater access and planning in the coming years.

The COESP Director also developed a white paper and initiated discussions with colleagues in CEPS regarding a potential graduate program in STEM education where SoTL and teaching practice in STEM would provide a program for faculty in both CBS and CEPS to take on graduate students.

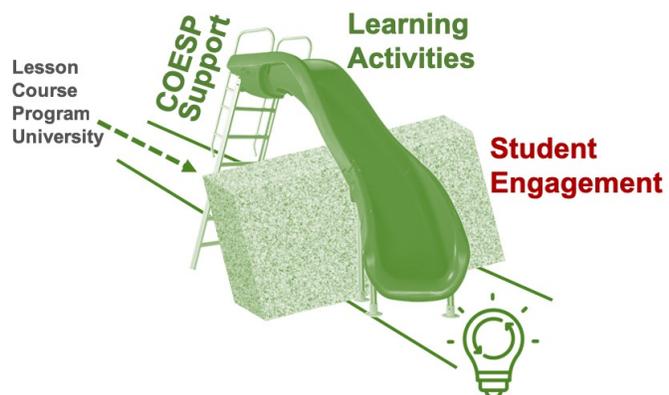
Successes and Challenges

An activity during our Year Three COESP Day identified successes and challenges of various groups within CBS. Among participants were groups composed of Faculty, Teaching Staff, Graduate Students and Postdocs, and other CBS support staff. The responses provided rich insight into our constituency, a summary of which is provided below.

Respect: While it is likely that there is respect among these various groups, the importance is that the respect is communicated and recognized. Identification of this issue is highly relevant across all levels within CBS, particularly with respect to morale. Looking forward to Year Four, COESP will consider ways in which respect can be made more intentional and recognized within CBS.

Student motivation and engagement: A common theme was how to increase and maintain student motivation. This theme also emerged from interactions on the CTN. Recognition of the needs around student motivation affirms our role, as COESP provides resources and assistance to get over the wall of student engagement and towards the 'light bulb' moments within students that were identified within CTN data as a primary motivating success for instructors.

Student Accessibility Services: While recognizing the importance of the SAS office, and the vital service for students in need, there was a frustration with the logistics associated with SAS requests. In



Year Four COESP will collect questions from CBS instructors and seek answers from SAS to reduce the unknown and frustration experienced by some when receiving SAS requests.

Funding: Among Teaching Staff and Graduate Students (and although not strictly identified, likely Faculty as well) funding support for SoTL was a challenge for the attendees of COESP Day. While external support for SoTL can be a challenge, particularly within the Tri-Council landscape, COESP is proud to offer SoTL funding and we encourage the College to continue its Masters SoTL scholarships.

Funding Support

Pointing to the foundational document describing the idea of the COESP (Sept 2015), the COESP offers three sources of funding support together for CBS. Detailed information about each of these grants is found on the [COESP website](#):

1) COESP Conference Travel Awards

This award provides support for undergraduate and graduate students, postdoctoral fellows, staff, sessional instructors and faculty from the College of Biological Science to attend a Scholarship of Teaching and Learning conference. Since we firmly believe that exposure to the encouraging teaching and learning community will inspire CBS members, priority is given to faculty and staff who have never been to teaching and learning conferences before.

Up to **\$7,000** annually

In [Year 1](#), we funded 7 Conference Travel Awards, mostly to the Western Conference on Science Education (WCSE) in London, Ontario. This conference occurs every two years, so we anticipate strong use of the conference awards in the upcoming 2018/19 year.

In [Year Two](#), we funded 3 Conference Travel Awards, all for travel outside of Ontario. We also funded two new faculty from MCB to travel to the Education and Cognition Workshop / Conference at McMaster to expose them to advanced education approaches.

In Year Three, we funded 5 Conference Travel Awards; a graduate student and a postdoc to WCSE, two staff members to the Association for Biology Laboratory Education (ABLE) conference in Ottawa, and a graduate student to the Experiential Biology Conference in Florida.

2) COESP Course Improvement Grants

These grants provide support to improve and develop courses in CBS in ways that enhance student learning, course delivery and methods to assess the outcomes of the course. The intention is to encourage instructors to renew and innovate their courses, providing support for those changes.

Up to **\$10,000** annually

In Year 1, we funded one Course Improvement grant to a faculty member in IB, aimed at improving content for enhanced engagement in the Discovering Biodiversity course.

