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In December 2018, The Hong Kong Polytechnic University (PolyU) hosted the Second International English Across the Curriculum (EAC) Conference, with over 100 presentations, colloquia, and participants from 20 countries as well as mainland China and Macau. Both the first and second conferences were planned with three major goals in mind: one, to announce that writing across the curriculum (WAC)—in the form of EAC—is once more a feature of the Hong Kong tertiary landscape, framed by a policy of biliteracy and trilingualism and featuring complicated relationships between politics and language education decisions (Chen, 2020); two, to learn from those who have had considerable experience developing EAC, WAC, and content and language integrated learning (CLIL) initiatives in various international contexts; and three, to provide a platform for exchanging scholarship of teaching and learning on disciplinary literacy, especially in contexts where English is learned as an additional language (EAL).

For many participants, the EAC conferences were their first introduction to pedagogical movements that embed writing and speaking in content courses with a view to heightening faculty and students' awareness of the need for disciplinary literacy development. In many parts of Asia, the continent with the highest number of indigenous languages (Eberhard et al., 2020), the mother tongue is most often a language other than English, and the learning of English is often limited to generic English language lessons. Some schools and universities employ English as the medium of instruction (EMI), despite studies showing the benefits of mother tongue instruction and a strong correlation between academic achievements and learning in the mother tongue (Benson, 2004; Kosonen, 2005; Parba, 2018; Perez & Alieto, 2018). The use of EMI is often driven by socio-political, ideological, and economic reasons, including government policies, parent-driven demands, resourcing justifications, globalisation efforts, identity negotiations, and future study and career advances (Baldauf Jr. et al., 2011; Evans, 2017; Hu & McKay, 2012; Kosonen, 2005; Lin & Man, 2009; Parba, 2018; Rahman & Pandian, 2018). However, even in EMI institutions, where content subjects are taught in English, language use itself is not generally considered a part of learning content, and literacy in the disciplines is little developed.

## Exigence for English Across the Curriculum

The teaching of English tends mainly to take the form of compulsory English language subjects, which are often generic in nature even at university level. Owing to limited curriculum space in the undergraduate programme, academic English subjects are usually taken only in the first or second year. While such English courses are valuable in laying the linguistic foundation for academic pursuit, they may not be adequate for students, especially those studying at an EMI university, to then effectively apply these recently acquired generic academic English language skills in their major subjects.

In the hope of increasing students' exposure to English and their opportunities to use the language in authentic learning contexts, a number of schools and universities where English is not the mother tongue have introduced content-based language-learning. This is done in the belief that "content and language create a symbiotic relationship" (Stoller, 2008, p. 59) that helps students more effectively learn both the content and the language appropriate to content dissemination and discussion. Schools and universities in various contexts (Cheyne & Rummel, 2015; Ito, 2018; Suwannoppharat & Chinokul, 2015; Thuy, 2016; Tsou, 2018) employ a Content and Language Integrated Learning (CLIL) approach, which accords a strong focus on both content and the language of instruction in a content course (Coyle, 2007; Marsh, 2012). The implementation of this dual-focused approach has spread quickly in Europe and in some parts of Asia, with an aim to create multilingual citizens who can function in cross-cultural situations (European Commission, 2010). It is, however, often implemented in less than half of the school curriculum, and finding suitable teachers who can teach the content and have language teaching qualifications is a challenge (Dalton-Puffer, 2011).

Another challenge of an approach that places equal emphasis on content and language lies in the curriculum. It is not always possible to rewrite content courses so that there is explicit emphasis on both content and language learning in the same lesson throughout the duration of the course. It is more feasible to introduce some language elements without disrupting the flow of the content course and without changing the course design or its outcomes. Thus, when a funding opportunity arose in 2013 at The Hong Kong Polytechnic University, a community of practice (CoP) was established. Unlike attempting to develop CLIL, which with its dual focus would cause very considerable upheaval to the undergraduate curriculum and meet resistance in the Hong Kong university context, the CoP would build a cross-disciplinary community of teachers for EAC, a localized version of WAC that is more relevant for the Hong Kong tertiary context. Integral to the notion of

WAC, and by extension EAC, is that writing skills (or in the case of EAC, writing and speaking literacy skills) are acquired not only in language courses, but at different points in the curriculum via disciplinary courses offered by disciplinary experts (Keifer et al., 2000-2018). Unlike CLIL, in WAC and EAC, the content often remains the main focus of the content courses that are mediated through English, and students are given the additional language support that they need to successfully learn the content and complete the written and spoken course assessments in the target language.

