LIBER QUARTERLY
The Journal of the Association of European Research Libraries
Vol. 30, (2020) 1–11 | e-ISSN: 2213-056X

Publication Strategies Under the Publish or Perish Paradigm – Using Kolb's ELT to Understand PhD Students' Needs

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Abstract

Having a viable publication strategy at an early stage of the career can nowadays make a researcher. Not having one appears to break them. We as librarians are in a unique position to guide them in their endeavours to create a viable publication strategy. In this paper we use Kolb's Experiential Learning Theory as our theoretical framework for understanding learning processes related to the development of a publication strategy.

Uopen Journals | http://liberquarterly.eu/ | DOI: 10.18352/lq.10349

We compare a set of publication strategies developed by newly enrolled PhD students 4 to 5 years ago to articles retrieved from PubMed and Scopus using the PhD students' ORCID as identifier. We subdivide the publication strategies into three categories (fulfilled, partially fulfilled, abandoned).

We find evidence that the more realistic the publication plan is, the more likely it is to be followed.

This indicates that it is of importance that PhD schools support students' efforts in developing their publication strategy at an early stage of their career.

Keywords: PhD Students; Publication Strategy; Research Support services; Experiential Learning Theory; New Library Services

1. Introduction and Background

The 'Publish or perish' paradigm has put young researchers under considerable pressure: While their senior colleagues could allow themselves 'a few mistakes' during their career path, young researchers must plan their course in much more detail. Not only must they consider the career potential of their topic and the political importance of the topic with respect to the international research agenda, they must also ensure regular publishing, they must network with the right people, negotiate co-authorships for their own work and contribute to that of other researchers. Furthermore, they must also ensure that their research earns points, not only on the traditional metrics like the h-index, but also on alternative metrics. To do that they become active players on SoMe platforms and in traditional mass media.

For senior researchers who know 'the game', having and maintaining a viable publication strategy (PS) is challenging, too. However, most have had time to 'learn-by-doing'. Today having – or not having – a PS at an early stage of the career can make or break the young researcher. Many of the choices related to developing a PS involve ethical considerations and can, if the wrong choice is made, bring young researchers into contact with the shadowlands of questionable research practices (QRP) or even scientific misconduct, falsification, fabrication and plagiarism (FFP). In this matter temptations are abundant: gift authorships, citation cartels, framing research questions to create SoMe

attention and so on. The modern research library plays an important role in monitoring changes in academic behaviours and providing strategic advice both to the researchers themselves and the university management.

At the University Library of Southern Denmark, we have been commissioned by our university, the SDU, to ensure that each of the university's PhD students develops a publication strategy for their PhD thesis by the start of their doctoral journey. There are several reasons for this. Firstly, at the library we have access to and experience with the tools used internationally to measure researcher performance. Consequently, we have experience with advising both junior and senior researchers on how to select publication channels. Secondly, we support both SSH and STEM researchers. Therefore, we have in-depth knowledge about differences in publication patterns across the various disciplines. Last, but certainly not least, a scandal on scientific misconduct some years ago made it obvious that there was a general need for training PhD students in responsible conduct of research (RCR). Since the library has a special status as a neutral partner with knowledge and understanding of research processes, it was an obvious choice to commission the Library with the task of developing a course in RCR. It then became the obvious choice to nest the PhD students' work on their publication strategy within the framework of our RCR courses. Today these courses are a mandatory part of all PhD programmes at our university. The course corresponds to 2 European study credits (ECTS). The final assignment of the course is a PS of a few pages. The courses have been taught for five consecutive years, and since the PhD stipend is normally granted for a three-year period, we can now both study the initial intentions of PhD students and compare these intentions with the actual production for the first cohorts.

The aim of this article is to investigate whether PhD students follow the early stage PS (ESPS) formulated as part of their mandatory course, and what characterizes an ESPS that is followed compared to those that are abandoned.