In [Year Two](#), we funded five grants from faculty and staff from all three Departments in the College. The innovations range from including in-class experiments, preparing videos for class and lab materials, and using small, single-board computers to track plant growth in labs.

COESP funded two Course Improvement Grants for [Year Three](#). The extended value of our Course Improvement Grants is demonstrated in that following successful progress on the development of an e-textbook as part of a Year Two Course Improvement Grant, a funded project for Year Three will allow for the development of an e-textbook for an additional course in CBS. This also demonstrates the Teaching and Learning resources developed within CBS as a result of COESP.

3) BioEd Research Grants

These grants provide seed funding or support to conduct inquiry research of higher education in biology (BioEd) that has strong potential to lead to peer-reviewed publications. Areas include, but are not limited to, investigation of student learning, teaching activities and the student learning experience.

Up to **\$10,000** annually

In Year 1, we funded two awards: 1) to Dr. Graether to study bimodal grade distribution in large classes, present the results at the STLHE conference and in a publication, aiming at the Studies in Scientific Education journal. 2) to Dr. Jacobs to study metacognitive approaches to engagement in undergraduate courses through Courselink, supporting student salaries and dissemination costs.

In [Year Two](#), we funded one BioEd Research grant to Drs. Jacobs and Gregory in IB for \$7000 to research the barriers that exist to high impact practices (HIPs) and field courses, developing a framework to reduce these barriers for increased access.

[Year Three](#) has seen us fund two additional BioEd Research Grants, investigating the effectiveness of group work assignments in promoting scientific literacy, and determining how the structuring of office hours can benefit students and improve faculty-student engagement.

Conclusion and Lessons Learned

The face of the COESP changed dramatically over Year Three, with Jason joining the Office as part-time staff and participation from all the people-groups in the teaching and learning community of CBS. The COESP steering committee is much larger now, with more input and ideas from across the community. Together with Char housed in the ADA's office, the COESP now has the level of support it needs to carry out its plans, including developing the CTN as a community where folks can go for resources and support, inviting and hosting excellent and relevant guests, producing timely and critical resources for our community, and developing engaging activities.

Our grants have received applications from a wider audience, suggesting that the message of the purpose of these grants is getting out and that more people are seeing others use these funds to better their teaching knowledge and practice.

Finally, the development of our Inclusivity value was an outstanding step forward. I have been continuously impressed with the passion and enthusiasm of our trainees for teaching and learning as they see the benefits for their careers and overall skill development.

Financial Report

The main considerations for the Year Three Budget – looking at the fiscal year May 2018 to April 2019 – is the addition of a salary line for Dr. Jason McAllister (starting November 5, 2018) and the variances of the funding each year depending on the number of applications we have for the different types of grants.

Category	2018-2019	<i>2019-2020 PROJECTIONS</i>
Salary (Jason) (Nov-April)	\$11,934.44	\$20,200
Hosting events Accommodation, travel COESP Travel grants	\$4,277.95	\$5,000
Operations Supplied, registrations, BioEd Graduate Award (\$500)	\$1,190.35	\$1,800
Internal charges Parking, space, photocopying	\$70.05	\$500
COESP Grants Course Improvement BioEd Research Grants	\$13,895.44	\$18,000
GRAND TOTAL	\$31,377.33	\$45,500

In 2018-19, we used the entire \$10,000 budget to fund two BioEd research grants and only \$3,895.44 of the potential \$10,000 envelope for Course Improvement grants. The projection for 2019-2020 (Year Four) reflects funding the entire BioEd research grant budget (especially with new faculty in CBS in this area of research) and 4 course improvement grants. With this projection, we see that an estimate of \$45,000 each year for the COESP at this stage is reasonable.

YEAR Four of the COESP

Building on our Inclusivity value, Year Four will see advances in our addressing the needs of all the groups in CBS engaged in teaching and learning: administrators, instructors, staff, postdocs, sessionals, graduate students and undergraduate students. Those needs include an increased awareness of the importance of wellbeing for everyone in the community, the needs of our trainees for teaching and learning training and experience and establishing classroom observation options to meet a wide variety of needs. We will continue to support and facilitate teaching and learning research and improvement throughout the College through our grants and through supporting efforts to establish a graduate program for discipline-based education research in CBS.