Two subsequent grants, including one for a four-university project, enabled the organisation of two international EAC conferences, in 2015 and 2018. Although they were held in Hong Kong, speakers and presenters came from different continents, and their presentations resonated with both new EAC endeavours as well as mature WAC and CLIL curricula alike. For instance, many institutions mandate the use of English for academic studies but have a tight curriculum that does not allow the inclusion of more than a minimal number of standalone English proficiency or writing courses to support students in their acquisition of language and literacy skills for academic success. In such a context, EAC can be a feasible and valuable complement to existing English for Academic Purposes and English for Specific Purposes courses as the department-centered approach integrates the learning of writing into discipline courses. EAC brings together English teachers and academic faculty to help their students learn and perform better in course-embedded assessments. Faculty often feel frustrated with their students' poor writing or oral presentations, but do not know how—or feel they are not in a position—to address these problems. As non-native speakers of English themselves, many faculty have reservations about their own English language ability as well as about their competence to help students with their English, viewing the latter as the job of English teachers (Annous & Nicolas, 2015; Chen et al., 2020; Goldsmith & Willey, 2016). To address faculty concerns and enhance the academic literacy that their students need in their discipline (Wingate, 2018), English teachers can “work hand in hand with faculty members to draw students' attention to disciplinary academic English when they complete assignments in their content courses” (Chen, 2020, p. 121).

However, even when English teachers seek collaboration from faculty, it is not easy to implement EAC/WAC/CLIL (hereafter EAC). There are common issues that institutions face, especially in EAL educational contexts and including those that have a large body of international students in countries where English is the main and official language. Institutional restrictions, such as education policies and the lack of curriculum space, determine how much (or little) room there is for creative flexibility in offering language or

literacy support. Even when the overall institutional environment favours experimentation with EAC, those leading the EAC effort still face numerous challenges, such as manpower (especially when the support of graduate teaching assistants that is afforded in some institutions [e.g., Lannin & Townsend, 2020] is scarce or non-existent), resources, departmental support, and the extent to which disciplinary academics are willing to collaborate in discussing and designing the EAC intervention and linking EAC materials to disciplinary knowledge. Another issue that EAC practitioners face is that in situations where the EAL learners' proficiency is low but the expected output is fairly genre-specific and demanding (e.g., a review or a capstone report), EAC support cannot solely focus on higher order constructs, such as organisation and genre, but also has to address lower order concerns (Zawacki & Cox, 2011) as learners grapple with basic grammatical problems before they can develop literacy and rhetorical skills. To compound this situation, when student motivation is low, scaffolding the development of language skills can be doubly hard; and it can be challenging to find an opportune time to introduce the EAC intervention for greater impact. The fact that language teachers may not have relevant disciplinary content knowledge means that they will have to devote time to the analysis of disciplinary genre and discourse features as well as to student writing and speaking performances in order to prepare EAC materials that will not be too general but will be useful to students taking different majors. The multiple issues that EAC teams face signal the need for faculty professional development (Zemliansky & Berry, 2017); and in this digital age, some thoughts can also be given to the use of technology and multimodal activities (Hill, 2014) to achieve EAC goals and continue EAC programmes.

After the design and development of EAC support materials, challenges remain upon implementation. Under the quality assurance culture pervasive in education around the world, EAC teams are expected to evaluate the effectiveness of their intervention and conduct scholarship of teaching and learning to collect and analyse data, in order to inform future practices and reiterations. Even bigger challenges relate to securing continuous funding, addressing EAC programme vulnerabilities (Townsend, 2012), identifying where EAC will be housed (Smith, 1988), and ultimately determining how it can be sustained. These considerations resonate in different forms at various educational levels, from schools (Mullin & Childers, 2020), through undergraduate studies (Nielsen, 2019), to doctoral programmes (Rogers et al., 2016). To justify and support the continuation of EAC, there is a pressing need for EAC initiatives to find an operational model that engages faculty in a trusted relationship with language teachers that can lead to a win-all situation for

themselves, their students, and EAC more broadly (Routman, 2014). It is also crucial for EAC to show its educational value, including its effects on enriching the student learning experience, and, through conducting writing tests and textual analysis, any improvement in student performance (Chen et al., 2020). Learning analytics, increasingly used in many aspects of education evaluation, can bring to bear a further possible suite of tools to identify needs, gaps, and areas for further development (Palmquist, 2020).

