

Features for an International Learning Environment in Research Education

Barbara Class ^a

*Faculty of Psychology and Educational Sciences, TECFA, University of Geneva,
40, Boulevard du Pont-d'Arve, CH-1211 Geneva 4, Switzerland*

Keywords: Learning and Teaching Environment, Research Education, Knowledge Economy, SDG4.

Abstract: This position paper is written at the very start of a SNF funded project on research education in the social sciences. We present a preliminary model for an international learning and teaching environment for PhD students in education. Based on a conceptual framework drawing on research and open education, virtual and scientific mobility, articulated to the broader concept of the knowledge economy, the model is fivefold. It addresses pedagogical and technological issues, suggests a dual tutoring system to accompany PhD students, promotes virtual scientific mobility and is connected to viable and fair economic and institutional surroundings. The paper interprets SDG 4 widely, suggesting early integration of young researchers into international scientific networks can contribute to address contextual and global educational challenges intelligently.

1 INTRODUCTION

The overall objective of this position paper is to present possible avenues for an international learning environment in research education. The environment is designed for PhD students in the social sciences and particularly in the field of education and digital education.

Education as a concept presupposes, on the cognitive level, one possesses a body of knowledge as well as conceptual schemes that lead to an understanding of underlying organisations of facts. It also refers to connecting to a wider system of beliefs rather than being limited to the training of given skills (Peters, 1966). In the same line of thought, education is to be understood as a “focus for inquiry” (Bridges, 2017, p. 15) and not as a discipline.


As far as research on education is concerned, educational research is massive and diverse. It relies on “methods and methodologies on every part of the academy (as well as other spheres of social and professional practice)” (Bridges, 2017, p. 2).

When it comes to research education, practitioners and young researchers often say that methodology courses usually do not come at the right time in the curriculum and/or that they are inadequate

in terms of learning outcomes (e.g. Attia & Edge, 2017).

To address this issue and the need for “just in time” methodological content and tutoring, a small-scale initiative, taking the form of on-line modules in research methodology, was piloted during the academic year 2018-9. This initiative is rooted in the specific context of an exceptional scientific growth attested in North Africa, which, as a corollary increases the demand for methodology education (Waast & Gaillard, 2018). It mixed francophone PhD students from the North and from the South and was the occasion to highlight key strengths and weaknesses of these on-line modules which were offered in the form of free continuing education without formal assessment or certification.

Drawing on that experience, the specific goals of this contribution consist in presenting features for an improved learning and teaching online environment that offers certification. Research education, open education and scientific virtual mobility, articulated to the knowledge economy as a conceptual framework, represent the bedrock on which this paper unfolds.

^a <https://orcid.org/0000-0002-5461-2307>

2 CONCEPTUAL FRAMEWORK

2.1 The Knowledge Economy

In 1999, the Bologna reform and its eponymous declaration formally launched the knowledge society. Its goal was to transform the European Union into the most competitive and dynamic knowledge-based economy by 2010 (Huisman, Adelman, Hsieh, Shams, & Wilkins, 2012). The levers to reach this goal are materialised in the European Higher Education Area (EHEA) and consist in i) restructuring courses in 3 levels (Bachelor, Master, PhD); (ii) establishing transparency, compatibility and mutual recognition of course credits with the means of European Credit Transfer System (ECTS); (iii) implementing a quality assurance system, vehicled by qualification frameworks; iv) encouraging mobility with the Diploma Supplement and Learning Agreements for Studies; and (v) realigning higher education to meet the needs of a globalised knowledge economy (Bachmann, 2018; Buchem et al., 2018). The initial inter-governmental process quickly evolved into multi-level governance involving a myriad of actors and very soon expanded to southern Mediterranean countries. In 2003, North Africa was identified as a priority area in order to create a Euro-Mediterranean job market, transparent in terms of qualifications (Huisman et al., 2012).

