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Five Concrete Collaborations to Support SoTL Across Campus

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Introduction

As experts in information literacy, university librarians often conduct instruction sessions for students and faculty. As has been observed with university teachers,[1] it seems likely that most librarians will have become instructors via a learning-by-doing[2] or "apprenticeship of observation"[3] approach. An examination of one's own personal practice, informed by the Scholarship of Teaching and Learning (SoTL) literature, offers a strong basis for improving the teaching of information literacy and underlying beliefs about learning. This case study discusses how the development of a collaboration between the Library and the Teaching Support Centre at the Ecole Polytechnique Fédérale de Lausanne (EPFL) has led to the introduction of SoTL into the library's teaching practice.

This case study uses five concrete examples to illustrate how the collaboration shed new light on the library's instructional practices, how the use of SoTL enabled some intuitive knowledge to be formalized and other practices to be challenged and adapted to incorporate more evidence-based teaching strategies. It also shows how, beyond the positive impact for the library training team, the relationship was beneficial to the Teaching Support Centre through the support it received from the library around monitoring, using, and managing literature on teaching and learning. The case study explores the specific characteristics of these successful collaborations, and some persistent challenges, with the intention to provide readers with insight on how to foster similar dynamics in their own academic environments.

EVIDENCE-INFORMED TEACHING

EPFL is a renowned research-intensive technical university located in the French-speaking part of Switzerland. The institution comprises five schools, two colleges, twenty-one institutes, and 357 laboratories. There are more than 10,000 students, from undergraduates to doctoral students, and more than 300 faculty. Over the years, EPFL librarians have developed expertise in information literacy, copyright rules, publishing, and research data. Parallel to individual support for faculty and students on these topics, library staff also provide formal information literacy instruction. This situation has led to the creation of a team of teaching librarians. This team handles most of the instructional efforts of the library: it carries out the majority of the one-shot courses (which can be from two hours to half-day-long sessions) and supports other librarians in delivering instruction.

In 2012, the teaching librarians felt the need to have a clearer understanding of students' prior knowledge, especially in the field of plagiarism. They also wanted to improve interactivity in a forty-five-minute course about good citation practices. With the idea of using interactive questioning in class, they contacted the teaching advisors from the Teaching Support Centre to access clickers and to investigate the potential educational advantages offered by this technology. The challenge of formulating effective clicker questions stimulated a first foray into educational literature on this topic. Because teaching was not part of the Swiss Library and Information Science (LIS) curriculum until recently, librarians had to develop teaching skills while on the job. This first contact with the literature was an important step in developing a more evidence-based pedagogical practice, which in turn allowed the EPFL librarians to implement more interactive and collaborative sessions for students.

While the initial inclusion of the clickers reshaped the course, the data generated by the clickers about the students' prior knowledge and evolving understanding of information literacy also stimulated the librarians' reflections about teaching. For instance, the clicker data showed that students understood the rules on avoiding plagiarism but struggled to apply their understanding in practice.[4] It also revealed that while students knew they have to cite sources used for their work, they did not clearly see how to do it. In addition, students appeared to misunderstand the rules regarding the reuse of pictures and graphs.[5] Based on these observations, the librarians created new activities and games to help students deal with different contexts (homework, in-class presentation, self-publication on the web, scientific publication) and the rules to apply to each case. Progressively, the training offered by the librarians improved on an evidence-based and iterative trajectory.

SUPPORT FOR STUDENTS ON INFORMATION LITERACY AND OTHER TRANSVERSAL SKILLS

The Teaching Support Centre and the Library were involved in the design of a new interdisciplinary course for first-year bachelor's degree students, which included the development of information literacy, teamwork, and oral communication skills. A review

of the literature reinforced the motivation to integrate such skills into students' disciplinary courses in order to maximize their perceived relevance to students and thus their application across the curriculum.[6] In response to the logistical challenges of reaching 1,700 students across twelve sections of the course, the Teaching Support Centre and the library developed a series of videos and application exercises available online to complement students' project work. Feedback from students on the first version of the resources was lukewarm, and many students appeared to have been unaware of their existence, indicating a lack of integration with the classroom sessions taught by the disciplinary instructors. In response to this feedback, a second version of the resources used testimonies from the first cohort of students on the difficulties they encountered in order to increase the contextualization of the skills in terms of the specific project tasks required of students. This approach draws on the "near peer role model" technique found to be beneficial in other contexts.[7]

Feedback from students and from the course teaching team has been positive, and the collaboration has enabled increased contact between first-year students and the library. As part of the feedback on the fourth iteration of the course, students were asked to list the two most important difficulties they had experienced in completing their project. The data indicated that the resources offered by the library are meeting most students' needs but that intragroup communication and coordination are continuing challenges.

