

## Developing Academic Literacies in Medicine and Agriculture: The Design, Delivery and Evaluation of Blended Learning Support for Research Writing in English

*Desenvolvendo Letramentos Acadêmicos na Medicina e Agricultura: O Desenho, Aplicação e Avaliação de apoio semipresencial para Pesquisa de Escrita em Inglês*

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### ABSTRACT

The growth of English as a scientific lingua franca and the pressure to raise the international ranking of Brazilian universities have increased the demand for English language support to develop academic literacies amongst local researchers, particularly in areas such as writing journal articles for international publication. The challenges to delivering targeted support for the development of such literacies include limited curricular space, clashing timetables, and the fact that single institutions often have geographically dispersed campuses. Blended learning offers a possible means of addressing these challenges in the flexibility afforded by course delivery that is partly face-to-face and partly online and asynchronous. This paper reports on the design, delivery and evaluation of courses in research article writing delivered to postgraduate students in the Faculty of Medicine and School of Agriculture at the University of Sao Paulo in 2018-19. The paper confirms that the blended learning format can be a successful means of enhancing academic literacies, while identifying those areas that are easier and more difficult to teach, and which aspects of the research article genre cause novice graduate writers specific problems.

**Keywords:** Academic Literacies, Blended Learning, Article Writing, Academic Genres

### RESUMO

*O crescimento do inglês como a lingua franca da ciência e a pressão para elevar o status internacional das universidades brasileiras aumentaram a demanda pelo apoio ao idioma inglês para desenvolver letramentos acadêmicos entre os pesquisadores locais, particularmente em áreas como redação de artigos para publicação internacional. Os desafios para fornecer apoio direcionado ao desenvolvimento de tais letramentos incluem espaço curricular limitado, horários conflitantes e o fato de que instituições isoladas costumam ter campi geograficamente dispersos. O ensino semipresencial oferece um meio possível para enfrentar esses desafios através da flexibilidade oferecida no modo de ministrar o curso, que é parcialmente presencial e parcialmente on-line e assíncrono. Este artigo relata o desenho, execução e avaliação de cursos de redação de artigos de pesquisa ministrados a estudantes de pós-graduação na Faculdade de Medicina e Escola de Agricultura da Universidade de São Paulo em 2018-19. O artigo confirma que o formato semipresencial pode ser um meio bem-sucedido de aprimorar os letramentos acadêmicos, enquanto identifica as áreas mais fáceis e mais difíceis de ensinar, e quais aspectos do*

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*gênero do artigo de pesquisa causam problemas específicos a escritores iniciantes. O artigo discute as possibilidades, limitações e desafios contínuos do 'semipresencial' no apoio à letramentos acadêmicos que visam aumentar a disseminação da pesquisa brasileira em inglês.*

**Palavras-Chave:** *Letramentos Acadêmicos, Ensino Semipresencial, Redação de Artigos, Generos Acadêmicos*

## 1. Introduction

The first decades of the 21st century have seen an unprecedented increase in pressure on Brazilian university researchers to engage in activities that will raise the international profile of national institutions. These activities include presentation of research at international conferences, research publication in indexed international journals, and collaboration in research networks that involve the drafting of international grant applications (cf. BAUMVOL, 2018; FINARDI & ROJO, 2015; JORDÃO, 2016). To flourish in this academic environment, novice researchers in particular require targeted support in developing both their English language competence and the kinds of situated literacies involved in academic interactions. The demand for specific teaching of anglophone academic literacies has resulted in a number of universities setting up units dedicated to offering support (e.g., FERREIRA & LOUSADA, 2016) and in publications designed to support the teaching of particular academic practices (e.g., FERREIRA & STELLA, 2018; FERREIRA & LOUSADA, forthcoming).

However, even in those institutions that offer support for the development of academic literacies, there remain challenges in delivering to certain segments of the academic community. Such challenges include reaching novice researchers who usually have limited time to attend timetabled sessions, who may study or work on satellite campuses, and whose needs are highly specific, e.g., they wish to give conference presentations or publish in highly specialized fields such as public health or tropical medicine. One way of addressing such challenges is to offer blended learning courses, that is, courses that combine occasional face-to-face teaching sessions with asynchronous online teaching. A general template for the delivery of such courses could, over time, be useful in the design of courses that meet highly specific needs. The present article describes a series of blended learning courses in anglophone academic literacies, particularly research article writing in English, developed at the University of Sao Paulo to address the needs of postgraduate researchers in the Faculty of Medicine (FM) and the School of Agriculture (ESALQ) over 2018-19.