2.2 Research Education

Teaching research methodology in the social sciences is still lacking a common pedagogical culture (Earley, 2014; Kilburn, Nind, & Wiles, 2014; Wagner, Garner, & Kawulich, 2011), three interrelated pedagogical goals prove more efficient than others and consist in i) making the research process visible by actively engaging learners in real research; ii) actually conducting research to take ownership and understand what research is; and iii) reflecting critically about the learning experience (Lewthwaite & Nind, 2016; M. Nind & S. Lewthwaite, 2018; M Nind & S Lewthwaite, 2018). At a finer granularity, research teaching pedagogy got interested into activities teachers and learners may engage in (Dawson, 2016) and classified these from the philosophical foundations of teaching approaches to the actual classroom activities (Nind & Lewthwaite, 2019). Following these recommendations, research methodology education necessitates small scale courses and proximity tutoring.

In terms of training, early career researchers seek active involvement in trainings they are the beneficiaries of to gain ownership (Barnard,

Mallaband, & Leder Mackley, 2019) and publishing remains their main concern (Mabe, 2010 cited by Nicholas et al., 2017). Solid training and critical thinking towards methodological practices are of foremost importance in such a context and should avoid adopting questionable research practices (John, Loewenstein, & Prelec, 2012) and allow detecting them.

2.3 Open Education

To be successful, open education infrastructure must support all 4 interdependent components: open competencies, educational resources, assessment and credentials (Wiley, 2017). In addition, it must support open admission and open education practices (Cronin, 2017).

Open competencies exist in isolated formats in different parts of the open web. An effort to synthesise and map the competencies doctoral students in education should master in 2020 and in the future still needs to be done. To achieve this, some sound and in-depth work, based on a comprehensive review of existing competence frameworks (e.g. Van der Maren, Brodeur, Gervais, Gilles, & Voz, 2019) in different languages, and added with prospective and visionary approaches, should be conducted.

To develop identified competences, learning assets should comply with open education and particularly fall within open educational resources (OER). OER are defined as “teaching, learning and research materials in any medium – digital or otherwise – that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions” (UNESCO 2017 cited by UNESCO, 2019, p. 9). This definition has reached a certain consensus but many issues tackled by research remain unsolved, among which models of sharing and producing OER for instance (Wiley, Bliss, & McEwen, 2014). OER “come with an irrevocable grant of permission to engage in the 5R activities – retain, reuse, revise, remix, and redistribute” (Wiley, 2017, p. 196) and concrete solutions are experimented. The surrounding setting - institutions, laws, policies, economy, technology – must be ready and supportive (Döbeli, Hielscher, & Hartmann, 2018) for OER to have a chance to grow.

Blockchain might offer technological solutions for open assessment and credentials (Anderberg et al., 2019; Grech & Camilleri, 2017; Müller, 2020) and new experiences need to be carried out. More conceptually speaking, evaluation is to be rethought in relationship to practice and resource rich environments (Halbherr & Kapur, 2019).

Open credentials refer to learner-owned certification that can be remixed to feature a learner's expertise according to contextual demands. Tamper-proofed open credentials are the basis to establish trust and retrace the origin of a validation (Wiley, 2017).

Open admission refers to admitting learners without institutional entry requirements (i.e. prior diploma). In reference to Hart (1992)'s learner participation ladder, open educational practices refer to levels 7 and 8 in which learners and teachers design together an education project and co-create knowledge processes (Cronin, 2017). Co-creation poses the question of practicing and valuing virtual scientific mobility in open education.

2.4 Virtual Mobility

At a normative level, online international learning is discussed as “a non-discriminatory alternative of mobility” (Buchem et al., 2018, p. 352), that should be implemented institutionally, within any curriculum of the EHEA.

In practice, though, a lack of knowledge on how to actually implement it and of its efficiency in terms of learning outcomes are obstacles to spread it. The aim of the European Virtual Mobility Learning Hub, within the current Open Virtual Mobility project, precisely consists in suggesting a realistic framework. It will be based on open education and promote achievement, assessment and credentialing of virtual mobility skills.

Some higher education institutions have already integrated virtual mobility in their curricula and formalised requirements for course designers that recommend i) engaging with international peers on content; ii) designing internationalised learning outcomes informed collaborative activities; iii) nurturing reflection on the learning that ensued from the intercultural encounter (Villar-Onrubia & Rajpal, 2016).

