## **Purdue University**

## Purdue e-Pubs

Proceedings of the IATUL Conferences

2021 IATUL Proceedings

Jul 14th, 12:00 AM

# Library and faculty partnering to increase Open Access Publishing among researchers

Cristina Sousa Lopes Universidade do Porto, cslopes@fe.up.pt

Teresa Oliveira Ramos Universidade do Porto, teresaor@fe.up.pt

Palmira Seixas Universidade do Porto, pseixas@fe.up.pt

Luis Miguel Costa Universidade do Porto, lmcosta@fe.up.pt

Ana Freitas *Universidade do Porto,* anafreitas@fe.up.pt

Cristina Sousa Lopes, Teresa Oliveira Ramos, Palmira Seixas, Luis Miguel Costa, and Ana Freitas, "Library and faculty partnering to increase Open Access Publishing among researchers." *Proceedings of the IATUL Conferences*. Paper 10.

https://docs.lib.purdue.edu/iatul/2021/wednesday/10

This document has been made available through Purdue e-Pubs, a service of the Purdue University Libraries. Please contact epubs@purdue.edu for additional information.

## LIBRARY AND FACULTY PARTNERING TO INCREASE OPEN ACCESS PUBLISHING AMONG RESEARCHERS

### Lopes, Cristina Sousa

#### Oliveira Ramos, Teresa

Library, Faculdade de Engenharia da Universidade do Porto (FEUP) - Portugal teresaor@fe.up.pt

## Seixas, Palmira

Library, Faculdade de Engenharia da Universidade do Porto (FEUP) - Portugal pseixas@fe.up.pt

## Costa, Luís Miguel

#### Freitas, Ana

LEA, Faculdade de Engenharia da Universidade do Porto (FEUP) - Portugal anafreitas@fe.up.pt

#### **Abstract**

This paper aims to describe the collaboration of FEUP's Library with faculty in the course unit "Publishing and Scientific Writing" for third-cycle students. It contributed to U.Porto Journal of Engineering, a new open-access journal of the Faculty of Engineering, indexed in DOAJ, OpenAIRE and Scopus. This study also reports the course unit's lifecycle from its design, development and implementation as a face-to-face format until its present evolution to an online offer.

Throughout the last decades, academic libraries have reinforced their educational role as active partners in teaching, learning and research activities within their institutions.

In this course, FEUP's Library is responsible for information literacy skills, strongly focusing on open science and open access publishing. Students attending will go through writing, peer-reviewing, correcting and publishing a scientific article in Open Access, using U.Porto Journal of Engineering in the OJS platform, combining a theoretical approach with real-life hands-on.

The authors analysed quantitative data collected from different sources related to participation and interest in the course. The results show that the course unit corresponds to a real need of researchers, of which the growing demand and the positive feedback are pieces of evidence. In addition, students revealed high interest in the covered topics and an evident lack of Open Access and Open Science knowledge.

This training unit is a much-succeeded library and faculty partnership contributing to promoting and increasing Open Access publishing among researchers. The University of Porto recognised it with an award that granted funding to support the transformation of the course to an online format, which would help solve the scale problem that the growing demand places to the present capacity of response.

#### Keywords

Scientific Publishing; Open Science; Open Access; Faculty-Library Partnership; Library Training.

## Introduction

The support to learning and research activities of their communities has always been a part of the Academic Libraries' mission. Throughout time, they have been compelled to demonstrate their value and impact, continuously adapting their responses to the challenges of the digital age and changes in the Higher Education landscape [Association of College and Research Libraries, 2017, 2010]. To achieve this, library staff are developing and performing new services and reinforcing their educational role.

Following this trend, the Library of the Faculty of Engineering at the University of Porto (FEUP) has been increasingly and actively participating over the last decade in the teaching and learning processes. As a result, its training offer has aligned itself with the community's needs and the engineering programmes curricula, both at the undergraduate and graduate levels. One example is a publishing and scientific writing course unit targeted at PhD students and young researchers. Born from a faculty and library staff partnership, it aims at developing the skills that students need to go through the publishing and scientific writing processes. In addition, it also intends to promote openaccess scientific publishing and raise awareness about the importance of open access publishing in today's Open Science context.

This study reports the symbiotic relationship between the training unit's learning context and the publication in a scientific open access journal. The outputs of this unit (scientific articles) contribute to "UPorto Engineering Journal" (UPjeng), a peer-reviewed journal published by FEUP. The learning context includes classes that combine a theoretical approach with a hands-on learning experience of the different phases of the publication process, using the "Open Journal System" (OJS). As a result, the training unit has had a pretty high demand from the community since its very beginning.

The present paper also describes the training unit's initial context of integration into the Transversal and Transferable Skills programme [Rodrigues et al., 2018; Freitas et al., 2018] as a credited 1,5 ECTS course. Additionally, it reports the evolution from a face-to-face to a b-learning format, which allowed an increase in enrollments and provided a timely answer to the pandemic context. To conclude, it details the main topics discussed, areas supported throughout the publication process, conversion to e-learning, and assessment of the experience.

The reported partnership made it possible for the Library to work closely with faculty and be involved in the teaching-learning context, embedding information literacy skills training within the publication process and increasing publications in an open-access journal.

## **Background: Literature Review**

Using the theme of this conference as a metaphor, we can say that partnerships are connectors that bridge libraries and the communities they serve.