The outline of the article is as follows: the educational context is described; there is an explanation of the theoretical design principles, which draw upon blended learning and genre analysis; sample materials are illustrated; and the process of course delivery is outlined. There is an evaluation of the

courses by the teacher and participants, and recommendations are given for future development. The course principles, design, mode of delivery and evaluation are presented in the hope that they will guide and inform future practices in this area.

## 2. The educational context

The University of Sao Paulo (USP) is a public university, and, at the time of writing, it is the highest ranking institution of higher education in Brazil (251<sup>st</sup>-300<sup>th</sup> in the THES World Rankings 2020). Founded in 1934 by an amalgamation of existing institutions, it now comprises of 11 campuses, 4 of which are in the state capital, Sao Paulo, while the others are distributed among smaller centres. Two of the highest-ranking units within USP, the Faculty of Medicine (FM) and the School of Agriculture (Escola Superior de Agricultura Luiz de Queiroz, ESALQ), are not located on the main university campus at Cidade Universitária. The Faculty of Medicine, which is 82<sup>nd</sup> in the THES 2020 world rankings for Clinical, Pre-Clinical and Health, is based at the Hospital das Clinicas in the state capital; ESALQ, which is 9<sup>th</sup> in the Shanghai world rankings for Agricultural Sciences, is based in the small town of Piracicaba around two hours' drive outside the capital. While it is important for USP to maintain the international profile of the institution in part by providing support for the development of academic literacies in English to novice researchers in these key areas, there are logistical difficulties in providing specialized, expert language teaching to already busy graduate students on satellite campuses.

Recognizing these difficulties, in 2017 the Brazilian higher educational agency, CAPES, provided funding for 30 months to an International Fellow who had the remit to design and pilot blended learning courses in English and academic literacies. Blended learning combines face-to-face teaching with online learning, and so offers the possibility of providing targeted, flexible pedagogical materials to students in different physical locations who have busy schedules and highly specific professional needs. In consultation with faculty in FM and ESALQ, the International Fellow agreed to design, deliver and evaluate pilot blended courses in the areas of research article writing in English, conference presentation in English, and international grant application writing in English. A series of such courses was delivered in 2018 and 2019. The integration of the courses into the respective programmes differed: FM assigned credits to the courses and ran the research writing course in the second semester of 2018 (27 students) and 2019 (29 students). ESALQ ran the course as a non-credit-bearing, extra-curricular elective with face-to-face sessions given during a recess week in 2018 (30 students) and, despite positive feedback from participants, it was not repeated in 2019. Take-up was smaller for the conference presentation and grant-writing courses than for the research writing courses, although, from participants for all the courses was generally positive.

The present article will focus mainly on the research article writing courses designed for FM and ESALQ, since they were the most popular and successful initiatives. This focus is not to minimize the importance of diversifying the academic literacies offered by blended learning courses in future; however, there may be different institutional means of offering such highly specialized courses to the smaller groups who need them.

### 3. Principles of blended learning

The distinctive affordances and challenges of blended learning have generated a lively pedagogical literature. An influential text is that of Vaughan, Cleveland-Innes & Garrison (2013), which offers a framework that specifies the distinctive roles to be assumed by teachers and students, and the procedures involved in delivering courses that bond students into cohesive communities of inquiry, whose members engage with the online materials in different times and places. The community of inquiry framework has been adopted by numerous other educators, such as Zhang (2020), who drew substantially upon it in her design of blended academic English courses for students of Agriculture and Forestry in China.

The community of inquiry (CoI) framework that these educators invoke combines what they refer to as ‘teaching presence’, which refers to the design and organization of the course, the facilitation of student exchanges, and direct teaching; ‘cognitive presence’, which attends to the ways in which the students make sense of the course content and extend their understanding and skills; and ‘social presence’ which considers the formation of group identity and social cohesion (VAUGHAN, CLEVELAND-INNES & GARRISON, 2013, p.12). The value of the framework is that it calls to course designers’ attention the particular nature of the blended learning experience: the course organization should consider the kinds of activity and exchange that the students will do online, usually asynchronously; the course content should enable the students to extend their current knowledge into less familiar domains; and the activities should encourage students to share insights amongst themselves, and function as models for each other’s learning behavior, as well as allowing for interactions directly with the course teacher.