In North Africa, a recent Erasmus+ project, called OpenMed, reports an online international learning experience and findings show, among other things, that readiness to adopt open education is related to the degree of internationalisation of institutions; that clear learning activities promote collaboration both at the local and international levels; and that differences in academic traditions drawing back to respective French and English influences exist between the Maghreb and the Middle East (Nascimbeni et al., 2018).

Virtual (Deardorff, de Wit, Heyl, & Adams, 2012) and scientific mobility (Boekholt, Edler,

Cunningham, & Flanagan, 2009; Gaillard & Bouabid, 2017) are key for the development of the researcher, institutions involved and countries. Thus, scientific mobility should definitely be part of any learning environment in research education. The concept of “intelligently internationalised researcher” refers to seeking for cross-country collaborations and risk taking in order to establish some scientific equity in the world (de Gayardon, 2019).

2.5 Contextual and International Tutoring

Learner support is a key issue in the entire learning and teaching design process. It should be aligned with the overall objectives and underpinning epistemologies of the learning environment. Tutoring can thus be said to be situated, physically and at a distance, to support the three key moments of intervention. The first is in the beginning of the learning experience, to negotiate and establish a relationship based on trust. The second is during the learning process by providing valuable, timely and regular formative feedback. And the third is at the end to retrace the entire learning process and help move the experience forward. In addition, tutors make use of a set of tools – cognitive as well as technological – and engage into some form of continuing education to remain up-to-date (Class, 2009).

Designing tutoring support that comprehends a local and a distant component is of utmost importance in research methodology training (Class, 2019). The local tutor plays a fundamental role in introducing young researchers into research networks with given interests and practices. The distant tutor provides them with another set of skills – e.g. epistemological, methodological, strategic, communication toolboxes. Confronting and complementing what both kind of tutors provide in a constructive and critical perspective should help to educate an open generation of researchers. This not to mention peer tutoring or collaborative learning and the source of richness that each individual represents in such an international learning and teaching environment. Interactions lead to discussions, which in turn lead to potential questioning of each other's practices and potential redefinition of new common ways.

3 MODEL SUGGESTED

To train PhD students, and building on this conceptual framework, the model we suggest is fivefold.

From a *pedagogical* point of view, young researchers should be able to learn both from their own research project and from their participation in real research projects with a role of novice researchers (Class, Schneider, & Al, 2017; Ross & Call-Cummings, 2020). The latter should enable them to establish a critical and productive distance with the project and research processes by being accountable for only a small share. Regarding competences, young researchers should be able to choose courses that fits their needs or their potential to learn and that are aligned with their existing competences. To do so, they must demonstrate autonomous self-evaluation skills and be prepared to act in a learning environment ruled by principles of heutagogy (Blaschke & Hase, 2015). To help them in this endeavour, competence frameworks could guide them. For the time being, the one specifically aimed at young researchers in education (Van der Maren et al., 2019) or the one for digital skills (Groupe-de-recherche-interuniversitaire-sur-l'intégration-pédagogique-des-technologies, 2019) represent a first step.

Technologically speaking, the open learning environment should offer all components of open education – from open admission to open credentials –, backed with robust infrastructure like blockchain. It should also enable scientific virtual mobility with support for language issues. In addition, it should be forward looking, i.e. integrating supportive artificial intelligence features concerning research, data processing for instance.

Tutoring wise, local and contextual support should be thoughtfully articulated with international tutoring. This tutoring design transposes the dual model of Swiss vocational training (Wettstein, Schmid, & Gonon, 2017) while also taking it a step further. Local tutoring is needed because of contextual challenges that can best be tackled by local experts. International expertise can help to address remaining issues (e.g. methodological, strategic, communication) and offer support in a cognitive apprenticeship approach for instance (Collins & Kapur, 2014). This form of dual tutoring could contribute to educating a generation of “intelligently internationalised researchers” (de Gayardon, 2019).