This data-led approach has been a valuable angle for SoTL-informed discussions with the teaching team. Further, the disciplinary teachers have engaged in the SoTL approach, including publishing on the course[8] in addition to articles authored by the Teaching Support Centre.[9] The partnership with the Teaching Support Center has provided the librarians with increasing opportunities to understand best practices for collecting data and using feedback from students. Not only has this specific first-year course been improved by such an iterative, collaborative, and data-driven approach, but this process has also enabled librarians to develop a more research-based approach to their teaching practice.

LITERATURE MONITORING

At the end of 2014, two new colleagues joined the library teaching team. As part of their preparation for teaching workshops, the new librarians read extensively in LIS and educational literature. This encouraged the rest of the team, who then started to share literature by email. An initial meeting was organized for team members to share the most relevant sources and tools they were using. This resulted in the development of a shared systematized literature watch with Inoreader (https://www.inoreader.com/). The current teaching and learning literature monitoring combines multiple sources, including annual reports (e. g., Innovating Pedagogy annual reports of the UK's Open University, http://www.openuniversity.edu/), teaching community blogs (e.g., https://ciel.unige.ch/), Twitter accounts of practitioners (e.g., @clauersen, https://twitter.com/clauersen), and practical "how to" books that are particularly useful for building new teaching activities. Additional books on teaching have been acquired[10] and made directly available to all staff and teachers via the library collection. The library now plans to develop a feed on information literacy

for engineers in higher education for colleagues outside the institution. Building on their experience, the librarians have also helped to teach advisors to develop their reference management and literature monitoring activities.

Employing teaching and learning literature has proved to be a great experience for the librarians: they have been inspired in the preparation of their courses and have begun to participate in wider education-focused meetings and events such as the Swiss Faculty Development Network conference (http://www.sfdn.ch/). This has also demonstrated, in particular to departmental faculty, that the library teaching team is proactive and employs a reflective methodology to its own instructional work. This provides the librarians with research experience that facilitates their understanding of faculty research and pedagogical practices.

SCIENTIFIC INFORMATION LITERACY CLUB

The shared literature monitoring process strongly improved the circulation of ideas through the library teaching team. However, a moment dedicated to face-to-face discussion was missing. Relevant literature was discussed informally but there was no structured follow-up. The library teaching team needed a devoted meeting to pool its findings, to critically assess them, and to reflect on the possibility of applying them to its teaching activities. As a first step, a new kind of informal meeting—the "scientific information literacy club"—was scheduled for the library teaching team. As the name suggests, the concept is inspired by journal clubs. Each month, a team member volunteers to facilitate a session. The aim is to present a book, a report, a game, or any pedagogical tool that might prompt the team to develop innovative teaching activities. Articles providing models and frameworks are also presented as bases to compare and evaluate practices.[11] After the presentation, the team discusses ways to integrate the game, activity, or theory presented in an upcoming course. The meeting provides a time dedicated to exploring ideas before trying them out in class, creating a bridge between literature and teaching activities. Trying and discussing instructional strategies in advance of class sessions also enabled the team to receive feedback, which is essential to fine-tune the design of a course. The quality of teaching increased as librarians continuously experimented with new pedagogical approaches.

After a few monthly sessions, the library teaching team—in a spirit of sharing and openness—started to invite other colleagues to present on topics connected to teaching. For example, a collection development librarian reported on conference presentations she attended related to gamified activities, and a member of the Center for Digital Education introduced learning analytics. In order to further these discussions, the librarians hope to eventually include faculty members. Teaching librarians collaborate with faculty on a regular basis to instruct students in information literacy, but deeper pedagogical questions are rarely addressed explicitly. Including faculty in these discussions would open up the possibility of increasing each other's comprehension of instructional best practices and have a positive impact on upcoming partnerships.