The CoI framework is a flexible instrument that can be adapted to different learning circumstances. In the present context of a series of short (6-8 week) courses in academic literacies, the teaching presence involved the design of activities that facilitated the drafting and revision of an academic paper in English for publication; the cognitive presence involved encouraging the students to use their own reading of published research, systematically and critically, to inform their writing; and the social presence encouraged them to share their readings and insights about article structure with each other, while reserving their draft articles for the teacher’s advice. This general framework was used to design courses for postgraduate researchers in both FM and ESALQ. Since it is not feasible to expect students to be able

to have the competence to write fluent research articles in ‘natural’ English after a short course, the longer-term intended learning outcome for the course was to give a basic idea of the structure and function of different sections of a prototypical research article, and to develop good habits of ‘noticing’ useful language when reading published research, that could then be recycled when writing their own articles. A survey of a sample of established Brazilian researchers identified ‘reading research articles’ as by far the most popular means of improving research writing in English, and it was also rated as second only to workshops arranged by their institution for improving their academic literacy in their first language, Portuguese (LEAL, forthcoming). The aspiration of the blended course design, then, was that by prompting and modelling good habits in transferring insights from their research reading into their research writing, the students would go on to acquire academic literacies in English, autonomously, beyond the short course.

#### 4. The research article genre

The design of tasks specifically to promote the systematic and critical reading of published research as a basis for the students’ own writing draws on genre analysis. The research article genre is probably the most studied text type in applied linguistics (e.g., BHATIA, 1994; CORBETT, 2006; HYLAND, 2004; HYON, 2017; SWALES, 1990, 2004) and insights from the study of research article structure have long been transformed into classroom teaching materials and practices (e.g. SWALES & FEAK, 2004). One of the tenets of genre analysis is that the structure and linguistic characteristics of a generic text are shaped by the distinctive communicative purposes and cultural assumptions of the disciplinary community that produces it, and so diverse scholarly communities will produce generic texts whose specific linguistic features will differ. However, there will also be broad similarities in purpose and assumption across certain disciplinary communities, and so there will be some similarities in the generic features of texts produced by researchers in cognate disciplinary fields. Since the blended courses were designed for students in Medicine and Agriculture, the materials design drew heavily on Nwogu’s (1991) description of the genre of medical research articles, and this prototypical structure was adapted to a certain degree for students in ESALQ. As it turned out, even within both FM and ESALQ, the students represented a range of disciplinary traditions, which meant that for each cohort of students, the prototypical generic article structure presented in the course was more or less relevant to the students’ immediate needs. Nevertheless, the very act of presenting a generic structure for critical appraisal raised some important points for student reflection on their own writing, including differences in cultural expectation between Portuguese and English-language researchers. The possibility of systematic differences in expectation among cross-linguistic research communities is raised by Hirano (2009) in her

comparison of Portuguese and English research article introductions published in *The Specialist* and *English for Specific Purposes*. Her study found that research articles published in Portuguese were less likely than articles in English to foreground a ‘niche’ in the previous research which the present research was then shown to be occupying. Although the research disciplines of Applied Linguistics, Agriculture and Medicine obviously differ, the function of specifying and occupying a ‘niche’ also challenged the blended course participants, suggesting that there may be transdisciplinary rhetorical assumptions influencing the realization of generic research article structures across languages..

Materials for the FM and ESALQ blended learning courses, then, drew primarily on the generic structure suggested for medical research articles (NWOGU, 1991), adapted slightly in accordance with Swales (1990, 2004) and Swales & Feak (2004). The main moves are shown in Table 1.

**Table 1:** Prototypical research article structure

Preliminary matter	Title Abstract
Introduction	Topic generalisation Review of previous literature Identifying a research niche Occupying the research niche
Materials & Methods	Describing data-collection procedure (source, extent & criteria) Describing experimental procedure Describing data-analysis procedure
Results	Indicating consistent observations Indicating non-consistent observations
Discussion	Highlighting overall research outcomes Explaining specific research outcomes Stating research conclusions & recommendations

**Source:** cf. NWOGU, 1991.

The moves and steps in each article section can be omitted or substituted, and they can be realized in different ways, e.g., in the Introduction, a research niche might be occupied by previewing the research article structure or by summarizing the research findings, and in Materials and Methods, researchers tend either to collect data or to devise an experimental procedure, but seldom both. In the Results, non-consistent observations are often omitted, and in the Discussion there may or may not be recommendations given on the basis of the findings. Given this flexibility, the prototypical generic structure in Table 1 was found to be applicable to a range of research articles both in Medicine and in Agriculture, although it was particularly applicable to empirical studies, with some provisos, discussed below. Agricultural research articles tended to favour data collection and analysis rather than experiment, but otherwise the structure suited most researchers’ needs in the two disciplines.