In terms of a viable *economic model* for open education, it has not been found yet but may rest on a sharing economy perspective (Schor & Cansoy, 2019). Assets available and possibly not used to their full potential are various. In terms of human resources, tutoring among PhD students at different advancement stages is not common practice. In the perspective of social learning, setting up pools of PhD students organised according to communities of

practice, in turn organised in landscapes, could represent a way forward (Wenger-Trayner, Fenton-O'Creevy, Hutchinson, Kubiak, & Wenger-Trayner, 2015). Networking approaches (Goodyear, 2019) for research education could contribute to the building of a common scientific ground (Dillenbourg & Traum, 2006) in the reality of open education practices (Cronin, 2017). Developing open technological environments that support researchers represent another avenue. We think for instance of electronic laboratory notebook systems with integrated data processing and blended with social features. Of course, these environments should comply with legal regulations in terms of data protection.

This consideration leads us to the last dimension of our model, namely *institutional policies and international regulations*. These should support both avenues currently under investigation within the domain of open education. First, they should empower individuals and/or groups within existing structures. Second, they should transform existing structures in order to achieve equity (Cronin, 2019, 2020) and a form of epistemic justice (Kidd, Medina, & Pohlhaus, 2017).

To synthesise (Figure 1), our model for an international learning environment in research education addresses pedagogical and technological issues and is articulated to viable and fair, economic and institutional surroundings.

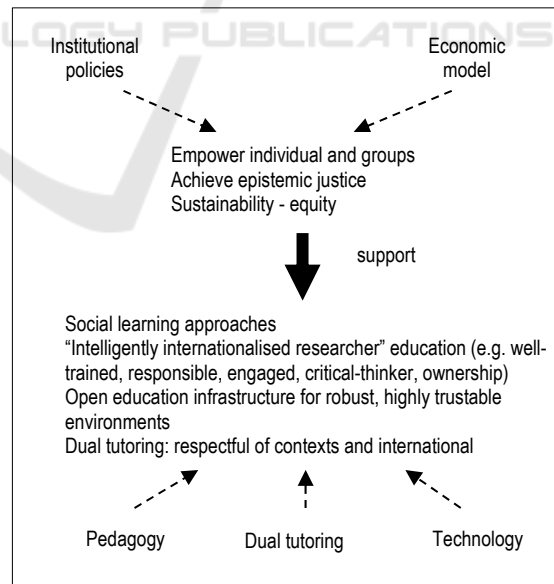


Figure 1: Visual representation of the initial model for an international learning environment in research education.

4 TO CONCLUDE

Infrastructure wise, collapse and/or ICT for development computing may show sustainable ways forward (Tomlinson, Silberman, Patterson, Pan, & Blevis, 2012).

We interpret sustainable development goal 4, which is about “ensur[ing] inclusive and equitable quality education and promot[ing] lifelong learning opportunities for all” (UnitedNations, 2019), broadly. We believe that young researchers, by integrating international networks, will be better equipped to address educational challenges of our present and future. Early integration in international research communities and early acquaintance with international research method standards should be globally beneficial. The confrontation with new challenges should boost collaborative, creative and sustainable solutions that should in turn be beneficial for education in a globalised world. Early integration of international scientific networks should also be beneficial to advance the difficult question of research funding (Beaudry, Mouton, & Prozesky, 2018; Currie-Alder, Arvanitis, & Hanafi, 2018).

Finally, we believe that this model could contribute to setting up an open learning and teaching environment in which actors would be aware of their worldwide inter-connectedness, responsible, engaged and could exercise agency.

ACKNOWLEDGEMENTS

This position paper takes place at the very start of an SNF funded project entitled Open Education for Research Methodology Teaching across the Mediterranean.