In their essence, libraries have undeniable value, but since digital information became the standard, they have fought to be differentiators by providing added-value services. A decisive strategy was to partner with their communities, thus developing strong connections and liaisons with departments, faculty, staff, and students [Carlson & Kneale, 2011; Resnis & Natale, 2020]. Literature reports different partnering areas that range from traditional liaison areas (like instruction, reference, and collection development) to more focused actions within contexts and workflows of the communities' activities [Resnis & Natale, 2020]. In the words of Moniz et al. [2014, p. viii], the "Library liaison's role is to act as a bridge between the library and the faculty staff and the students".

Libraries have been moving to more "on-site" settings through coordination and collaboration with teaching faculty and researchers [Carlson & Kneale, 2011]. Librarians assume new roles in which library liaisons and collaborative partnerships are the keys, acting more deeply as collaboration partners in areas such as teaching and learning, research support, scholarly communication and

digital initiatives [Brandenburg et al., 2017; Bright, 2018; Ince et al., 2018; Resnis & Natale, 2020]. From the "subject librarian" [Church-Duran, 2017] to the "embedded librarian" [Blake et al., 2014; Carlson & Kneale, 2011], liaisons are the common denominator for the goal of partnering and collaborating with the community [Bright, 2018].

According to the literature, graduate students need training and assistance in varied areas such as information literacy, information management, knowledge management, and scholarly communication [Carlson & Kneale, 2011; Ince et al., 2018]. At the same time, due to the new roles for library liaisons, "libraries are compelled to support and understand all processes on instruction and scholarship" [Jaguszewski & Williams, 2013]. Library instruction is then embedded in the curriculum, integrating learning support into the student workflow by developing educational materials, assignments and online courses to help students and researchers become information literate [Ince et al., 2018; Jaguszewski & Williams, 2013; Zanin-Yost, 2018]. Thus librarians have moved from delivering standalone library instruction to course-integrated teaching units within the curriculum [Koler-Povh & Turk, 2020].

With the rapid changes of the scholarly communication environment driven by Open Science and Open Access, new opportunities emerged that encouraged librarians to transition from supportive profiles to more active and collaborative roles [Brandenburg et al., 2017]. Scholarly communication, scientific writing and publishing within Open Science [Sanches et al., 2019], became critical areas of specialisation, and Academic Libraries are investing in professional development in this domain to interact better and collaborate. Librarians partner with different stakeholders for open access publishing, institutional repositories, research data management, and open educational resources, among other fields. They provide research support services, thus enhancing scholarly endeavours and scholarly publishing skills within their communities [Craft & Harlow, 2020; Koskinen et al., 2021; Norris et al., 2020]. At research-based institutions, librarians collaborate directly with faculty on research projects, integrate research teams, and participate in grant projects [Brandenburg et al., 2017; Carlson & Kneale, 2011]. The liaisons and partnerships within such multiple conditions have conducted to the expansion of the librarian roles. While supportive roles still exist [Brandenburg et al., 2017], they integrated into other contexts in Academia [Carlson & Kneale, 2011; Zanin-Yost, 2018], either as faculty's partners in the learning processes or as collaborators [Bright, 2018] in research and innovation.

Academic Libraries always follow Higher Education (HE) institutions' trends due to their nature and mission. Tertiary education has changed a lot in the past years due to the need to adapt and remain attractive for new generations of students used to technologies and informal learning contexts. That need was one of the many causes that led HE institutions to make greater investments in online learning [Remenyi, 2015; Universidade Aberta & Observatório da Qualidade do Ensino a Distância e ELearning, 2015]. Despite that fact, they saw it as only a complement to traditional learning environments [Johnson et al., 2015; Alexander et al., 2019].

But this changing trend to online learning in HE [Johnson et al., 2015; Llewellyn, 2020] boosted the online courses offered by Academic Libraries, undoubtedly due to the more favourable context and conditions created. In addition, the information skills that they traditionally promoted are now a part of the soft skills set that must accompany the development of technical skills, according to the lifelong learning paradigm. To survive and have academic success in the digital era requires such holistic education [Council of the European Union, 2017].

New generations of students - working and international students - raise enormous challenges to Academic Libraries by requesting a service based on remote support and self-paced learning. Consequently, investing in online training was the most prominent and reasonable solution [Li et al., 2007]. And even though developing online courses represents a massive innovation [Clapp et al., 2013], librarians quickly reacted by mapping and promoting good practices in the design of distance

learning courses [Mery & Newby, 2014; Hollister, 2010]. This single fact reveals how willing and supportive Libraries are to adapt and change to the needs of their communities.

Designing online learning raises many issues, mainly concerning quality, assessment and impact on the students' learning. Its comparison with the face-to-face format is inevitable [Mery et al., 2012]: many librarians have questioned the online approach's efficiency [Shaffer, 2011; Anderson & May, 2010], namely due to the difficulty in creating authentic learning communities in a distance environment [Cuthbertson & Falcone, 2014]. Despite the difficulty, librarians even designed online courses to teach faculty how to teach information literacy [Hammons, 2020]. Many have taken special care with the quality of the online courses they developed, discussing the several issues and concerns around that topic [Chang & Chen, 2014; Kratochvíl, 2013; Palmer & Tucker, 2004; Secker & Macrae-Gibson 2011; Shaffer, 2011; Swan et al. 2012; Oliveira Ramos et al., 2021].