Building on the success of this model, teaching librarians also hope to begin to measure the effectiveness of the teaching activities emerging from the monthly meetings. Formal data

collection will enable the team to adapt instruction to specific student and curricular needs, to develop models, and to share expertise with colleagues beyond the walls of the institution.

INTERDISCIPLINARY TEACHING DEVELOPMENT

In many research-intensive institutions, graduate teaching assistants are the first line of contact with students.[12] Like many others, the Teaching Support Centre at EPFL has developed specific training for graduate teaching assistants.[13] However, because their teaching duties typically involve supervising students in laboratories or responding to questions during exercise sessions, teaching assistants rarely have the opportunity to structure a complete teaching sequence. To provide them both with a space to practice and a first contact with a teaching community,[14] the Teaching Support Centre created the TeachDev group, a community of practice composed of doctoral candidates and post-docs.

The group functions like a journal club dedicated to teaching, with each session centered on an interactive mini-lesson facilitated by a member of the group. Topics have included student motivation, assessment, stereotype threat, multiple intelligences, and a talk about a SoTL project undertaken by a doctoral candidate.[15] These lessons provide an ongoing opportunity for microteaching practice, which has been shown to be among the most effective techniques for improving teaching skills,[16] particularly for developing interactive teaching strategies. They enable graduate students to design and facilitate lessons as part of their pedagogical development, and several alumni of the community now hold teaching or academic positions. The collaborative nature of the group also provides rich opportunities for feedback on the lesson and its implementation, and, given the value of feedback in learning,[17] this is worth underlining on its own. With participants from multiple departments, the TeachDev community is helping to spread the SoTL approach across the institution.

Librarians became progressively involved in the group, first as attendees then as full participants. They taught mini-lessons on the use of games in information literacy training and on a peer-based tool to support collaborative professional development. The group has benefited from the information literacy expertise of the librarians, and, in turn, has helped to assess the pedagogical material created by the librarians, which allowed librarians to get feedback on new teaching methods. These lessons were also an opportunity for the librarians to gain greater insight into doctoral students' training needs. More generally, the participation of the librarians in this group facilitated the integration of their work into the development of students' information literacy skills across the institution.

Limits and Perspective

As stated earlier, both the library and the Teaching Support Centre consider this partnership successful in the sense that it has led to concrete implementations of SoTL-driven initiatives. These initiatives have progressively led to a more systematic use of evidence from the literature on teaching and learning, data collection to inform decisions, and microteaching opportunities and feedback to transform practices. The initiatives have also resulted in an

increased attention to internal and external dissemination of teaching best practices and findings.

However, there were challenges and limitations to this approach. A first challenge to overcome was that academic research was not part of the job description of the librarians or of the teaching advisors. Although most of them have academic research skills, a deficiency of such skills has been identified as an impediment in other contexts.[18] Allocating time and resources to the different initiatives described above was therefore difficult because the tasks were not part of everyday formal responsibilities. It required effort not to cancel the meetings because they were never a priority, especially during busy periods of the academic calendar. Many of the discussions around evidence-based teaching methods, plagiarism, reference management, collaborative writing, and studying support happened during lunch and coffee breaks. An initial limit of the approach is therefore the motivation of the individuals involved to dedicate part of their time to additional work beyond their duties. The good personal relationships that grew up slowly between the teaching advisors and the librarians played an important role. Another factor that kept both teams motivated was that both were convinced that investing in developing SoTL-related skills and making this visible by publishing was also a way to open the path toward an official incorporation of academic research in the job descriptions of members.

While SoTL was not part of the original mission of the library teaching team, there was a shared belief that having solid evidence to support information literacy instruction was important. And this belief fueled a desire to work together, building on the shared practice of reviewing each instructional session in order to identify areas for improvement. Initial contact with SoTL concepts occurred at different moments for members of the team, and the realization that many activities had been permeated by a SoTL approach came later. In turn, this awareness also stimulated an increased use of literature, data, and reflection to improve teaching and to develop new approaches in support of student learning. The development of similar initiatives would likely occur more rapidly with an explicit intention to use SoTL.