REFERENCES

- Anderberg, A., Andonova, E., Bellia, M., Calès, L., Inamorato Dos Santos, A., Kounelis, I., . . . Spirito, L. (2019). *Blockchain Now And Tomorrow* (S. Figueiredo Do Nascimento & A. Roque Mendes Polvora Eds.). Luxembourg: Publications Office of the European Union.
- Attia, M., & Edge, J. (2017). Be(com)ing a reflexive researcher: a developmental approach to research methodology. *Open Review of Educational Research*, 4(1), 33-45. doi:10.1080/23265507.2017.1300068
- Bachmann, H. (2018). *Competence-oriented teaching and learning in higher education - Essentials*. Bern: HEP Verlag.
- Barnard, S., Mallaband, B., & Leder Mackley, K. (2019). Enhancing skills of academic researchers: The development of a participatory threefold peer learning model. *Innovations in Education and Teaching International*, 56(2), 173-183. doi:10.1080/14703297.2018.1505538
- Beaudry, C., Mouton, J., & Prozesky, H. (Eds.). (2018). *The next generation of scientists in Africa*. South Africa: African Minds.
- Blaschke, L. M., & Hase, S. (2015). Heutagogy, Technology, and Lifelong Learning for Professional and Part-Time Learners. In A. Dailey-Hebert & K. S. Dennis (Eds.), *Transformative Perspectives and Processes in Higher Education* (pp. 75-94). Cham: Springer International Publishing.
- Boekholt, P., Edler, J., Cunningham, P., & Flanagan, K. (2009). *Drivers of International Collaboration in Research*. Retrieved from https://ec.europa.eu/research/iscp/pdf/publications/drivers_sti.pdf
- Bridges, D. (2017). *Philosophy in Educational Research: Epistemology, Ethics, Politics and Quality*. Cham: Springer International Publishing.
- Buchem, I., Konert, J., Carlino, C., Casanova, G., Rajagopal, K., Firssova, O., & Andone, D. (2018). Designing a Collaborative Learning Hub for Virtual Mobility Skills - Insights from the European Project Open Virtual Mobility. In Z. P & I. A (Eds.), *Learning and Collaboration Technologies. Design, Development and Technological Innovation. LCT 2018. Lecture Notes in Computer Science, vol 10924* (pp. 350-375). Cham: Springer.
- Class, B. (2009). *A blended socio-constructivist course with an activity-based, collaborative learning environment intended for trainers of conference interpreters*. (PhD), Université de Genève, Geneva. (420). doi:10.13097/archive-ouverte/unige:4780
- Class, B. (2019). More than à la carte international research methodology courses: towards researching professionals and professional researchers? The RESET-Francophone project. In J. Theo Bastiaens (Ed.), *EdMedia + Innovate Learning* (pp. 811-816). Amsterdam, Netherlands: Association for the Advancement of Computing in Education (AACE).
- Class, B., Schneider, D., & Al. (2017). Pistes réflexives sur l'apprentissage de la méthodologie de la recherche en technologie éducative. *Frantice.net, Numéro spécial 12-13*, 149-174.
- Collins, A., & Kapur, M. (2014). Cognitive Apprenticeship. In R. Sawyer (Ed.), *The Cambridge Handbook of the Learning Sciences* (pp. 109-127). Cambridge: Cambridge University Press. .
- Cronin, C. (2017). Openness and Praxis: Exploring the Use of Open Educational Practices in Higher Education. *International Review of Research in Open and Distributed Learning*, 18(5), 15-34. doi:https://doi.org/10.19173/irrodl.v18i5.3096
- Cronin, C. (2019). Open education: Design and policy considerations. In H. Beetham & R. Sharpe (Eds.), *Rethinking pedagogy for digital age: Principles and practices of design* (3rd ed.). New York: Routledge.