Even so, librarians have not been working alone in this domain as well. Examples reveal the partnerships they were able to establish with faculty and technologists in the design, development and implementation of online courses in information literacy (IL) for students of different study cycles [Adams Becker et al., 2017]. The same also happens in the redesign process of IL modules embedded in online programmes, aiming to convert face-to-face formats [Smith, 2019]. But besides information literacy training, libraries are also receiving requests to train young researchers and PhD students in getting familiar with the meanders of scientific publishing, open access and bibliometrics. Intending to build awareness and autonomy in young researchers, they also embark on collaborations within their HE institutions to implement online training in this domain [Lala et al., 2018; Harnois et al., 2018].

With the most recent state of events that the COVID-19 pandemic imposed on all of us, Academic Libraries were no exception in the massive worldwide shift to the online environment. They have also been struggling to adapt to new changes and offer the remote support and services that their academic communities need. Spotlighting prominent topics such as the fight against fake news, misinformation, and academic integrity, they update and set their online training agenda, always pursuing the ongoing collaboration with their partners in academia for the sake of bridging their necessities with the help that Libraries can provide [Lomness et al., 2021; Zach & Dollfuß, 2020; Guo & Huang, 2021].

## Context and Partnerships The Context of the Course Unit

Employers have been recognizing that Engineering graduates generally lack transversal skills that can be transferable to the professional context, which may hinder their early career opportunities. Always attentive to the feedback from the market, FEUP promptly created a programme focused on developing transversal skills in graduates that includes the "Publishing and Scientific Writing" course unit.

The preliminary version was launched in the academic year 2014/15 in a face-to-face format, with 1,5ECTS corresponding to a total of 40,5h, out of which 14h were of contact/face-to-face and 26h of self-study. From July 2018 onwards, the implemented e-learning version had 3 ECTS corresponding to a total of 81h, out of which 22h were spent in classes. Students may attend it as a course unit credited in their curricula (thus replacing optional curricular units) thus being able to integrate transferable skills in their formal education. Students can also, in alternative, attend it as a complementary course without crediting it to their study plan. Even so, students receive a certificate and will have the training unit added to their Diploma's Supplement.

PhD and MSc students, researchers and fellows from UPorto University are the primary target audience of this training unit. Its main goal is to promote transversal skills in the research domain by helping participants publish with more success, write systematically, and choose journals more wisely

by considering their content and impact on their scientific community. It also aims at training participants on going through the peer-review process, including the revision and correction of articles.

As a result of the need to train more students, this training unit had to turn into a b-learning format based on Moodle, providing participants with more visual learning materials for asynchronous self-study (such as videos and online interactive activities and assessments). Due to the COVID-19 pandemic, the course fully evolved to an e-Learning format with synchronous online classes. The teaching staff is presently considering its future evolution into a MOOC format since that fully online format would support more students in each edition.

Since its kick-off in 2014/15, thirteen (face-to-face and online) editions took place, the number of candidates and participants gradually increased, and each edition was fully booked and had a waiting list. The number of students who attended the unit as an extra to their curricula, paying a fee, was higher than the number of those who credited the course, who have no registration cost. This situation seems to signal the apparent graduates' interest and need in such a type of training and in the skills it develops.

## The Coordination Team

The coordination team includes varied staff from FEUP: one responsible teacher (who is a Professor and simultaneously the Editor-in-Chief of UPjeng), one responsible person from the "Teaching and Learning Laboratory" (LEA) that manages the administrative process, three people for providing the training (one Professor and two Instruction Librarians), and two people to manage the publishing process within the journal's management system (the Library Director and a Librarian).

## The Open Access "U.Porto Journal of Engineering" (UPjeng)

At the end of the course, each student must have written a scientific article, whether as an individual author or co-authorship and reviewed two peer articles. Many of those are published in the U.Porto Journal of Engineering (UPjeng)<sup>1</sup>, the open-access journal launched in 2015 as the main working tool (to provide students a real-life contact to the whole publishing process) and which is hosted in OJS platform.

FEUP's Library, like many other Academic Libraries, has been developing its services to match the research activities of its institution, which has triggered the development of new research support services, including to Open Access Publishing. The Library provides this support, being currently in charge of managing UPjeng. A multidisciplinary team is responsible for the technological infrastructure (installation and management of the OJS platform), graphic design, and the entire publishing process, which includes the formal review of the articles and its publication, and author support. The decisions taken on the submitted content are the responsibility of the Editor-in-Chief and a team of Professors (who are directors of PhD Programmes at FEUP).

## The Partnership with the Library

In this course, the Library partners with faculty throughout the whole publication process in UPjeng, being responsible for two main interventions: first, by providing training in information literacy skills and open access publishing and second, by giving support to the publishing process. **Figure 1** illustrates the intervention of the Library.