Practitioner efforts and the challenges faced helping students develop language and literacy skills in their discipline studies are shared by EAC, WAC, and CLIL scholars in many parts of the world. The papers presented at the first and second International Conferences on English Across the Curriculum offered insights into both the enthusiasm and the concerns of teachers and other practitioners from different countries as they drew on EAC/WAC/CLIL principles and practices in developing their localized models with passion in response to their unique linguistic and multifaceted cultural contexts to meet their respective situational needs and challenges.

## The Volume

We are pleased that the EAC conferences have provided a platform for the exchange of lessons learnt, learning of new strategies and directions, and sharing of experiences. The organising committee of the second EAC conference decided it was important to capture some of the richness of ideas and practice that emerged from the conference presentations by researchers and educators from around the world. The editorial panel, comprising Bruce Morrison and Julia Chen together with PolyU colleagues Linda Lin and Alan Urmston, considered manuscripts submitted on a wide range of topics and, after a carefully monitored process of blind review, finally selected 17 for *English Across the Curriculum: Voices from Around the World*. We believe this volume will speak to not only practitioners who work in the same cities as the writers but also to scholars elsewhere in the global village, whether they are considering starting an EAC-like initiative or are already involved in an established WAC/CLIL programme.

### Section One: English Across the Curriculum

Five of the authors of papers in the first section work in Hong Kong, with the sixth a previous resident. This demographic indeed reflects the points outlined earlier in this introduction with regard to the Hong Kong roots of the present iteration of EAC. The papers focus on the experience of an EAC

approach based primarily on the perceptions of students, from various disciplines and at various stages of their academic careers, with issues relating to the necessary collaboration between language centre and subject host department teachers of central importance.

The first three papers focus on EAC initiatives that aim to support undergraduate students' use of English appropriate to the different disciplines in which they are studying and for potential contexts in which they may find themselves working in the future. The students in Felicia Fang and Yummy Chak's study are supported by teachers from the English Language Centre in collaboration with the subject content teacher with the aim of enhancing and operationalising the discipline-related academic writing skills needed for the writing of a reflective journal. Bringing a perspective from an academic from the field of civil engineering, in the next paper, Barbara Siu's primary aim is devising content-based strategies to support the enhancement of her students' language skills as they studied within an engineering curriculum where communication is multimodal. While reporting the positive effects perceived by students involved in her project, she also reveals challenges familiar to many language enhancement initiatives, particularly in relation to the limited opportunities for language practice and a lack of student motivation. Effective language is recognised as crucial to success in the business world, and effectively bringing this to students' attention is one way of raising extrinsic student motivation. Hannah Lai and Anthony Pang examine the perceptions of Faculty of Business students regarding the explicit inclusion of language use in the assessment rubric of a core business subject.

The next three papers in this section turn the EAC focus to support of post-graduate and final-year undergraduate students. Working in a research institute in Japan, John Blake and William R. Holden III report on how student scientific writers are supported in writing for publication. An approach incorporating writing courses and face-to-face writing conferences is supplemented with online support and tools that enable automated 24/7 feedback. Blake and Holden's focus on the importance of online support and feedback for students is also reflected in the last two papers in this section, both of which relate to the development of a mobile app for final-year undergraduates. Introducing the development of an app to support students in their writing of a capstone project, Julia Chen and her team identify the need to support students in the writing of probably the longest report they will have had to complete and then explain the research processes employed to collect stakeholder data and analyse the areas of capstone report writing that present the greatest challenge for students. In their paper, Grace Lim and Ivan Ho present the data from an evaluation of the app, which aims to enhance

students' project proposal writing through the provision of language tips and their project management skills through a project scheduling tool.

## Section Two: Content and Language Integrated Learning

Asia again provides the background for the four papers in this section, focusing on CLIL initiatives hosted in very differing educational contexts. These range from large-scale studies including nearly 4,000 pupil participants from across Taiwan, to a comparative study of CLIL-based and more traditionally taught classes in Vietnam, and the impact of the use of theatrical texts in a class in Japan.