Another challenge actually came from the success of the group at establishing a friendly and motivating atmosphere. With a growing number of participants, it was no longer possible for everyone to work on all initiatives. It is also important to note that, more generally, not all members of the library and of the Teaching Support Centre have been involved in the developments described in this chapter, although they were informed of the ongoing partnership. As the two units recruit new staff and more explicitly draw on SoTL to improve their pedagogical practices, a question remains about how to involve new arrivals in the initiatives. In addition, making these initiatives stable over the long term is a question the teams still need to address.

Conclusion

This case study has presented five concrete examples of SoTL-informed activities resulting from collaborations between the library and the Teaching Support Centre at Ecole Polytechnique Fédérale de Lausanne in Switzerland. While this list is not exhaustive, it

illustrates how the nature of the collaboration between the two services has evolved from guide to partner in the co-facilitation of workshops, conferences, and a community of practice for teaching assistants. In discussing both the successes and challenges of this work, the authors hope to provide librarians with insights on how to reproduce similar partnerships in their own institutions.

After five years, the cross-fertilization between the two teams has led to a more collaborative monitoring of literature on teaching and learning, an increased use of this evidence in the design of instruction offered by both services, and the development of a more systematic way to collect data to inform pedagogical decisions. More generally, the different initiatives have spurred the development of a more reflective, evidence-based, and data-driven approach to teaching, which is an increasingly important part of the overall culture of a research-intensive institution such as the EPFL.

ENDNOTES

1. Lee S. Shulman, "Signature Pedagogies in the Professions," *Daedalus*, 134, no. 3 (2005): 52–59, accessed May 11, 2018, https://doi.org/10.1162/0011526054622015.
2. Theresa Westbrock and Sarah Fabian, "Proficiencies for Instruction Librarians: Is There Still a Disconnect Between Professional Education and Professional Responsibilities?," *College & Research Libraries*, 71, no. 6 (2010): 569–90, accessed May 11, 2018, https://doi.org/10.5860/crl-75r1.
3. Michaela Borg, "The Apprenticeship of Observation," *ELT Journal*, 58, no. 3 (2004): 274–76, accessed May 11, 2018, https://doi.org/10.1093/elt/58.3.274.
4. Noémi Cobolet and Raphaël Grolimund, "Avoiding Plagiarism: The Road to Autonomy," Swiss Faculty Development Network Conference 2017, Lausanne, 2017, accessed May 11, 2018, http://infoscience.epfl.ch/record/225666.
5. Caroline Salamin et al., "What Students Answer When Discussing About Citation Practices," *Zenodo*, February 10, 2017, accessed May 11, 2018, https://doi.org/10.5281/zenodo.290155.
6. For a review, see Debra Bath et al., "Beyond Mapping and Embedding Graduate Attributes: Bringing Together Quality Assurance and Action Learning to Create a Validated and Living Curriculum," *Higher Education Research & Development*, 23, no. 3 (2004): 313–28, accessed May 11, 2018, https://doi.org/10.1080/0729436042000235427.
7. Mary C. Murphy, Claude M. Steele, and James J. Gross, "Signaling Threat: How Situational Cues Affect Women in Math, Science, and Engineering Settings," *Psychological Science*, 18, no. 10 (2007): 879–85, accessed May 11, 2018, https://doi.org/10.1111/j.1467-9280.2007.01995.x; Susan D. Nickerson et al., "Identification Matters: Effects of Female Peer Role Models Differ By Gender Between High and Low Mathematically Identified Students," Conference on Research in Undergraduate Mathematics Education, San Diego, 2017.
8. Adrian Holzer et al., "Early Awareness of Global Issues and Development of Soft Skills in Engineering Education: An Interdisciplinary Approach to Communication," in *2014 Information Technology Based Higher Education and Training (ITHET)*, 2014, 1–6, accessed May 11, 2018, https://doi.org/10.1109/ITHET.2014.7155697; Adrian Holzer et al., "Gamifying Knowledge Sharing in the Humanitarian Context," in *Proceedings of the 7th Annual Symposium on Computing for Development*, ACM DEV '16 (New York: ACM, 2016), 21:1–21:4, accessed May 11, 2018, https://doi.org/10.1145/3001913.3006630.
9. Siara Isaac and Roland Tormey, "Undergraduate Group Projects: Challenges and Learning Experiences," *QScience Proceedings*, 2015, no. 4 (2015): 19, accessed May 11, 2018, https://doi.org/10.5339/qproc.2015.elc2014.19; Roland Tormey et al., "The Formal and Hidden Curricula

of Ethics in Engineering Education," 43rd Annual SEFI Conference, Orléans, 2015, accessed May 11, 2018, https://infoscience.epfl.ch/record/210646.