<sup>&</sup>lt;sup>1</sup>U.Porto Journal of Engineering - <a href="https://journalengineering.fe.up.pt/">https://journalengineering.fe.up.pt/</a>

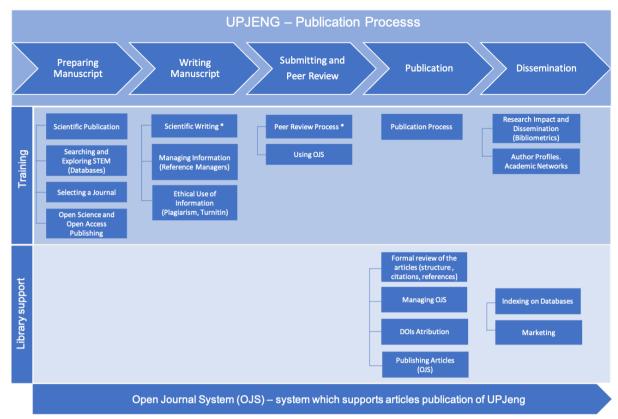


Figure 1 - Library participation: training areas and publishing support

### Training in Information Literacy Skills and Open Access Publishing

Since the beginning, the Library has been responsible for the training in information literacy, spotlighting Open Access Publishing. The main topics covered during the Library's training have been:

- The Information Literacy Skills within the Information Research Process
- Information Resources available at the Library's Website
- Information Search Techniques and Features
- Managing Information with the help of Reference Managers
- Open Access Publishing, Open Science and Open Resources
- Research Evaluation (Metrics, Citations and Rankings)
- Research Dissemination (Author IDs and Academic Social Networks)

The Library's intervention has always corresponded to half of the classes of the course. The unit's responsible Teacher and the Library Director lead the introductory one, the second Professor holds the two next classes on scientific writing and publishing, and finally, the Library follows, with three classes held by the Instruction Librarians, who prioritise a "hands-on" approach by promoting learning activities that allow students to simulate real-life situations within the research process.

After the Library's classes, there is a last class on Grant writing held by the other Professor, before students make a small online assessment in Moodle that includes questions about all topics covered throughout the course. A new phase begins afterwards and students prepare their manuscripts for submission into UPjeng's system, after which an initial editorial screening begins, and in case of acceptance for publication, peer review. The process ends with the publication of the journal's issue online.

#### Formal Review and Production of the final Version of the Articles

The formal review aims at checking if the articles follow the guidelines provided by the journal, specifically in terms of structure and bibliographic references. The goal is to ensure consistency and produce the final versions for publication. This happens only after the articles were peer-reviewed and accepted for publication by the Editorial Team. Prior to this review, the authors who made a submission are contacted to validate whether they intend to publish their article in UPjeng, considering that they result, at first hand, from an academic process of evaluation. The review begins afterwards, and each document is verified according to a checklist, while the team contacts frequently with the authors when it is necessary to provide missing elements (such as ORCID codes, citations or references, or figures and tables with better resolution), and request validation of each article's final version prior to publication.

### Management of the Journal's Publishing Process in OJS Platform: DOI Attribution

The journal is hosted in OJS and the publication of each issue requires the creation of a new issue in the back office. Afterwards, it is possible to assign the articles submitted to the selected issue. So the final version of each article is assigned and its metadata are inserted, including its DOI, following its proper validation by the author. The Library assigns a DOI (Digital Object Identifier) to each article and handles its registration in CrossRef.

#### **UPjeng's Indexing in Information Systems**

To enhance the visibility of the journal, the Library also manages its indexing process in international databases. The first system in which the journal was indexed was DOAJ - The Directory of Open Access Journals<sup>2</sup> - whose process was completed in 2019. Afterwards, in 2020, the process at Scopus<sup>3</sup> was also completed, and the journal was thus successfully indexed in what is one of the largest and well known academic reference databases. It is currently awaiting final decision to be indexed in Web of Science.

The indexing process on these systems follows strict criteria outlined by each one of them. These criteria aim to assess the reliability and quality of a journal, checking, for instance, the existence of information about the Editorial Board, the peer review process, Article Processing Charges (APCs), Copyright and Open Access Policies, among others, and its correct and clear dissemination. The Library is responsible for assessing the requested criteria, and, afterwards, for organizing and making available the necessary information through the journal's website, and making the application for indexing. Periodically, a verification is carried out, in order to keep the information available on the website updated and consistent with new criteria that may be requested by any of these systems.

## **UPorto Pedagogical Innovation Award**

In 2018, the team submitted a project for the creation of the university's first e-Learning course unit on "Publishing and Scientific Writing" in English language at the yearly contest "Projetos de Inovação Pedagógica U.Porto", an initiative included in the program "Promover a Excelência Pedagógica na Universidade do Porto", which aims to promote pedagogical innovation and excellence at the University.

During the sixth edition of the yearly workshop for sharing pedagogical best practices that year, the team's project received an award. It was showcased together with other nine examples of best innovative approaches for the university [Universidade do Porto, 2018]. The award helped to fund the conversion of the course to a full e-Learning version in the English language. The goal was to offer a more comprehensive learning unit and make it available at the university's distance learning platform

<sup>&</sup>lt;sup>2</sup> https://doai.org/toc/2183-6493

<sup>&</sup>lt;sup>3</sup> https://www.scopus.com/sourceid/21101021578

AcademiaUP, for PhD students and young researchers, who could attend it as part of their curriculum or as a free course.

## The Conversion of the Training Unit

The conversion of the course aimed at reaching a wider audience including international students and working students, and expanding the outreach of UPjeng, turning it into a reference publication within the Engineering domain. To do that, the course required an English version and a thorough redesign, as well as an adaptation and development of new learning materials and activities such as microvideos, hands-on tutorials and multimedia exercises to ensure active learning and help students follow their learning path according to their study pace.

The Educational Technology team of the University of Porto was involved during the planning phase of the course, supporting the instructional design by helping to define the technical requirements and technological tools to use.