After a successful first three years working mostly internally in CBS, in Year Four we will address our Vision of being the National Leader in Biology Higher Education by becoming more outward facing. This goal will require revisioning our website and other means of communicating ideas, philosophies, and activities to the global community. Such an endeavour will require more resources and advice, some of which already exists within CBS. We have several very exciting ideas that we will explore and pursue in Year Four!

CONCLUDING REMARKS

Year Three was a milestone year for the COESP. We have truly embraced our community, recognizing and seeking input from all of the groups within the College invested in teaching and learning. That input and connection with our community is vital, keeping us grounded in our mission and true to our values. We expanded the team and with more ideas and hands, we are positioned to make an even greater impact. I am looking forward to Year Four!

Appendix I: COESP Survey Report

COESP Survey Report

March 2019

Survey Goals:

1. Awareness of COESP
2. Perceived Value of COESP
3. Increasing Value of COESP

At the request of the CBS ADA Brian Husband, COESP developed a survey to investigate the current awareness and perceived value of COESP, as well as how to increase the value of COESP going forward. The intent in writing the survey was to be concise, with the final survey consisted of 4 questions, each with multiple elements (Appendix 1), resulting in a rich dataset. Survey respondents (N=52) reflect the diversity of CBS, including professors, teaching staff, graduate students, and postdocs (Appendix 2). While discussion below is centered on quantitative results, open comment fields were also provided within the survey. Comments are largely supportive and provide instructive insight (Appendix 3). Each of the three survey goals are evaluated below with survey data and discussion from the COESP steering committee providing context, thoughts, and vision forward.

Survey Goal 1: Awareness of COESP

Awareness of COESP is high among respondents, as a vast majority of respondents have heard of COESP and have received email from COESP (Figure 1). Particularly heartening is that 33 respondents have talked to a colleague about COESP and 30 have attended COESP events.

The COESP steering committee was particularly proud that 17 respondents have tried a new teaching approach as a result of interaction with the COESP. Such a result provides strong recognition of the impact of COESP in CBS. Changing your teaching practice involves risk taking and the fact that we have inspired 17 people in CBS to take that risk is very commendable. Ultimately, the number of students positively impacted by these new approaches, and the probable learning gains as a result, integrated over future years is potentially massive.

Looking forward, based on the results in Figure 1, the COESP steering committee would like to increase attendance at COESP Day. Additionally, while awareness of the variety of funding opportunities offered by COESP is greater than 50%, this is an area that the COESP Steering Committee feels could be improved. Both of these aims can be assisted by increasingly effective communication, including access to an updated email list of all members of CBS. While lists often exist of, for example, all faculty or grad students, acquiring an inclusive list of all members of the teaching and learning community in CBS can be a challenge. We would like to request assistance from the ADA office in development and maintenance of such a list, which can likely benefit a range of groups within CBS.

Finally, of the seven respondents that indicated they had not heard of COESP, six of these were graduate students. An aim of the COESP entering year 3 is to increase inclusivity, a finding arising

from the COESP Year 2 Annual Report. Therefore, going forward COESP will be specifically targeting graduate students, including developing new initiatives in consultation with graduate students. We look forward to graduate students offering a vibrant new voice to the COESP!

Q1: Please indicate your awareness and engagement with COESP (Select all that apply)