The title and abstract of research articles trigger their own set of conventional expectations in English (MYERS, 1991; SWALES & FEAK, 2004). The title of a research article in English often identifies the topic and/or methodology used, and stakes a claim to knowledge. The abstract has its own micro-structure, which in its fullest realization comprises of five moves:

- Background to the research
- Purpose of the research
- Methods and procedures used to undertake the research
- The findings of the research
- Discussion and implications of the research

As with the article as a whole, the structure of the abstract is shaped by the purposes of the disciplinary community. The abstract can be used as a summary of the article, a screening device for editors and referees, a road map for readers, and (increasingly in the age of digital searches) a showcase to alert fellow researchers to the author's work.

Illustrative articles for Medicine and Agriculture were chosen with a view to their intrinsic interest, the quality of the journals in which they were published, and their relevance to Brazilian students. Each article also illustrated a different branch of the discipline. Both articles in each discipline were made available in full on the Moodle site for the students' reference. The use of two illustrative articles per course served to emphasize that, while there is a generic pattern that most research articles tend to follow, there can be variations in this pattern. An analysis of two articles also allowed comparison of different ways of signaling generic moves, and prompted students to read their own choice of articles to discover other ways of realizing the moves. The articles used were:

#### Medicine

- COSTA, R. T., E. CHENIAUX, B.P. RANGÉ, M. VERSIANI & A.E. NARDI, 2012. Group cognitive behavior therapy for bipolar disorder can improve the quality of life. *Brazilian Journal of Medical and Biological Research*, 45(9): 862-868.
- DE OLIVEIRA, W.K., G.V.A. DE FRANÇA, E.H. CARMO, B.B. DUNCAN, R. DE SOUZA KUCHENBECKER & M.I. SCHMIDT, 2017. Infection-related microcephaly after the 2015 and 2016 Zika virus outbreaks in Brazil: a surveillance-based analysis. *The Lancet*, 390(10097): 861-870.

#### Agriculture

- WANG, I. J., J.C. BRENNER & V. BUTSIC, 2017. Cannabis, an emerging agricultural crop, leads to deforestation and fragmentation. *Frontiers in Ecology and the Environment*, 15(9): 495-501.

- BÉLIVEAU, A., R. DAVIDSON, M. LUCOTTE, L.O.D.C. LOPES, S. PAQUET & C. VASSEUR, 2015. Early effects of slash-and-burn cultivation on soil physicochemical properties of small-scale farms in the Tapajós region, Brazilian Amazon. *The Journal of Agricultural Science*, 153(2): 205-221.

With a workable prototypical structure of a research article that is of direct relevance to many students in the disciplines of Medicine and Agriculture, and of use and interest to most, the course designer can proceed to develop materials that prompt systematic and critical reading and writing. The emphasis moves from teacher presence to cognitive presence: ensuring that the students' engagement with the course materials make sense, and that the activities actually promote the development of academic literacies.

### **5. Materials design and course delivery**

As noted above, the intended learning outcome of the blended courses was to support and encourage students' own research reading, and prompt them to transfer insights and observations from their reading into their own writing. The following materials were therefore developed for the online component of the courses:

1. The teacher wrote and recorded a set of mini-lectures, each illustrating the main generic moves in each section of the prototypical research article structure, with reference to the two illustrative published articles in the field. These mini-lectures were presented using PowerPoint, exported to video and then uploaded to an unlisted YouTube playlist. Links to the videos were then dropped into related sections of a course on the Moodle virtual learning environment.
2. Worksheets were designed to accompany the videos, and to prompt the students to test the insights from the videos, initially by analyzing the relevant section of an article of their own choice. The students were encouraged to identify each move and step within their chosen article by color-coding it, scanning the result and uploading it to a communal discussion forum.
3. The worksheets also required the students to write a corresponding research article section, following the suggested moves, and upload that section as a weekly assignment, which was available for only the teacher to view.
4. The final task in each worksheet was to post a reflective observation on the task in a public Learning Blog on the Moodle site, noting the degree of relevance or usefulness of the task to their own research area, and identifying specific words or phrases from the video and their own reading that they might use in future in their own writing.
5. An optional Vocabulary List was included on the Moodle site, which some students made use of, to keep a record of useful expressions encountered in their reading. Most students simply listed these expressions in their Learning Blog.