During the analysis and design phase, the coordination team set up a new outline with the target audience in mind, and the outcome was the following structure:

- Module 1: Scientific Publication
- Module 2: Preparing for Scientific Publication
- Module 3: Scientific Writing
- Module 4: Review Process
- Module 5: Impact and Dissemination

For each module, the team defined the learning goals, the main learning contents and assessment activities needed, and supported its development effort in a shared chronogram with due dates and well-defined responsibilities. The two Instruction Librarians of the coordination team developed the learning contents and activities for modules 2, 3 and 5 of the course.

Since the team had set a goal to provide the new version of the course with innovative contents and activities, it made a selection of tools that could provide students with an improved learning experience.

Panopto, which is a proprietary tool that the University of Porto had already subscribed to for the production of educational videos by members of the institution, was the option for the creation of micro-videos. This software not only enables easy creation of video content with the support of basic equipment and presentation software, but it also provides powerful storage in the cloud and varied sharing and integration possibilities. By fully integrating with AcademiaUP (a Moodle-based system), it enables course attendees an easy access and optimised visualisation of contents within the learning management system.

A major desire concerned with the activities was that they could provide students with a hands-on approach as much as possible, so the selection of software for this purpose was careful to ensure this need. H5P and Libwizard were the main choices, the first allowing the development of varied and appealing activities, and the latter, of hands-on "guide-on-the-side" tutorials. Both allowed the Library to provide richer and interactive learning experiences with formative feedback and easy integration with Moodle. While H5P is free software with an available plug-in for most common LMS systems, Libwizard is a proprietary tool specialised for libraries, whose content can be simply embedded into any web page, including H5P content. As a result of the development phase of the project, the Library created nineteen educational videos and presentations in Panopto, and twenty learning contents: eighteen interactive H5P activities and ten Libwizard tutorials (eight of which embedded within referred H5P content) for modules 2, 3 and 5 of the course.

The pilot for the implementation of the course's new version kicked off in the second semester of the academic year 2020/21, with an edition comprised of thirty-two enrolled students, out of which ten were researchers and the remaining PhD or MSc students. The course kicked off on the 10<sup>th</sup> March 2020 with the introduction class on Zoom with the presence of the coordination team. Six other classes took place within the next seven weeks, and the Library team held three of them on the 7<sup>th</sup>, 14<sup>th</sup> and 21<sup>st</sup> of April, corresponding to modules 2, 3 and 5 of the course. Each module rolled out with a 30-min Zoom synchronous session with the students to make a presentation of the module's learning goals and the autonomous 2h30 asynchronous work expected for the week. In the first session, the training team took some time to introduce students to the interface and usability of both videos and activities. For in-context contact with the students, it also provided a forum at the end of each module, and that was the chosen channel for answering questions about the contents and systems to explore.

## Results/Outcomes Enrollments and Approvement Rates

Looking back at the editions of the course held since its beginning, depicted in **Figure 2**, we can say that there was a first growing trend in the number of applications until 2016/17, and a second one after 2018/19. In fact, we can say that the demand was always steady and that was actually one of the reasons for the investment in the online version of this training unit, which could reach that wider audience.

The number of approved candidates shows a more regular trend of growth. The data concerned with the present academic year (2020/21), was not available at the time of writing this article.

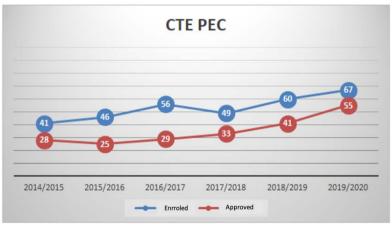


Figure 2 - Evolution of the number of enrolled and approved throughout the years

## **Participation in Online Training**

Concerning the participation in the training, the data hereby presented is related only to the latest edition, which corresponds to the redesigned version of the course implemented in the second semester of the present academic year. None of the Library activities were mandatory. Concerning the three synchronous sessions held by the library at the beginning of each topic, there was a participation rate of 70% to 55% among the course attendants. The rate in the whole autonomous work activities proposed (interactive activities and forums) reached values around 60% to 50% for viewing, and around 45 to 15% for interaction, thus also showing a decreasing trend. The same happened with the video contents, with viewing rates of 40% to 20%.

This decrease in participation rates in training sessions could be related to the proximity to the deadline for the manuscript submission at UPjeng. Despite this fact, the interest in downloading the handouts related to each of the three sessions reached a steady 60% of all participants, which could be understood as a sign of compromise with later offline study.

## **Publishing in UPjeng**

Results are reflected in the number of issues and articles published since the journal was launched back in 2015: a total of 17 issues, with 129 articles. **Figure 3** depicts these data. The blue columns represent the articles resulting from the work developed in the training unit, which totals 13 issues and 98 articles published since 2015 to date. The orange columns depict four special issues (with selected papers from conferences organized at FEUP) with a total of 31 articles.

The data shows consistency over time in the number of articles published per issue, and an evolution of the growth trend that can be explained by the greater visibility the journal has achieved since it was indexed in Scopus.

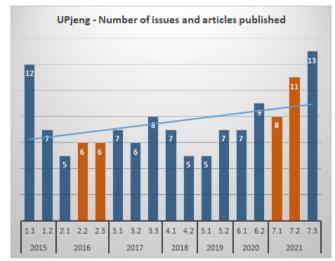


Figure 3 - Number of issues and articles published in UPjeng since 2015

## Students' Feedback

Participants in each edition evaluate the course once it is finished, using a questionnaire that is available in Google Forms. It aims at assessing the amount of work required to do the course, the course's duration, the calendar and schedule preferences, and the added value and usefulness of the course. That questionnaire finalises with a section for comments, which are later on analysed by the faculty to detect latent needs and eventually proceed to required changes. **Table 1** depicts the students' feedback in that questionnaire throughout the whole editions of the course. Among other aspects, the students strongly agree with the usefulness of the course for the development of their PhD process.