10. e.g., John Hattie, *Visible Learning: A Synthesis of over 800 Meta-Analyses Relating to Achievement* (London: Routledge, 2009); Jake Carlson and Lisa Johnston, eds., *Data Information Literacy: Librarians, Data, and the Education of a New Generation of Researchers*, Purdue Information Literacy Handbooks (West Lafayette, IN: Purdue University Press, 2015).
11. Igor Mayer et al., "The Research and Evaluation of Serious Games: Toward a Comprehensive Methodology," *British Journal of Educational Technology*, 45, no. 3 (2014): 502–27, accessed May 11, 2018, https://doi.org/10.1111/bjet.12067.
12. Donald H. Wulff and Ann E. Austin, eds., *Paths to the Professoriate: Strategies for Enriching the Preparation of Future Faculty*, The Jossey-Bass Higher and Adult Education Series (San Francisco: Jossey-Bass, 2004).
13. Roland Tormey, Cécile Hardebolle, and Siara Isaac, "The Teaching Toolkit: Design and Evaluation of a One-Day Pedagogical Workshop for Engineering Graduate Teaching Assistants," *Submitted*, 2017.
14. Sharon Dotger, "Exploring and Developing Graduate Teaching Assistants' Pedagogies via Lesson Study," *Teaching in Higher Education*, 16, no. 2 (2011): 157–69, accessed May 11, 2018, https://doi.org/10.1080/13562517.2010.507304.
15. Manuel Aprile, "Using ConcepTests During Exercise Sessions" (The Scholarship of Teaching and Learning SoTL): developing teaching through research, Zurich, 2016).
16. Hattie, *Visible Learning*.
17. Ibid.
18. Fay Patel, "Promoting a Culture of Scholarship among Educational Developers: Exploring Institutional Opportunities," *International Journal for Academic Development*, 19, no. 3 (2014): 242–54, accessed May 11, 2018, https://doi.org/10.1080/1360144X.2013.805693; Tony Harland and David Staniforthb, "Academic Development as Academic Work," *International Journal for Academic Development*, 8, no. 1–2 (2003): 25–35, accessed May 11, 2018, https://doi.org/10.1080/1360144042000277919.

BIBLIOGRAPHY

Aprile, Manuel. "Using ConcepTests during Exercise Sessions." Zurich, 2016.

Bath, Debra, Calvin Smith, Sarah Stein, and Richard Swann. "Beyond Mapping and Embedding Graduate Attributes: Bringing Together Quality Assurance and Action Learning to Create a Validated and Living Curriculum." *Higher Education Research & Development*, 23, no. 3 (2004): 313–28. Accessed May 11, 2018. https://doi.org/10.1080/0729436042000235427.

Borg, Michaela. "The Apprenticeship of Observation." *ELT Journal*, 58, no. 3 (2004): 274–76. Accessed May 11, 2018. https://doi.org/10.1093/elt/58.3.274.

Carlson, Jake, and Lisa Johnston, eds. *Data Information Literacy: Librarians, Data, and the Education of a New Generation of Researchers*. Purdue Information Literacy Handbooks. West Lafayette, IN: Purdue University Press, 2015.

Cobolet, Noémi, and Raphaël Grolimund. "Avoiding Plagiarism: The Road to Autonomy." Lausanne, 2017. Accessed May 11, 2018. http://infoscience.epfl.ch/record/225666.

Dotger, Sharon. "Exploring and Developing Graduate Teaching Assistants' Pedagogies via Lesson Study." *Teaching in Higher Education*, 16, no. 2 (2011): 157–69. Accessed May 11, 2018. https://doi.org/10.1080/13562517.2010.507304.

Harland, Tony, and David Staniforthb. "Academic Development as Academic Work." *International Journal for Academic Development*, 8, no. 1–2 (2003): 25–35. Accessed May 11, 2018. https://doi.org/10.1080/1360144042000277919.