- Cronin, C. (2020). Open education: Walking a critical path. In D. Conrad & P. Prinsloo (Eds.), *Open(ing) education: Theory and practice*. Leiden and Boston: Brill.
- Currie-Alder, B., Arvanitis, R., & Hanafi, S. (2018). Research in Arabic-speaking countries: Funding competitions, international collaboration, and career incentives. *Science and Public Policy*, 45(1), 74-82. doi:10.1093/scipol/scx048
- Dawson, C. (2016). *100 Activities for Teaching Research Methods*. London: Sage.
- de Gayardon, A. (2019). The Intelligently Internationalized Researcher. In K. A. Godwin & H. De Wit (Eds.), *Intelligent Internationalization. The Shape of Things to Come* (pp. 51-55). Leiden, Boston: Brill.
- Deardorff, D., de Wit, H., Heyl, J., & Adams, T. (2012). *The SAGE Handbook of International Higher Education*. Thousand Oaks, California: Sage.
- Dillenbourg, P., & Traum, D. (2006). Sharing solutions: persistence and grounding in multi-modal collaborative problem solving. *The Journal of the Learning Sciences*, 15(1), 121-151.
- Döbeli, B., Hielscher, M., & Hartmann, W. (2018). *Lehrmittel in einer digitalen Welt. Expertenbericht im Auftrag der Interkantonalen Lehrmittelzentrale (ilz)*. Retrieved from <http://www.ilz.ch/bericht/>
- Earley, M. (2014). A synthesis of the literature on research methods education. *Teaching in Higher Education*, 19(3), 242-253. doi:10.1080/13562517.2013.860105
- Gaillard, J., & Bouabid, H. (2017). *La recherche scientifique au Maroc et son internationalisation*. Saarbrücken: Editions universitaires européennes
- Goodyear, P. (2019). Networked Professional Learning, Design Research and Social Innovation. In A. Littlejohn, J. Jaldemark, E. Vrieling-Teunter, & F. Nijland (Eds.), *Networked Professional Learning. Emerging and Equitable Discourses for Professional Development* (pp. 239-256). Cham: Springer.
- Grech, A., & Camilleri, A. (2017). *Blockchain in Education* (A. Inamorado dos Santos Ed.). Luxembourg: Publications Office of the European Union.
- Groupe-de-recherche-interuniversitaire-sur-l'intégration-pédagogique-des-technologies. (2019). *Cadre de référence de la compétence numérique*. Retrieved from <http://recit.qc.ca/nouvelle/cadre-de-reference-de-la-compete-numeric/>
- Halbherr, T., & Kapur, M. (2019). Validity and Resource Affordances in Examinations: A Theoretical and Methodological Framework.
- Hart, R. (1992). *Children's Participation: From tokenism to citizenship*. Retrieved from Florence, Italy: https://www.researchgate.net/publication/24139916_Children%27s_Participation_From-Tokenism_To_Citizenship
- Huisman, J., Adelman, C., Hsieh, C., Shams, F., & Wilkins, S. (2012). Europe's Bologna process and its impact on global higher education In D. K. Deardorff, H. D. Wit, & J. D. Heyl (Eds.), *The SAGE Handbook of International Higher Education* (pp. 81-100). Thousand Oaks: SAGE Publications, Inc.
- John, L. K., Loewenstein, G., & Prelec, D. (2012). Measuring the Prevalence of Questionable Research Practices With Incentives for Truth Telling. *Psychological Science*, 23(5), 524-532. doi:10.1177/0956797611430953
- Kidd, I., Medina, J., & Pohlhaus, G. (Eds.). (2017). *The Routledge Handbook of Epistemic Injustice*. New York: Routledge.
- Kilburn, D., Nind, M., & Wiles, R. (2014). Learning as Researchers and Teachers: The Development of a Pedagogical Culture for Social Science Research Methods? *British Journal of Educational Studies*, 62(2), 191-207. doi:10.1080/00071005.2014.918576
- Lewthwaite, S., & Nind, M. (2016). Teaching Research Methods in the Social Sciences: Expert Perspectives on Pedagogy and Practice. *British Journal of Educational Studies in Continuing Education*, 64(4), 413-430. doi:10.1080/00071005.2016.1197882
- Müller, P. (2020). *Blockchain for Education*.
- Nascimbeni, F., Burgos, D., Aceto, S., Wimpenny, K., Maya, I., Stefanelli, C., & Eldeib, A. (2018). Exploring intercultural learning through a blended course about open education practices across the Mediterranean. In *IEEE Global Engineering Education Conference: Emerging Trends and Challenges of Engineering Education, EDUCON*.
- Nicholas, D., Watkinson, A., Boukacem-Zeghmouri, C., Rodríguez-Bravo, B., Xu, J., Abrizah, A., . . . Herman, E. (2017). Early career researchers: Scholarly behaviour and the prospect of change. *Learned Publishing*, 30(2), 157-166. doi:10.1002/leap.1098
- Nind, M., & Lewthwaite, S. (2018). Hard to teach: inclusive pedagogy in social science research methods education. *International Journal of Inclusive Education*, 22(1), 74-88. doi:10.1080/13603116.2017.1355413
- Nind, M., & Lewthwaite, S. (2018). Methods that teach: developing pedagogic research methods, developing pedagogy. *International Journal of Research & Method in Education and Information Technologies*. doi:10.1080/1743727X.2018.1427057
- Nind, M., & Lewthwaite, S. (2019). A conceptual-empirical typology of social science research methods pedagogy. *Research Papers in Education*, 1-21. doi:10.1080/02671522.2019.1601756
- Peters, R. S. (1966). *Ethics and Education (Routledge Revivals)*. London Routledge.
- Ross, K., & Call-Cummings, M. (2020). Reflections on failure: teaching research methodology. *International Journal of Research & Method in Education*, 1-14. doi:10.1080/1743727X.2020.1719060
- Schor, J., & Cansoy, M. (2019). The Sharing Economy. In F. Wherry & I. Woodward (Eds.), *The Oxford Handbook of Consumption*. New York: Oxford University Press.
- Tomlinson, B., Silberman, S., Patterson, D., Pan, Y., & Blevis, E. (2012). Collapse informatics: augmenting the sustainability & ICT4D discourse in HCI. In *SIGCHI Conference on Human Factors in Computing Systems* (pp. 655-664). Austin Texas USA: Association for Computing Machinery.