Table 1: Evaluation of the course by the students 2014 /2020

	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
What I've learned in this course will be useful for the development of my PhD process						
· Yes	100%	80%	96%	87,50%	100%	95,7%
· No	0%	0%	4%	12,50%	0%	4,3%
What I've learned in this course will enrich my CV in a way that will make me stand out						
· Yes	78%	40%	54%	87,50%	77%	69,6%
· No	22%	60%	46%	12,50%	23%	30,4%
In a general way, I'm satisfied with the course						
· Yes	100%	60%	83%	68,80%	100%	87%
· No	0%	40%	17%	31,20%	0%	13%
In a general way, I would recommend this course to other PhD students						
· Yes	100%	60%	83%	68,80%	92%	87%
· No	0%	0%	17%	31,20%	8%	13%

## **Limitations and Future Research**

Due to time constraints, it was not possible to evaluate the course's impact through qualitative analysis. That could better inform the team about the changes and improvements still needed, so it should be kept in mind by the coordination team for future development.

A continuous follow-up and monitoring is always necessary, among other things due to the learning contents and assessments that require regular checking and update. The analysis of learning analytics is also important, because they may help to detect other issues, such as the low percentage of students who did the learning activities in the pilot edition launched last semester. Low values might be explained by the fact that the Library's activities have not been not mandatory. As a result, the Library team presented already the responsible teacher some recommendations to change this state of the activities in the next course's edition.

## **Conclusions**

As we have seen, the partnership between the library and faculty opens a window of opportunity for close collaboration with researchers and faculty. The creation of this course unit is an example that shows how the library can actively participate and contribute to the learning and research activities, providing a wide range of useful services to its community, by supporting the publishing and scientific writing processes.

We live in a complex and challenging information context. Young researchers need to be aware of it and contribute not only to knowledge construction, but also to decision making, helping to open access to that knowledge. This training unit involves a multidisciplinary team that includes Library staff and provides the appropriate context to embed information skills within the publishing process in an open access journal. Thus, students can better experience its use for publishing in today's Open Science context.

Throughout the years, the Library has always been open to changes and committed to better support the activities and the needs of its community, of which this course is an evidence. Its relevance was acknowledged with the "Uporto Pedagogical Innovation Award" (2018), which put forward its evolution to an online format. It was a challenging work that demanded a strong investment in learning online pedagogical skills, instructional design and development of new learning objects with innovative educational technology. For the Library, it turned out to be an excellent opportunity for further learning and growing. Although it was a massive workload, the Library has got positive expectations in the return of such investment. In addition to it, it will allow it to reach a wider students' audience, thus increasing its impact on the academic community. Following the kick-off of the new online format's first edition (March 2021), it is still a bit early to assess the experience, but the Library is already gathering data for analysis that could help it to envision further improvements. UPjeng is already a highly regarded journal, ranked in reference sources such as DOAJ, OpenAire and Scopus.

To sum up, this real-life case reinforces the relevant role that the Academic Library may lead within its community, also through the active participation in learning contexts that relate to scholar communication processes, and in promoting Open Access publishing. For FEUP's Library, the experience gathered in this case further inspired and helped it to new projects in the online learning domain. The development of another training unit is already under way, also groundly founded in the building of close partnerships, which are the real connectors to its community.

## References

Adams Becker, S., Cummins, M., Davis, A., Freeman, A., Hall, C. G., Ananthanarayanan, V., Langley, K., & Olfson, N. (2017). *The NMC Horizon Report: 2017 Library Edition*. https://library.educause.edu/resources/2017/12/horizon-report-library-edition-2014-2017 Alexander, B., Ashford-Rowe, K., Barajas-Murphy, N., Dobbin, G., Knott, J., McCormack, M., Pomerantz, J., Seilhamer, R., & Weber, N. (2019). *EDUCAUSE Horizon Report | 2019 Higher Education Edition*. https://library.educause.edu/resources/2019/4/2019-horizon-report Anderson, K., & May, F. A. (2010). Does the method of instruction matter? An experimental examination of information literacy instruction in the online, blended, and face-to-face classrooms. *Journal of Academic Librarianship*, *36*(6), 495-500.

https://doi.org/10.1016/j.acalib.2010.08.005

Association of College and Research Libraries. (2017). *Academic Library impact: Improving practice and essential areas to research* (Prepared by L. S. Connaway, W. Harvey, V. Kitzie, & S. Mikitish of OCLC Research). Association of College and Research Libraries. https://www.ala.org/acrl/sites/ala.org.acrl/files/content/publications/whitepapers/academiclib.p

Association of College and Research Libraries. (2010). *Value of Academic Libraries: A comprehensive research review and report* (Researched by M. Oakleaf).

https://www.ala.org/acrl/sites/ala.org.acrl/files/content/issues/value/val\_report.pdf

Blake, L., Mears, K., Davies, K., Ballance, D., Shipman, P., Connolly-Brown, M., & Gaines, J. K. (2014). Adapting an Embedded Model of librarianship, college by college. *Medical Reference Services Quarterly*, 33(3), 264-277.