The rationale of the paper is threefold: Firstly, for tracking the publication strategies submitted 4 or 5 years ago to see what has materialized since then is an important part of our evaluation of the course. Secondly, in order to adjust the curricula of the course we need to see how PhD students behave publication-wise. Thirdly, but most importantly, knowing the behavioural outcomes is of value in a broader context, since knowledge about

how to develop a successful publication strategy is of importance to young researchers, supervisors, and peers.

Our study is neither theory developing nor theory testing, but rather a theory-informed semi-qualitative analysis. Before describing our data-collection method and presenting our empirical analysis, we wish to present the theoretical framework that has inspired and guided our work.

2. Theoretical Framework

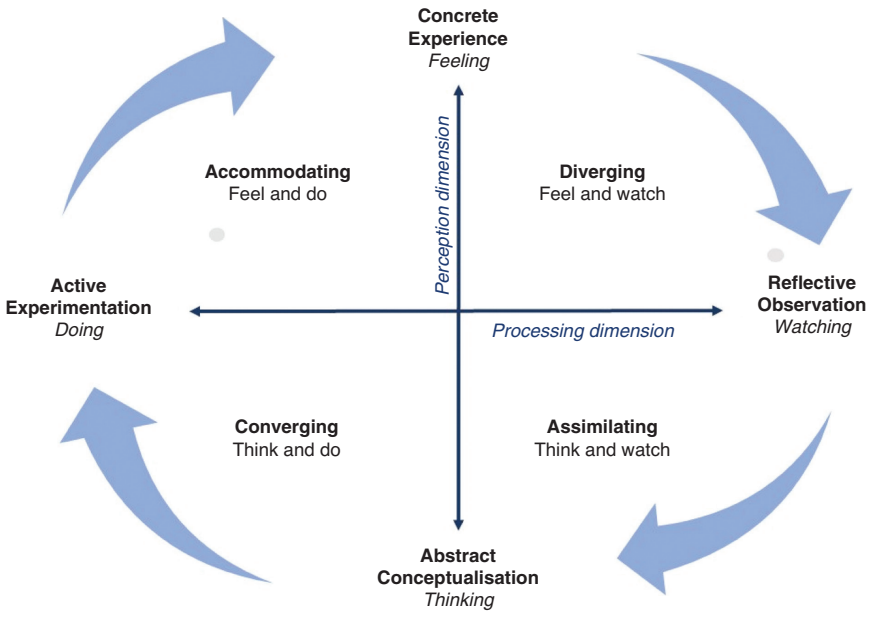
Research in learning has many sets of theories. All are based on of Plato's writings in his mid-period in dialogs like Cratylos, Symposion, Phaidon and The Republic (Silverman, 2014). Plato was mainly interested in the paradox of learning: you are learning when acquiring knowledge or skills that you did not already have, however, if you did not have them, how can you know that you need them and should seek them? In Plato's universe learners are passive agents receiving something. The person providing knowledge and skills is the *paedagogus* (literally; leader of children). He decides on the students' behalf what they need to learn (Silverman, 2014). From Plato onwards, theories on learning appear to have had three main streams: The classical 'Educational Psychology', 'Educational Neuroscience' and 'Educational Anthropology' (Wikipedia, 2020). We will follow the Educational Psychology stream, which is focused on learning processes. Educational psychology aims at enabling us to understand individual differences, despite the fact the it relies on quantitative methods. This line of thinking can be subdivided again into behavioural analysis, cognitivism, and constructivism.

Of these, we find the constructivist approach more suitable for our purpose due to its emphasis on active involvement of the learners. As opposed to Plato's original line of thinking, constructivists argue that students must be actively involved in the learning process, otherwise they cannot learn deeply (Smith, 2002). Therefore, curriculua should be so built that students' existing knowledge and previous experiences are taken into consideration and included as much as possible for learning to be effective. Thinkers like Dewey, Lewin and Piaget have contributed to this line of theory (Kolb & Kolb, 2005). We find Kolb's Experiential Learning Theory (ELT) from 1984 (e.g. Kolb & Kolb, 2005) highly relevant in our context.