The first two papers in this section have their home in Taiwan. Reporting on a two-year project, Jeffrey Gamble examines CLIL implementation across Taiwan, investigating the beliefs, attitudes, and challenges of English teachers involved. This teacher-focused investigation is then complemented by a large-scale study by Ai Chun Yen, whose focus is on the motivation of students participating in CLIL summer camps and those in camps following a "traditional" curriculum. Ai Chun Yen finds stronger intrinsic and extrinsic motivation amongst the students following a CLIL-focused curriculum, with students more positive about developing language competence and able to retain strong recognition of the importance of the content being taught.

The last two papers in this section report on a CLIL intervention in a course taught in Vietnam and Japan, respectively. Sinh Ngoc Dang explores the effects of introducing asynchronous discussion into a hybrid course that included American economic history and English language in the syllabus, concluding that student academic performance was enhanced when compared to that in a more "traditional" class. Also introducing a new language-focused element into his class with the use of theatrical texts as content learning resources, Alan Thompson examines the effects of learners' hearing, practising, and reflecting on the texts.

## Section Three: Writing Across the Curriculum

Unsurprisingly, while two chapters focus on studies carried out in China (Chapter 12) and Qatar (Chapter 13) respectively, all but one of the chapters in this section hail from U.S. universities. The section is bookended by a paper from Mike Palmquist based upon his plenary presentation and one from Martha Townsend, Terry Zawacki, Mike Palmquist, and Julia Chen that draws upon the end-of-conference panel discussion in which they participated.

Critical thinking is quite rightly considered to be a necessary precursor to effective academic writing. In his chapter, Mike Palmquist considers the role of three types of WAC learning and teaching activities that promote critical thinking and contribute to a student's disciplinary and language learning. Matthew Overstreet focuses on enhancing critical thinking instruction in a university in Northwest China by drawing upon WAC principles. While he found that the need for such an innovation was well-recognised, he also encountered a number of significant structural and cultural obstacles. Recognising the need for critical analysis in the development of a case analysis in the field of information systems, Maria Gomez-Laich and her team based at Carnegie Mellon University Qatar present an example of how students' academic writing might be more effectively scaffolded through employing interdisciplinary modeling of the writing process.

Jay Jordan and Chris Anson both examine different aspects of tertiary student language awareness. In his chapter, Jay Jordan analyses the ways that "Alice," an undergraduate Korean student, used "coping strategies" that were aimed at providing professors with what she believed they required, and strove to pursue "natural" language acquisition. He further reflects on the nature of transnational education and the roles that student and instructor interactions play. Chris Anson's study reveals that one in four "errors" identified by students in their peers' drafts were not in fact errors, and only one in ten errors made were identified. He points towards instructional ideology and written genre as influencing the accuracy of error identification.

The final two papers focus on WAC as a movement, the first in terms of the role for innovation in individual writing programs, the second in terms of examining the past and present of WAC, and considering its future. Andy Frazee and Rebecca Burnett discuss innovation as a transformational element in writing programmes, impacting not only the programme, faculty, and students, but also the innovators themselves. Within the context of the mission of a writing centre creating "a space for innovation," they first discuss characteristics of faculty professional development before going on to examine characteristics of the learning and teaching process, and then suggest questions that other writing centre programmes might consider when trying to make innovation a more central aspect of their centre's mission and work. After discussion of one specific element that might be seen as central to WAC, the volume concludes with a paper that expands on the conference's closing plenary session where Martha Townsend, Terry Zawacki, Mike Palmquist, and Julia Chen take a more panoramic view, presenting their takes on the development of the WAC movement and the trails it might potentially follow.



## Concluding Remarks

The chapters in this volume testify to challenges faced, opportunities presented, and a passion displayed for embedding academic English literacy in content/discipline subjects in institutions around the world. They also illustrate the persistence of teachers in creating and shaping valuable learning experiences and ongoing support for their students. At the time of writing, the four-university team that put together the first EAC Conference in Hong Kong has now become a five-university team that has received a further government grant to enhance students' academic English for capstone/final-year projects via the development of a mobile app, so as to provide a technologically-supported writing environment (Palmquist, 2003) for the digital generation. The volume editors are hopeful that more localised forms of EAC might blossom and flourish around the world in the endless pursuit of providing better language and literacy education for students.