Although the same basic course design template was used for both the FM and the ESALQ courses, the mode of course delivery differed. With the medical students, each course began with a short face-to-face orientation session, in which the course aims, expectations and structure were explained. For the research writing course, the orientation session also introduced students to the online materials that



focused on the title and abstract, and addressed any immediate student concerns about the blended format. The students then worked through the online materials using the Moodle virtual learning environment with regular deadlines for uploading assignments (i.e. the color-coded readings, their own article drafts, and their reflections). A sample screenshot for the Moodle VLE is shown in Figure 1 and a link to the YouTube playlist for the Medical research article writing course is given in the Appendix, along with a sample worksheet.

**Figure 1:** Screenshot of Moodle Virtual Learning Environment

Move #	Typical labels	Typical questions
Move 1	Background/Introduction/ Situation	What do you know about this topic? Why is this topic important?
Move 2	Present research/Research purpose	What is this article about?
Move 3	Methods/Methods/Methods/ Approaches/Procedures	How was the research for this article done?
Move 4	Results/Findings	What findings did the article discover?
Move 5	Discussion/Conclusion/ Implications/Recommendations	What is the significance of the findings?

The teacher read the assignments on a regular basis, usually weekly, and provided individual and general feedback via Moodle. The course ended with another face-to-face feedback session in which the teacher gave general feedback on the drafts of the complete articles, and answered any final student queries. In FM, the course was assigned credits, and a holistic grade was given on the basis of participation and the completion of assignments.

In ESALQ, however, there was a different format. Over the course of a week, the course teacher gave a series of face-to-face sessions about both research writing and conference presentation. The students were then invited to work through the online component of the research writing course in the weeks afterwards, on a voluntary basis, if they wished feedback on their work. Only a small minority of

the students took up the invitation, though at least one who did not complete the online component wrote later to say how useful he or she had found the materials.

## 6. Course evaluation

Formal student feedback was elicited by a Moodle survey. Very few students responded to the ESALQ course survey and so the summary below pertains only to the FM course. Students were asked to self-evaluate their progress on a Likert scale and open-ended comments on different aspects of the course were invited. 17 responses were elicited from students on the FM course in 2018, and 8 responses were submitted after its second iteration in 2019. As will be seen from the results (Tables 2 and 3) and comments, the feedback on the courses was generally favourable from those who completed the survey.

**Table 2:** English for Communication in Health Sciences: writing scientific articles (2018).

	Level of improvement					N
	None	Some	Good	Great	Don't know	
As a result of this course, how much did you improve your understanding of the characteristics of academic research articles?	0	0	53%	47%	0	17
As a result of this course, how much did you improve your knowledge of useful expressions to use in research articles?	0	0	53%	47%	0	17
As a result of this course, did your confidence improve with regard to writing research papers in English?	0	12%	47%	41%	0	17

**Table 3:** English for Communication in Health Sciences: writing scientific articles (2019).

	Level of improvement					N
	None	Some	Good	Great	Don't know	
As a result of this course, how much did you improve your understanding of the characteristics of academic research articles?	0	0	25%	75%	0	8
As a result of this course, how much did you improve your knowledge of useful expressions to use in research articles?	0	13%	38%	50%	0	8
As a result of this course, did your confidence improve with regard to writing research papers in English?	0	0	50%	50%	0	8

The main complaint in the first cohort (2018) was that the course was too rushed, a sentiment shared by the course teacher; in response, therefore, in 2019 the duration of the course was extended from 6 to 8 weeks, with the result that 88% of the second cohort surveyed described the pace of the course as ‘about right’.

From the open-ended comments given in the FM feedback, some of which are reproduced (unedited and uncorrected) below, the students valued the flexible nature of blended learning although they acknowledged that self-discipline was necessary to complete the tasks. The need for self-discipline is probably the main reason why student completion rates fell away sharply on the non-credit-bearing course offered to ESALQ students. There was also a recognition that the format of the course has the potential to allow attention could be paid to sub-disciplines within each area.