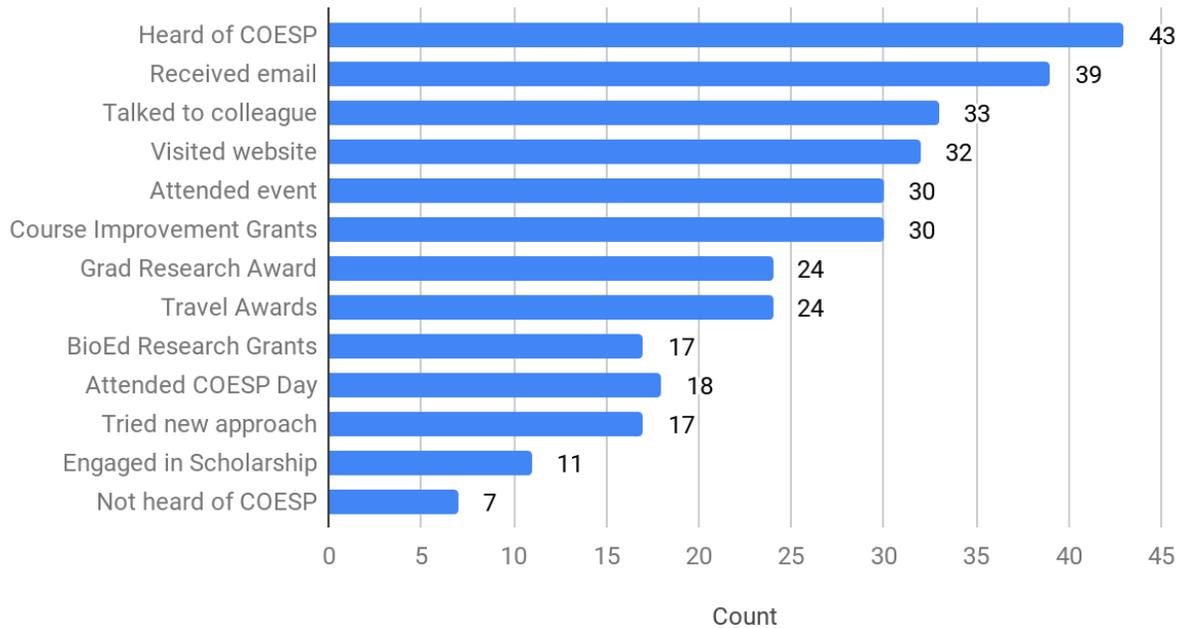


Figure 1: Number of respondents indicating awareness of COESP in the indicated categories. Note: the following four fields are all preceded by 'I am aware of...': Course Improvement Grants, Grad Research Award, Travel Award, and BioEd Research Grants; the 'Tried new approach' and 'Engaged in Scholarship' categories are followed by '...as a result of interaction with COESP'.

Survey Goal 2: Perceived Value of COESP (Part 1)

Goal 2 is addressed in two parts, beginning in Figure 2 and expanded upon in Figure 3 below. Based on survey results, the perceived value of COESP is high, given that COESP supports all of the listed activities. Particularly encouraging is the very positive response for incorporating innovative teaching practices, and learning such techniques from colleagues.

However, regarding the latter, the Steering Committee noted that there is perhaps a disconnect that COESP can work to rectify in linking the action of observing a colleague’s course with the opportunity to learn innovative teaching techniques from a colleague. Indeed, course observation must be communicated as an opportunity for the instructor being observed to have data on their teaching, and alleviating the feeling that a course observation is an evaluation. Encouraging course observations is also valuable for COESP, as the observation is an excellent opportunity to initiate conversation on teaching and learning in CBS.

Developing community within CBS, gaining teaching innovations from the peer reviewed literature, and sharing successes and challenges with colleagues all enjoyed strong support. Recently, the COESP initiated the COESP Teaching Network (CTN), with the explicit goal of

targeting all three of the areas. The CTN continues to strive to build a reliable user base, while building a strong resource for the CBS community. In addition, events such as COESP Day, and all COESP events, also serve to support the development of community within CBS and promote sharing of innovations.

Finally, results presented in Figure 2 are robust with respect to the diversity of respondents. For example, considering the responses of only Professors, Assistant Professors, and Associate Professors (n=27) yields nearly identical results as a function of percentage compared with the inclusion of all respondents. Therefore, we can be confident that data interpretation and resulting selection of future programming reflects the needs of diverse CBS stakeholders.

Q2 (a): I am interested in this activity:

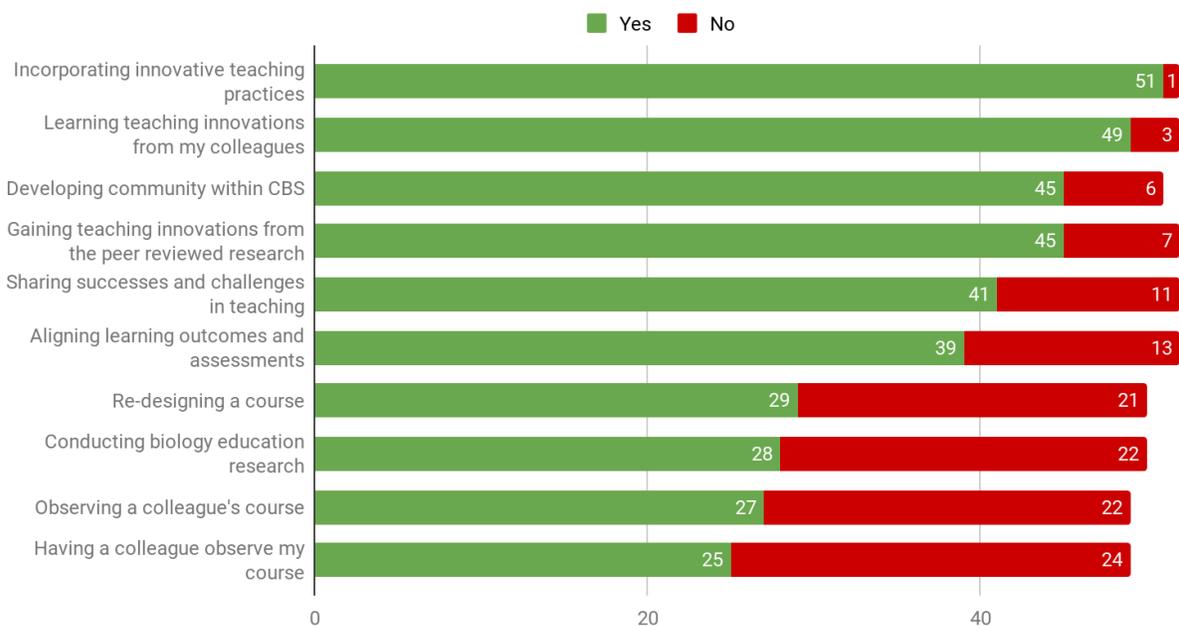


Figure 2: Number of respondents interested in the indicated activities. (Note: Data do not always sum to 52 as not all respondents responded to all questions).

Survey Goal 2: Perceived Value of COESP (Part 2)

Both the past and future perceived value of COESP is indicated in Figure 3. The COESP Steering Committee noted that the top 4 categories where COESP has provided support are related to teaching innovation. This is both very encouraging, while also highlighting opportunity to focus future efforts on activities such as supporting instructors in classroom observations, course alignment, and course redesign. Regarding the latter, perhaps 'redesign' is simply a daunting term and something akin to 'implementing innovation' may elicit a more favourable response, aligning with the keen interest in course innovation.

Going forward, COESP will strive to alleviate anxiety associated with classroom observation. We now have nearly 10 members of the CBS community calibrated to perform classroom

observations utilizing the COPUS protocol. COESP will encourage classroom observations with the experiences of both the observees and the observers chronicled and shared through reflection and features on the CTN, highlighting the benefits of classroom observation.

The interest in conducting biology education research was quite positive. Going forward, COESP will continue to support a variety of new and existing opportunities for education research. The BioEd Hub offers personnel, logistical, and financial support for education research in CBS. COESP Day supports SoTL research in the form of sharing both data and experience. Additionally, the Steering Committee noted that data exists that is waiting to be analyzed, therefore those interested in education research can get started sans developing a research study and collecting data. Therefore, going forward, COESP can be more intentional in the promotion of the diversity of research opportunities available and ensure that we connect interested members of the CBS community with research opportunities.

Finally, the Steering Committee was very encouraged by both the past support and interest in developing community within CBS, in which sharing successes and challenges is included. Community building represents an avenue in which COESP can positively impact mental wellness within the CBS teaching and learning community.

Q2 (b): Would you like COESP to provide you support for this activity?