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## References

- Annous, S., & Nicolas, M. O. (2015). Academic territorial borders: A look at the writing ethos in business courses in an environment in which English is a foreign language. *Journal of Business and Technical Communication*, 29(1), 93-111.
- Baldauf Jr., R. B., Kaplan, R. B., Kamwangamalu, N., & Bryant, P. (2011). Success or failure of primary second/foreign language programmes in Asia: What do the data tell us? *Current Issues in Language Planning*, 12(2), 309-323.
- Benson, C. (2004). *The importance of mother tongue-based schooling for educational quality*. Background paper for the EFA Global Monitoring Report 2005. UNESCO.
- Chen, J. (2020). EAP in Hong Kong. In H. Terauchi, J. Noguchi, & A. Tajino (Eds.), *Towards a new paradigm for English language teaching: English for specific purposes in Asia and beyond* (pp. 115-126). Routledge.
- Chen, J., Chan, C., & Ng, A. (2020). English across the curriculum: Four journeys of synergy across disciplines and universities. In B. Spolsky & H. Lee (Eds.),

- Localizing global English: Asian perspectives and practices* (pp.84-103). Routledge.
- Cheyne, P., & Rummel, E. (2015). Materials development for a Japanese university CLIL class. *ELTWorldOnline.com, Special Issue on CLIL*. <http://blog.nus.edu.sg/eltwo/?p=4858>
- Coyle, D. (2007). Content and language integrated learning: Towards a connected research agenda for CLIL pedagogies. *International Journal of Bilingual Education and Bilingualism*, 10(5), 543-562.
- Dalton-Puffer, C. (2011). Content-and-language integrated learning: From practice to principles? *Annual Review of Applied Linguistics*, 31, 182-204.
- Eberhard, D. M., Simons, G. F., & Fennig, C. D. (Eds.). (2020). *Ethnologue: Languages of the world* (23<sup>rd</sup> ed.). SIL International. <http://www.ethnologue.com>
- European Commission. (2010). *European language policy and CLIL: A selection of EU-funded projects*. [www.edu.xunta.gal/centros/cpicruce/system/files/clilbroch\\_en.pdf](http://www.edu.xunta.gal/centros/cpicruce/system/files/clilbroch_en.pdf)
- Evans, S. (2017). Language policy in Hong Kong education: A historical overview. *European Journal of Language Policy*, 9(1), 67-84.
- Goldsmith, R., & Willey, K. (2016). "It's not my job to teach writing": Activity theory analysis of [invisible] writing practices in the engineering curriculum. *Journal of Academic Language & Learning*, 10(1), A118-129.
- Hill, A. (2014). Using interdisciplinary, project-based, multimodal activities to facilitate literacy across the content areas. *Journal of Adolescent & Adult Literacy*, 57(6), 450-460.
- Hu, K., & McKay, S. L. (2012). English language education in East Asia: Some recent developments. *Journal of Multilingual and Multicultural Development*, 33(4), 345-362. <https://doi.org/10.1080/01434632.2012.661434>
- Kiefer, K., Palmquist, M., Carbone, N., Cox, M., & Melzer, D. (2000-2018). *An introduction to writing across the curriculum*. Fort Collins, CO: The WAC Clearinghouse. Retrieved from <http://wac.colostate.edu/resources/wac/intro>.
- Ito, Y. (2018). CLIL in practice in Japanese elementary classrooms: An analysis of the effectiveness of a CLIL lesson in Japanese traditional crafts. *English Language Teaching*, 11(9), 59-67.
- Kosonen, K. (2005). Education in local languages: Policy and practice in South-East Asia. In UNESCO, *First language first: Community-based literacy programmes for minority language contexts in Asia* (pp. 96-134). UNESCO.
- Lannin, A., & Townsend, M. (2020). Graduate student perspectives: Career development through serving as writing-intensive GTAs. In M. Brooks-Gillies, E. G. Garcia, S. H. Kim, K. Manthey, & T. G. Smith (Eds.), *Graduate writing across the disciplines: Identifying, teaching, and supporting* (pp. 95-119). The WAC Clearinghouse; University Press of Colorado. <https://doi.org/10.37614/ATD-B.2020.0407.2.04>
- Lin, A. M. Y., & Man, E. Y. F. (2009). *Bilingual education: Southeast Asian perspectives*. Hong Kong University Press.
- Marsh, D. (2012). Content and language integrated learning (CLIL): A development trajectory. Retrieved from <https://core.ac.uk/download/pdf/60884824.pdf>