- UNESCO, C. (2019). *Guidelines on the development of open educational resources policies*. Retrieved from Paris & Burnaby: <https://unesdoc.unesco.org/ark:/48223/pf0000371129>
- United Nations. (2019). *Special edition: progress towards the Sustainable Development Goals. Report of the Secretary-General*. Retrieved from <https://undocs.org/E/2019/68>
- Van der Maren, J.-M., Brodeur, M., Gervais, F., Gilles, J.-L., & Voz, G. (2019). *Référentiel pour la formation des chercheuses et des chercheurs francophones en éducation*. Document adopté par l'Association des doyens, doyennes et directeurs, directrices pour l'étude et la recherche en éducation au Québec (ADEREQ), Montréal: ADEREQ.
- Villar-Onrubia, D., & Rajpal, B. (2016). Online international learning. *Perspectives: Policy and Practice in Higher Education*, 20(2-3), 75-82. doi:10.1080/13603108.2015.1067652
- Waast, R., & Gaillard, J. (2018). L'Afrique: Entre sciences nationales et marché international du travail scientifique. In M. Kleiche-Dray (Ed.), *Les ancrages nationaux de la science mondiale - XVIIIe-XXIe siècle* (pp. 67-98). Paris: IRD Éditions/Éditions des archives contemporaines
- Wagner, C., Garner, M., & Kawulich, B. (2011). The state of the art of teaching research methods in the social sciences: towards a pedagogical culture. *Studies in Higher Education*, 36(1).
- Wenger-Trayner, Fenton-O'Creavy, M., Hutchinson, S., Kubiak, C., & Wenger-Trayner, B. (2015). *Learning in Landscapes of Practice. Boundaries, identity, and knowledgeability in practice-based learning*. London: Routledge.
- Wettstein, E., Schmid, E., & Gonon, P. (2017). *Swiss Vocational and Professional Education and Training (VPET). Forms, System, Stakeholders*. Bern: hep.
- Wiley, D. (2017). Iterating Toward Openness: Lessons Learned on a Personal Journey. In R. S. Jhangiani & R. Biswas-Diener (Eds.), *Open: The Philosophy and Practices that are Revolutionizing Education and Science*. London: Ubiquity Press.
- Wiley, D., Bliss, T., & McEwen, M. (2014). Open Educational Resources: A Review of the Literature. In J. Spector, M. Merrill, J. Elen, & M. Bishop (Eds.), *Handbook of Research on Educational Communications and Technology* (pp. 781-789). New York: Springer.