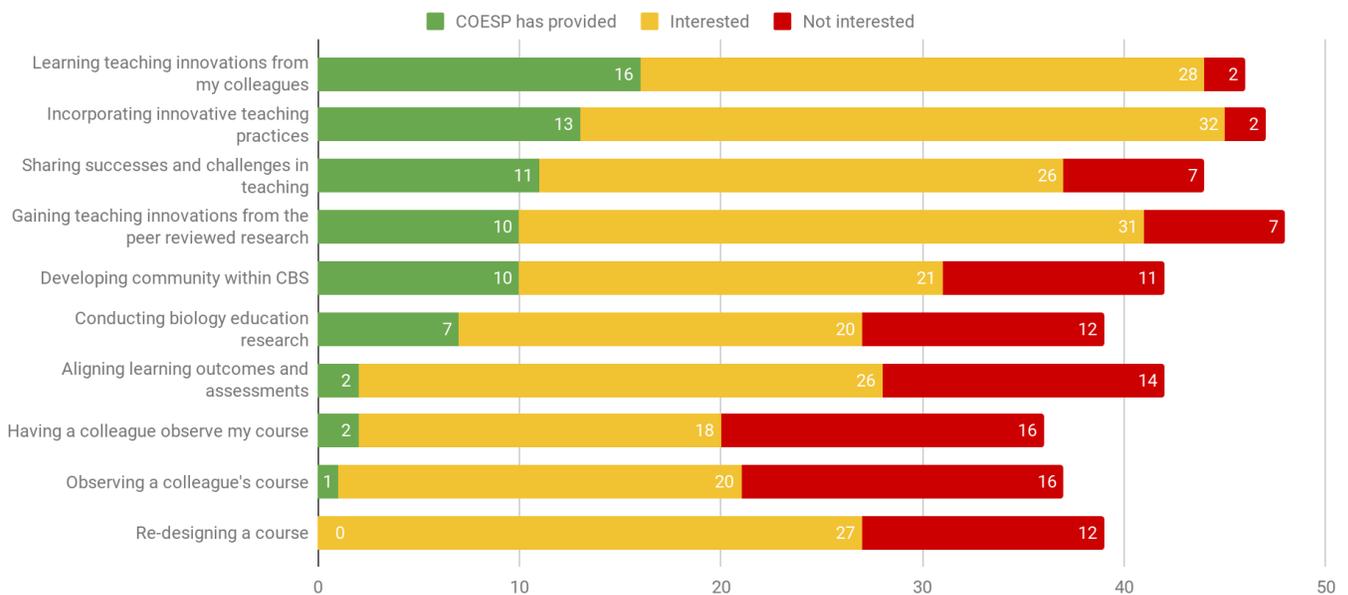


Figure 3: For a given activity, has a respondent received COESP support, are they interested in receiving support, or are they not interested in support.

Survey Goal 3: Increasing Value

Increasing the value of COESP for members of the CBS community is considered here as a pairing of Goal 2 above, identifying WHAT we can do, with data in Figure 4 below, identifying HOW we can do it.

A clear preference exists for 1-2 hour events (Figure 4), likely reflecting inevitable time constraints. An interesting, and perhaps poignant, response from the COESP Steering Committee was that

'What they *think* they need may not be *what* they need'. For example, workshops can be very valuable opportunities for transformational change, however full day and even half day workshops are not well supported by the survey data. Therefore, offering a 1-2 hour session over 4 weeks was suggested as an alternative going forward.

Incentives were also mentioned by the Steering Committee to entice participation in events. While incentives could include things such as lunch, a certificate or other piece of evidence of Professional Development to include within Tenure and Promotion documents could be valuable. Towards this end, COESP will be promoting the development and acceptance of a list of activities that could be included within T and P in support of teaching; with the ultimate choice of inclusion being with the individual. Another innovative incentive idea brought forth by the Steering Committee was the offering of \$5 coffee cards to initiate discussion following COPUS classroom observation exercises.

COESP will continue the practice of developing and distributing handbills, a reasonably low stakes opportunity for engagement that showed broadly favourable interest in the survey results. Discussion Groups are an avenue that COESP would like to re-initiate, although support was mixed, there appears to exist a core interest. Discussion Group topics will be examined with the aim of attracting and developing diverse groups, particularly new participants.

Finally, while mixed support exists for participating in a teaching network on Courselink, the COESP Teaching Network (CTN) will continue to reach out to CBS with engaging and timely content. For example, the favourable response to 'Gaining teaching innovation from the peer reviewed research' can be delivered very nicely through the CTN, with the aim of encouraging an interactive discussion of research applications. Going forward, CTN will continue to be open to evolving based on feedback and analytics.

Q3: Given a topic of interest, how likely are you to attend:

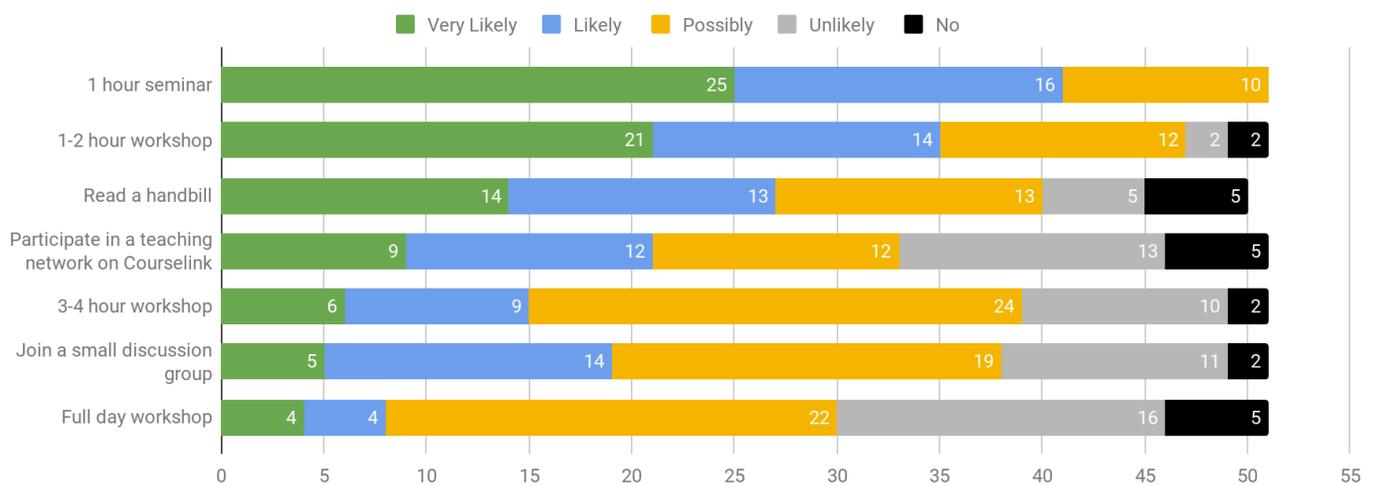


Figure 4: Preference for a variety of delivery options for teaching and learning professional development provided by COESP.

Conclusion

Overall, survey results indicate robust awareness of COESP, while uncovering areas for improvement, such as advertising the financial support offered by COESP. Teaching innovation represents a strong interest of our constituency, a topic that COESP supports throughout the year. COESP will continue to promote innovation through our offerings of 1-2 hour seminars and workshops. We will also consider alternatives to 4-8 hour workshops that, while valuable, do not enjoy high preference based on survey results. Going forward will also endeavour to re-establish discussion groups, for example centered around classroom observation, which have the added benefit of developing community within CBS. Finally, survey results highlight a great opportunity for COESP to increase value through the continued and broadened support of a diversity of biology education research opportunities.

Appendix 1

COESP Survey administered to CBS

1. Please indicate your awareness and engagement with COESP:
(Select all that apply)

- I have heard of COESP
- I have not heard of COESP prior to this survey
- I have gone to the COESP website
- I have received email notices from COESP
- I have talked to a colleague about COESP
- I have attended a COESP event
- I have attended COESP Day
- I have tried a new teaching approach / activity based on interaction with the COESP
- I have engaged in educational scholarship (research) based on interaction with the COESP
- I am aware of the COESP Course Improvement Grants
- I am aware of the BioEd Research Grants
- I am aware of the COESP Conference Travel Awards
- I am aware of the COESP Graduate Student Research Award

2. Please indicate your interest in the following activities and whether you have or would like to receive support from COESP:

	I am interested in this activity		Would you like COESP to provide you support for this activity?		
	Yes	No	COESP has provided me support	I am interested in support	I am not interested in support
Incorporating innovative teaching practices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Learning teaching innovations from my colleagues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gaining teaching innovations from the peer reviewed research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sharing successes and challenges in teaching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Re-designing a course	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gaining teaching innovations from the peer reviewed research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sharing successes and challenges in teaching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Re-designing a course	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aligning learning outcomes and assessments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conducting biology education research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Having a colleague observe my course	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Observing a colleague's course	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Developing community within CBS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

What else could COESP offer that would assist you with your teaching practice or teaching scholarship?
(WHAT can we do?)

3. Given a topic of interest to you, how likely are you to participate in the following?

	No	Unlikely	Possibly	Likely	Very Likely
1 hour seminar	<input type="radio"/>				
1-2 hour workshop	<input type="radio"/>				
3-4 hour workshop	<input type="radio"/>				
Full day workshop	<input type="radio"/>				
Participate in a teaching network on CourseLink	<input type="radio"/>				
Read a handbill	<input type="radio"/>				
Join a small discussion group	<input type="radio"/>				

Are there any other ways you'd prefer to engage with COESP? Are there other types of events or resource you would be interested in the COESP offering? (HOW can we work together?)