- The flexibility is very useful, not impersonal, but it demands discipline to complete the tasks, and this can be a problem. Online materials were very easy to use, the videos were good, and articles gave us a baseline to start learning.
- The flexibility promoted by the course model facilitated my participation and achievement of the teaching objectives at my own pace. The videos available on youtube are fantastic and help us all the step-by-step to write a high quality scientific article in English.
- The flexibility was helpful and if possible add more examples diferenciating laboratory research papers from epidemiology research papers.

While the course was largely conducted online, considerable teacher time was spent in giving weekly individual feedback on the highly specialized draft articles, and also in producing short video feedback for the cohort as a whole. Even so, some students called for more face-to-face feedback, possibly in the form of ‘clinics’ at particular points during the course. In blended courses, the balance of face-to-face versus online teaching needs to be monitored and will evolve over time.

There was some spontaneous indication that the course was successful in raising awareness of the generic structure of research articles in English and that students were being prompted to become more efficient autonomous learners:

- Honestly, it was better than expected. The videos and the articles given as example made understanding much easier. There were really great tips - some of them I kind of already used to do - that surely will help improve my writing.
- It has reinforced my knowledge in writing, and added new strategies to develop more advanced skills to write in english. It was very useful!
- With the passing of the course, I began to pay more attention to each of the structures of the scientific articles and which expressions are most used to emphasize the parts of the text.
- The course was a great opportunity to systematize the structure of academic research articles. I knew there were some moves, but this established structure was unknown to me. By knowing the format of the manuscript sections, I find it easier to keep on improving my writing skills.

- I was able to practice the text structure in each section and understand the reasoning behind academic writing. I also improved the way I read articles, in a more systematic manner. The most relevant knowledge for me was the vocabulary blog. I started making my own notes of useful language to use in future manuscripts.

It is interesting to note that even those students who did not find the generic structures presented ideal for their own sub-discipline still appreciated being introduced to the structure of a prototypical research article. In both FM and ESALQ, the illustrative articles chosen and the generic structure presented were particularly suited to empirical scientists such as those in Tropical Medicine. However, in both years, the cohort included students from disciplines disciplines such as Public Health and Sociology who employed qualitative research methods and needed to use the outcomes as the basis for rhetorically persuasive arguments. The demands on their English language repertoire were therefore greater than they were on those who employed more experimental, quantitative methods. Even so, the comments from those students still tended to be positive:

- The moves and steps makes it easier to write the text following a logical sequence, but they don't necessarily need to be followed rigorously in order to make the text coherent.
- I'd love a specific course for qualitative research papers.
- Even though most of the Public Health articles that I've been reading/ involved with do not follow a specific structure, having this knowledge made me realize that having these steps within a paper, in a particular order or not, helps the reader find himself/herself in the text, and perhaps many other readers would be interested in reading it due to its "clearness".

Overall, the student response was highly favourable and suggests that the template adopted for the blended learning courses is workable, useful and could be extended to serve other sub-disciplines.

## 7. Discussion and recommendations

The foregoing sections suggest that the blended learning format has the potential to achieve its main objectives in providing flexible, quality support in academic literacies in English to novice researchers on geographically distant campuses. The pilot courses run in 2018-19 offer a general template for such blended courses, but student take-up and successful course completion depend on various factors. The experience in FM and ESALQ support the integration of blended learning courses into degree programmes so that students are motivated to discipline themselves to complete the sequence of tasks in order to gain credit. While students may find the materials useful when they encounter them in extra-curricular or voluntary classes, they have less incentive to engage more fully with tasks designed to extend their academic literacies in English. Nor should it be assumed that by putting part of a course online an institution reduces the amount of teacher time or effort that is required to deliver it: the time involved in giving regular, individual feedback on highly specialized texts in unfamiliar disciplines is extensive. It is

necessary to the success of such courses to give detailed feedback to students' draft articles: the quality of the interactions between teacher and student, and student-student, are key to establishing the 'social presence' that characterizes a genuine community of inquiry.

There is no doubt that the course was successful in raising participants' awareness of the generic structure of a research article in English, and in enabling them more effectively to negotiate the 'moves' involved. Some moves and steps were more straightforward than others. As Hirano (2009) suggests in her contrastive study of Portuguese and English research article introductions in the field of Applied Linguistics, the identification of a research 'niche' can be particularly problematical, not only for second language students. This move necessitates situating the researcher's own project in relation to previous research, either by challenging, extending or attempting to replicate some aspect of it. Students in FM and ESALQ found this move more challenging than, say, reporting data collection procedures or indicating consistent observations from the data. While students' grasp of generic discourse structures swiftly improved, some of the 'basic mechanics' of English vocabulary and syntactic choices were slower to respond to teaching. For example, the structure of complex noun phrases and article usage (particularly when and when not to use the 'zero' article) remained widespread issues that the short-term language courses struggled to address effectively.