- Mullin, J. A., & Childers, P. B. (2020). Still natural? A response to “The natural connection: The WAC Program and the high school writing center.” *The Clearing House: A Journal of Educational Strategies, Issues and Ideas*, 93(6), 271-276.
- Nielsen, K. (2019). Peer and self-assessment practices for writing across the curriculum: Learner-differentiated effects on writing achievement. *Educational Review*. <https://doi.org/10.1080/00131911.2019.1695104>
- Palmquist, M. (2003). A brief history of computer support for writing centers and writing-across-the- curriculum programs. *Computers and Composition*, 20(4), 395-413.
- Palmquist, M. (2020). Learning analytics in writing instruction: Implications for writing across the curriculum. In L. E. Bartlett, S. L. Tarabochia, A. R. Olinger, & M. J. Marshall (Eds.), *Diverse approaches to teaching, learning, and writing across the curriculum: IWAC at 25*. The WAC Clearinghouse; University Press of Colorado. <https://wac.colostate.edu/books/perspectives/iwac2018>
- Parba, J. (2018). Teachers’ shifting language ideologies and teaching practices in Philippine mother tongue classrooms. *Linguistics and Education*, 47, 27-35. <https://doi.org/10.1016/j.linged.2018.07.005>
- Perez, A. L., & Alieto, E. (2018). Change of “tongue” from English to a local language: A correlation of mother tongue proficiency and mathematics achievement. *The Asian ESP Journal*, 14(7.2), 132-150.
- Rahman, M. M., & Pandian, A. (2018). The chaotic English language policy and planning in Bangladesh: Areas of apprehension. *Social Sciences & Humanities*, 26(2), 893-908.
- Rogers, P., Zawacki, T., & Baker, S. (2016). Uncovering challenges and pedagogical implications in dissertation writing and supervisory practices: A multimethod study of doctoral students and advisors. In S. Simpson, N. Caplan, M. Cox, & T. Phillips (Eds.), *Supporting graduate student writers: Research, curriculum, and program design* (pp. 52-77). University of Michigan Press.
- Routman, R. (2014). *Read, write, lead: Breakthrough strategies for schoolwide literacy success*. ASCD.
- Smith, L. Z. (1988). Why English departments should “house” writing across the curriculum. *College English*, 50(4), 390-395. Retrieved from <https://www.jstor.org/stable/pdf/377611.pdf>
- Stoller, F. L. (2008). Content-based instruction. In V. Deusen-Scholl & N. H. Hornberger (Eds.), *Encyclopedia of language and education: Vol 4. Second and foreign language education* (2<sup>nd</sup> ed., pp. 59-70). Springer Science/Business Media.
- Suwannoppharat, K., & Chinokul, S. (2015). Applying CLIL to English language teaching in Thailand: Issues and challenges. *Latin American Journal of Content and Language Integrated Learning*, 8(2), 237-254. <https://doi.org/10.5294/la-clil.2015.8.2.8>
- Townsend, M. A. (2012). WAC program vulnerability and what to do about it: An update and brief bibliographic essay. In T. M. Zawacki & P. M. Rogers (Eds.), *Writing across the curriculum: A critical sourcebook* (pp. 543-556). Bedford/St. Martin’s.

- Thuy, L. N. T. (2016). Reconsidering the first steps of CLIL implementation in Vietnam. *European Journal of Language Policy*, 8, 29-56. <https://doi.org/10.3828/ejlp.2016.4>
- Tsou, W. (2018). Implementing content language integrated learning (CLIL) in Taiwan: A review study. *PIM 1<sup>st</sup> International Conference*. <https://conference.pim.ac.th/thai/wp-content/uploads/2017/09/K-EDUCATION-IN-THE-DIGITAL-AGE.pdf>
- Wingate, U. (2018). Academic literacy across the curriculum: Towards a collaborative instructional approach. *Language Teaching*, 51(3), 349-364.
- Zawacki, T. M., & Cox, M. (2011). Introduction to WAC and second language writing. *Across the Disciplines*, 8(4), 1-11. <https://doi.org/10.37514/ATD-J.2011.8.4.19>
- Zemliansky, P., & Berry, L. (2017). A writing-across-the-curriculum faculty development program: An experience report. *IEEE Transactions on Professional Communication*, 60(3), 306-316.