https://doi.org/10.1080/02763869.2014.925668

Brandenburg, M. D., Cordell, S. A., Joque, J., Maceachern, M. P., & Song, J. (2017). Interdisciplinary collaboration: Librarian involvement in grant projects. *College and Research Libraries*, 78(3), 272-282. https://doi.org/10.5860/crl.78.3.272

Bright, K. M. (2018). Examining the role of liaison librarians as research collaboration partners: A mixed-methods multiple-case study [University of Denver].

https://digitalcommons.du.edu/etd/1537

Carlson, J., & Kneale, R. (2011). Embedded librarianship in the research context: Navigating new waters. *College & Research Libraries News*, 72(3), 167-170.

https://doi.org/10.5860/crln.72.3.8530

Chang, N., & Chen, L. (2014). Evaluating the learning effectiveness of an online information literacy class based on the Kirkpatrick framework. *Libri*, *64*(3), 211-223.

https://doi.org/10.1515/libri-2014-0016

Church-Duran, J. (2017). Distinctive roles: Engagement, innovation, and the liaison model. portal: Libraries and the Academy, 17(2), 257-271. https://doi.org/10.1353/pla.2017.0015 Clapp, M. J., Johnson, M., Schwieder, D., & Craig, C. L. (2013). Innovation in the Academy: Creating an Online Information Literacy Course. Journal of Library & Information Services in Distance Learning, 7(3), 247-263. https://doi.org/10.1080/1533290x.2013.805663 Council of the European Union. (2017). Council Recommendation on the European Qualifications Framework for lifelong learning and repealing the Recommendation of the European Parliament and of the Council of 23 April 2008 on the establishment of the

```
European Qualifications Framework for lifelong learning (32017H0615(01)). https://eurlex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32017H0615(01)
```

Craft, A. R., & Harlow, S. (2020). Scholarly communications training: Professional development for the Next Generation of Scholars. *Serials Review*, *46*(3), 175-183. https://doi.org/10.1080/00987913.2020.1806651

Cuthbertson, W., & Falcone, A. (2014). Elevating engagement and community in online courses. *Journal of Library & Information Services in Distance Learning*, 8(3-4), 216-224. https://doi.org/doi.org/10.1080/1533290x.2014.945839

Freitas, A., Garcia, P., Lopes, H., & Sousa, A. d. (2018, June 27-29). *Mind the gap: Bridging the transversal and transferable skills chasm in a public engineering school.* 2018 3rd International Conference of the Portuguese Society for Engineering Education (CISPEE), Aveiro, Portugal. https://doi.org/10.1109/CISPEE.2018.8593485

Guo, J., & Huang, J. (2021). Information literacy education during the pandemic: The cases of academic libraries in Chinese top universities. *Journal of Academic Librarianship*, *47*(4), Article 102363. https://doi.org/10.1016/j.acalib.2021.102363

Hammons, J. (2020). Teaching information literacy: Developing an online course for faculty. *College & Research Libraries News*, *81*(7), 337-349. https://doi.org/10.5860/crln.81.7.337 Harnois, F. L., Harrison, J., Lala, P., Boussaidi, G. E., Desrosiers, C., & Laporte, C. (2018, June 24-27). *Promoting good scientific communication habits by leveraging the community of practice within a single research group*. 2018 ASEE Annual Conference & Exposition papers, Salt Lake City, UT. https://doi.org/10.18260/1-2--30906

Hollister, C. V. (2010). *Best practices for credit-bearing information literacy courses*. Chicago: Association of College and Research Libraries.

Ince, S., Hoadley, C., & Kirschner, P. A. (2019). The role of libraries in teaching doctoral students to become information-literate researchers. *Information and Learning Sciences*, 120(3-4), 158-172. https://doi.org/10.1108/ils-07-2018-0058

Jaguszewski, J. M., & Williams, K. (2013). *New roles for new times: Transforming liaison roles in research libraries*. Association of Research Libraries.

http://www.arl.org/component/content/article/6/2893

Johnson, L., Becker, S. A., Estrada, V., & Freeman, A. (2015). *NMC Horizon Report: 2015 Library Edition*. https://www.learntechlib.org/p/151822/

Koler-Povh, T., & Turk, Ž. (2020). Information literacy of doctoral students in engineering and the librarian's role. *Journal of Librarianship and Information Science*, *52*(1), 27-39. https://doi.org/10.1177/0961000618767726

Koskinen, K., Roinila, M., & Syvälahti, K. (2021). Digital publishing platform as a pedagogical tool to teach and learn scholarly publishing: The Helsinki University Library experience. *Liber Quarterly*, 31(1), 1-17. https://doi.org/10.18352/lq.10375

Kratochvíl, J. (2013). Evaluation of e-learning course, Information Literacy, for medical students. *Electronic Library*, *31*(1), 55-69. https://doi.org/10.1108/02640471311299137 Lala, P., Harnois, F. L., Boussaidi, G. E., Desrosiers, C., & Laporte, C. (2018, June 24-27). *Providing sustainable scientific writing support for graduate engineering students by creating a local scientific learning community*. 2018 ASEE Annual Conference & Exposition papers, Salt Lake City, UT. https://doi.org/10.18260/1-2--30909

Li, L. F., Leung, S., & Tam, G. (2007). Promoting information literacy skills through web-based instruction: The Chinese University of Hong Kong Library experience. *Library Management*, 28(8-9), 531-539. https://doi.org/10.1108/01435120710837819