Hattie, John. *Visible Learning: A Synthesis of over 800 Meta-Analyses Relating to Achievement*. London: Routledge, 2009.

Holzer, Adrian, Samuel Bendahan, Isabelle V. Cardia, and Denis Gillet. "Early Awareness of Global Issues and Development of Soft Skills in Engineering Education: An Interdisciplinary Approach to Communication," In *2014 Information Technology Based Higher Education and Training (ITHET)*, 1–6, 2014. Accessed May 11, 2018. https://doi.org/10.1109/ITHET.2014.7155697.

Holzer, Adrian, Bruno Kocher, Isabelle Vonèche Cardia, Jorge Mazuze, Samuel Bendahan, and Denis Gillet. "Gamifying Knowledge Sharing in the Humanitarian Context." In *Proceedings of the 7th Annual Symposium on Computing for Development*, 21:1–21:4. ACM DEV '16. New York: ACM, 2016. Accessed May 11, 2018. https://doi.org/10.1145/3001913.3006630.

Isaac, Siara, and Roland Tormey. "Undergraduate Group Projects: Challenges and Learning Experiences." *QScience Proceedings*, 2015, no. 4 (2015): 19. Accessed May 11, 2018. https://doi.org/10.5339/qproc.2015.elc2014.19.

Mayer, Igor, Geertje Bekebrede, Casper Harteveld, Harald Warmelink, Qiqi Zhou, Theo van Ruijven, Julia Lo, Rens Kortmann, and Ivo Wenzler. "The Research and Evaluation of Serious Games: Toward a Comprehensive Methodology." *British Journal of Educational Technology*, 45, no. 3 (2014): 502–27. Accessed May 11, 2018. https://doi.org/10.1111/bjet.12067.

Murphy, Mary C., Claude M. Steele, and James J. Gross. "Signaling Threat: How Situational Cues Affect Women in Math, Science, and Engineering Settings." *Psychological Science*, 18, no. 10 (2007): 879–85. Accessed May 11, 2018. https://doi.org/10.1111/j.1467-9280.2007.01995.x.

Nickerson, Susan D., Katie Bjorkman, Sei Jin Ko, and David Marx. "Identification Matters: Effects of Female Peer Role Models Differ by Gender Between High and Low Mathematically Identified Students." San Diego, 2017.

Patel, Fay. "Promoting a Culture of Scholarship among Educational Developers: Exploring Institutional Opportunities." *International Journal for Academic Development*, 19, no. 3 (2014): 242–54. Accessed May 11, 2018. https://doi.org/10.1080/1360144X.2013.805693.

Salamin, Caroline, Noémi Cobolet, Raphaël Grolimund, and Pascale Bouton. "What Students Answer When Discussing About Citation Practices." *Zenodo*. February 10, 2017. Accessed May 11, 2018. https://doi.org/10.5281/zenodo.290155.

Shulman, Lee S. "Signature Pedagogies in the Professions." *Daedalus*, 134, no. 3 (2005): 52–59. Accessed May 11, 2018. https://doi.org/10.1162/0011526054622015.

Tormey, Roland, Cécile Hardebolle, and Siara Isaac. "The Teaching Toolkit: Design and Evaluation of a One-Day Pedagogical Workshop for Engineering Graduate Teaching Assistants." *Submitted*, 2017.

Tormey, Roland, Ingrid Le Duc, Siara Ruth Isaac, Cécile Hardebolle, and Isabelle Vonèche Cardia. "The Formal and Hidden Curricula of Ethics in Engineering Education." Orléans, 2015. Accessed May 11, 2018. https://infoscience.epfl.ch/record/210646.

Westbrock, Theresa, and Sarah Fabian. "Proficiencies for Instruction Librarians: Is There Still a Disconnect Between Professional Education and Professional Responsibilities?" *College & Research Libraries*, 71, no. 6 (2010): 569–90. Accessed May 11, 2018. https://doi.org/10.5860/crl-75r1.

Wulff, Donald H., and Ann E. Austin, eds. *Paths to the Professoriate: Strategies for Enriching the Preparation of Future Faculty*. The Jossey-Bass Higher and Adult Education Series. San Francisco: Jossey-Bass, 2004.