5. Your current position:
(Please select any that apply)

- Assistant Professor
- Associate Professor
- Course Coordinator
- Graduate Student
- Post Doc
- Professor
- Sessional Instructor
- Teaching Assistant
- Teaching Staff
- Other

Please provide any additional comments or feedback related to COESP.
Thank you very much!

Appendix 2:

Survey Respondents:

4	Assistant Professor
16	Associate Professor
7	Professor
3	Course Coordinator
1	Course Instructor (Other)
7	Teaching Staff
13	Graduate Student
12	Teaching Assistant
2	Post Doc
1	Sessional

Appendix 3

Comments:

What else could COESP offer that would assist you with your teaching practice or teaching scholarship? (WHAT can we do?) (Q2)

Helping new faculty with course redesign and incorporating innovative teaching and learning techniques, as appropriate.

Helping the departments to ensure equal and representative representation on the COESP committee.

I observe teaching of a colleague with whom I co-teach a course. I liked the teaching discussion group I was part of a few years ago, and tried some different teaching strategies based on those.

As a TA, I think it is hard to provide suggestions for improvements for a course. It would be nice to have a form that you fill out at the end of every semester where you can offer suggestions to improve the course, organization of TAs, etc.

Certification or acknowledgement of this training for graduate students to use in the context of a CV or resume.

I completed a Course re-design course last May 2018; this generated lots of interesting ideas...however

finding time to integrate these ideas into my ongoing teaching, research admin duties is challenging. Not sure how COESP could help with this...create more hrs in the day?!

Perhaps more frequent meetings would help; I enjoyed the journal article discussions that you hosted a couple of years ago.

I am wondering if CoESP could be helpful around the IQAP process. I am not sure how yet, just thinking out loud.

Remind us (or perhaps just me) more frequently that you are there and what you do. My impressions and experience with COESP have been highly positive, but the academic treadmill often require that interests and awareness of the issues above get pushed to the side. NB. I haven't filled out the right hand column, because I am heading into sabbatical and do not know my teaching assignments upon return

I really liked the best practices in multiple choice flyers. I assume the new website is mimicking/replacing this, but I do not know yet if it is effective?

Maybe workshops geared towards TAs who are interested in improving their teaching.

Centralized area on the website highlighting UoG T&L experts - sort of like the department profiles we have for faculty and staff so anyone can easily pull these up (pics and standard questions). More training/learning/opportunities to collaborate with "experts" in the biology education beyond UoG on teaching and learning topics. Website could be beefed up/more added here to become more comprehensive with resources/more user friendly

Online tutorials or workshops so that there is little time commitment and not subject to schedule availability.

Are there any other ways you'd prefer to engage with COESP? Are there other types of events or resources you would be interested in the COESP offering? (HOW can we work together?) (Q3)

Having a designated space or office where faculty could pop by and ask questions would be useful. Having a network or resource that is easily accessible and would provide ideas of how to incorporate best teaching practices into a course would be great!

likelihood of participation in workshops depends on topics

I enjoyed brown bag sessions with topic areas that were common across disciplines. Perhaps short sessions facilitated to update faculty on cool tech, or interesting changes in the college re: innovative teaching ideas would be helpful?

A CBS-teaching annual 'retreat'?

It would be helpful to have COESP point me to peer-reviewed teaching practices.

Maybe some kind of a blog or reading feed with relevant research articles posted? So that we would have

a resource to go to for new pedagogy research. (Unless something like this already exists!)

Casual networking opportunities (cafe type events over coffee)

Please provide any additional comments or feedback related to COESP.

COESP is awesome!

Thank you for all your work on this!

I appreciate knowing that COESP is there to support my teaching; I find that even hallway conversations are helpful and challenge me to consider new ways of teaching concepts. The challenge I face, perhaps like many of my colleagues, is that there is little time in my working week to really spend time implementing these ideas in practical ways. Teaching is one part of my DOE and it is going well. The innovative changes I make in my courses have to be researched/implemented on evenings/weekends...thoughts on how to find time to make perhaps small changes in how I offer court material that are impactful would be MOST welcome!

CoESP will be important moving forward as an avenue to help faculty who reflect on their teaching practice to be able to act on these reflections, especially as our teaching culture moves forward in this direction. My interactions with the CoESP have always been very helpful in my moving forward as an individual instructor and there as support for problem solving at the departmental level.

thanks for the support you all provide!

I'm really happy with the work CoESP has done thus far. There may be innovative ways to expand and improve, but I can't think of any!