Llewellyn, A. (2020). Innovations in Learning and Teaching in Academic Libraries: A Literature Review. *New Review of Academic Librarianship*, *25*(2-4), 129-149. https://doi.org/10.1080/13614533.2019.1678494

Lomness, A., Lacey, S., Brobbel, A., & Freeman, T. (2021). Seizing the opportunity: Collaborative creation of academic integrity and information literacy LMS modules for

undergraduate Chemistry. *The Journal of Academic Librarianship*, *47*(3), Article 102328. https://doi.org/10.1016/j.acalib.2021.102328

Mery, Y., & Newby, J. (2014). *Online by design: The essentials of creating Information Literacy courses*. Rowman & Littlefield. https://books.google.pt/books?id=-

o1\_AwAAQBAJ&lpg=PP1&hl=pt-PT&pg=PP1#v=onepage&g&f=false

Mery, Y., Newby, J., & Peng, K. (2012). Performance-based assessment in an online course: Comparing different types of information literacy instruction. *portal: Libraries and the Academy*, *12*(3), 283-298. https://doi.org/10.1353/pla.2012.0029

Moniz, R., Henry, J., & Eshleman, J. (2014). *Fundamentals for the academic liaison*. ALA Neal-Schuman.

Norris, S. A., Avila, S., & Basco, B. V. (2020). Liaison and scholarly communication librarians collaborating to support faculty and students. In *Approaches to Liaison Librarianship: Innovations in organization and engagements* (pp. 267-281).

https://stars.library.ucf.edu/ucfscholar/936/

Oliveira Ramos, T., Morais, C., & Ribeiro, C. (2021). Evaluating the quality of an online course in Information Literacy applied to engineering students. In A. S. Moura, P. Reis, & M.

N. D. S. Cordeiro (Eds.), Handbook of Research on Determining the Reliability of Online Assessment and Distance Learning (pp. 79-117). IGI Global.

https://doi.org/http://doi:10.4018/978-1-7998-4769-4.ch004

Palmer, S., & Tucker, B. (2004). Planning, delivery and evaluation of information literacy training for engineering and technology students. *Australian Academic and Research Libraries*, *35*(1), 16-34. https://doi.org/10.1080/00048623.2004.10755254

Remenyi, D. (Ed.). (2015). *e-Learning Excellence Awards 2015: An antology of case histories*. Academic Conferences and Publishing International Limited.

https://books.google.pt/books?id=0ZImCwAAQBAJ&lpg=PP1&hl=pt-

PT&pg=PP1#v=onepage&q&f=false

Resnis, E., & Natale, J. (2020). Demonstrating library impact: Liaison assessment. *The Journal of Academic Librarianship*, 46(4), Article 102158.

https://doi.org/10.1016/j.acalib.2020.102158

Rodrigues, J. C., Freitas, A., Garcia, P., Maia, C., & Pierre-Favre, M. (2018, June 27-29). *Transversal and transferable skills training for engineering PhD/doctoral candidates*. 2018 3rd International Conference of the Portuguese Society for Engineering Education (CISPEE), Aveiro, Portugal. https://doi.org/10.1109/CISPEE.2018.8593472

Secker, J., & Macrae-Gibson, R. (2011). Evaluating MI512: An information literacy course for PhD students. *Library Review*, *60*(2), 96-107. https://doi.org/10.1108/00242531111113050 Sanches, T., Antunes, M. da L., & Lopes, C. (Eds.). (2019). *Improving the academic writing experience in higher education*. Nova Science Publishers.

Shaffer, B. A. (2011). Graduate student library research skills: Is online instruction effective? *Journal of Library & Information Services in Distance Learning*, *5*(1-2), 35-55.

https://doi.org/10.1080/1533290X.2011.570546

Smith, L. (2019). Transforming a module from face-to-face delivery to blended format - Case studies of teaching practice (Case studies of effective practice: University of Newcastle). https://microsites.ncl.ac.uk/casestudies/2019/03/19/transforming-a-module-from-face-to-face-delivery-to-blended-format/

Swan, K., Matthews, D., Bogle, L., Boles, E., & Day, S. (2012). Linking online course design and implementation to learning outcomes: A design experiment. *Internet and Higher Education*, *15*(2), 81-88. https://doi.org/10.1016/j.iheduc.2011.07.002

Universidade Aberta, & Observatório da Qualidade do Ensino a Distância e ELearning. (2015). *Educação a distância e E-learning no Ensino Superior*. Universidade Aberta. https://www2.uab.pt/producao/eBooksArea/OQEDeL.pdf

Universidade do Porto. (2018). *Workshop 2018 – UPorto | Inovação Pedagógica*. https://inovacaopedagogica.up.pt/42-2/excelencia-pedagogica/workshop/workshop2017-2-2/

Zach, L., & Dollfuß, H. (2020). Report on how the Teaching Library of the University Library of the Medical University of Vienna changed its course offer to digital formats due to the COVID-19 pandemic in 2020. *Mitteilungen der VÖB*, 73(3-4), 530-537.

https://doi.org/10.31263/voebm.v73i3-4.5342

Zanin-Yost, A. (2018). Academic collaborations: Linking the role of the liaison/embedded librarian to teaching and learning. *College & Undergraduate Libraries*, *25*(2), 150-163. https://doi.org/10.1080/10691316.2018.1455548