Generally, as noted above, those students whose disciplines adhered to qualitative methods were required to develop more sophisticated rhetorical strategies than the quantitative empiricists, who were able to fall back on a more formulaic set of linguistic expressions in their articles. Given time and adequate resources, specific courses could be developed for students in the qualitative sub-disciplines, and blended learning materials could conceivably be developed to focus on recurring points of linguistic difficulty. Greater direct involvement of faculty from the disciplines of Medicine and Agriculture in the refinement of the course design, and indeed in the delivery of the online components of the course, would also give the content additional validity for the participants.

In many respects, the research article writing course provided a good foundation for the other blended learning courses offered. The course in conference presentations was able to draw upon the generic structure of the research article as a starting point for the delivery of a summary of the researcher's project, adapted for a live audience of peers. The same generic structure was also partly recycled as the basis for research grant applications, again with adaptations for a different audience.

The most encouraging outcome of the research writing course was, as indicated, the suggestion that, through blended learning, the participants had transformed their understanding of the research article genre in English and that many would continue developing their new insights after the course had concluded. To end with a final student endorsement:

I found the methodology used fantastic I learned a lot in a short time. The fact that the course was online did not affect the quality, in fact, it was even good because it allowed a flexible schedule, which is very good for postgraduate students.

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## Appendix

The YouTube playlist for ‘Research Articles in Medicine’ is available at:

<https://www.youtube.com/playlist?list=PLPb5Mo8sCruUevvgk5RKM4pBXGDsQd2TR>

Worksheets were devised for each section of the research article. A number of EAP articles give advice on writing the Introduction section, and, in comparison, the Materials and Methods sections and Results section are straightforward. The worksheet for the more challenging Discussion section of a Medical research article is given for illustration below.

### ***Developing academic literacies: The ‘Discussion’ section***

These activities focus on the Discussion, which is normally the final section of a typical research article. Research suggests that typically the Discussion section has up to three moves with possible steps, e.g.:

- Highlighting Overall Research Outcome
- Explaining Specific Research Outcomes:
  - (1) Stating a specific outcome.
  - (2) Interpreting the outcome.
  - (3) Indicating significance of the outcome.
  - (4) Contrasting present and previous outcomes.
  - (5) Indicating limitations of outcomes.
- Stating Research Conclusions:
  - (1) Indicating research implications.
  - (2) Promoting further research.

Not all of these moves and steps will be present in any given article (for example, all of the observations might be consistent with each other!), but they very often are. We will first look at how they are realised in the following article. You will note that the final move (Conclusions) has been given a section of its own.

RASELLA, D., M.O. HARHAY, M.L. PAMPONET, R. AQUINO & M.L. BARRETO, 2014. Impact of primary health care on mortality from heart and cerebrovascular diseases in Brazil: a nationwide analysis of longitudinal data. *BMJ*, 349, g4014.

<http://www.bmj.com/content/349/bmj.g4014.full.pdf+html>

1. Read the full Discussion section quickly and answer the following questions:
  - a. Which of the three moves and steps are present in this article? In what order are they presented?
  - b. Color-code each move and step that you find, labeling each one.
  - c. Note down any useful language. Add any particularly useful vocabulary to the ‘Your Vocabulary’ list on Moodle. Pay particular attention to any language that indicates what the results mean, the strength of the claims being made, and how the present research relates to earlier research on this topic.
2. Now return to the article that you chose on a topic that interests you.

- a. Read the Discussions section and do the same activities that you did for (1) above.
  - b. Upload your color-coded analysis to Moodle by the deadline.
3. Think of a piece of research that you have been involved with.
  - a. Draft a brief Discussion section for an article about it.
  - b. Upload your draft to the Moodle site by the deadline.
4. By the deadline, in the ‘Learning Blog’ on Moodle, write around 150-200 words e.g., on the following topics:
  - Useful language that you have noticed that is useful in the Discussion section, particularly to do with the following:
    - Highlighting Overall Research Outcome
    - Explaining Specific Research Outcomes:
    - Stating Research Conclusions
  - Any final comments/queries you have about research article structure as a whole.