According to Kolb all learning is relearning, and is a process that has several stages (Kolb & Kolb, 2005, p. 194). It is best facilitated in processes that draw on the students' beliefs and experiences, thus it becomes a cyclic process. Furthermore, learning is a holistic process; it involves development of one's thinking, feeling, perception and behaviour and must happen in a dialectic process, where new experiences are assimilated into existing concepts and accommodated with these. Finally, learning is a process of creating new knowledge since what is acquired must be personalised to fit individual needs (Kolb & Kolb, 2005).

There are two continua of learning (Johns, 2001). The first has to do with how we approach the task. This is the Perception Continuum. One may visualise it as a north-south axis (McLeod, 2017). At the north end of the axis we find *Concrete Experience (CE)*, at the south end *Abstract Conceptualizations (AC)*. The other continuum is the Processing Continuum which may be visualised as an east-west axis where *Reflective Observation (RO)* is found at the east end and *Active Experimentation (AE)* at the west end (McLeod, 2017). Thus, this may be depicted as a compass (see Figure 1).

Fig. 1: Kolb's learning model. Adapted from McLeod (2015).



For learning to be completed, the student must go through all four corners of the compass in a well-defined sequence starting from the north: Firstly, we must have some Concrete Experience with that which we are about to learn (Johns, 2001). We must have tried what we are about to learn, in order to understand the relevance of the matter. This dimension creates a *feeling* of e.g. inadequacy. The feeling drives the student to the eastern corner of the compass, Reflective Observation. The Reflective Observation is mostly guided by someone or something, e.g. a teacher, a textbook, a supervisor, or a mentor. The student will be passively *watching*, reading and listening to others trying to convey their knowledge. This phase is what most lay people would term 'studying'. It is the most passive phase of the learning process. From there the student moves to the southern part of the compass, where the student personalises through his own thinking what others have conveyed in the previous phase. The student will sort what others have conveyed into useful and non-useful entities and create a personalised synthesis of what is relevant and what is not. This phase is Abstract Conceptualisation, and it involves *thinking*. Through the previous three phases the student is now ready to act and bring the newly acquired knowledge or skill into play by *A*ctive Experimentation (McLeod, 2017).

Kolb's learning cycle has been criticised for being too rigoristic, since learning is typically not a well-structured process and does not take place in sequential, ordered steps, but can be a mess with the various steps overlapping. ELT has also been criticised for not taking social, historical and cultural aspects of learning into consideration (Konak, Clark, & Nasereddin, 2014). We agree with this criticism. Learning is indeed a complex process that can hardly be boiled down to four stages in the same sequence. Nevertheless, we find that the model is useful when analysing the learning processes of our students.

We will use Kolb's ELT as the theoretical framework for studying the processes our PhD students go through during their PhD period and related to their publication strategy. ELT is applied as follows:

> CE: Before applying for enrolment in the PhD program, the applicant must have published at least one scientific journal article. In other words, these PhD students all have some concrete experience with academic publishing.
>
> AC: Our mandatory course consists of lectures, exercises, discussions, and home assignments. Although we aim at ensuring that participants

are active in class, our course may still be considered 'traditional studying': We as teachers convey to the students what we think they need to know about publication strategies.

RO: As already mentioned, the last assignment of the course is a one-to-two-page reflective essay on their publication strategy (ESPS). The strategy should contain both ideas for concrete papers and their reflections on relevant ethics related to publication strategies; and must contain their Open Researcher and Contributor ID (persistent digital identifier; ORCID).

AE: During the remainder of the PhD period the PhD student will submit papers to journals, getting some accepted and some rejected. We assume that 4 or 5 years after an ESPS was submitted as part of the course, the ESPS will either have been followed, partially followed, or abandoned.

In other words: For CE, we can collect evidence by using the PhD students' name and ORCID, searching scientific databases like Scopus and our CRIS (Pure). However, these initial papers themselves are not needed for our analysis; since they fall outside the actual learning initiated by us. For AC, we have electronic copies of the various learning materials presented by us to the PhD students, since all is contained in the university's e-learning system. For RO, we have the PhD students' individual assignments and, finally, for AE, we can trace the PhD students' activities through scientific databases like Scopus, PubMed and Pure and compare these to the ESPS of each student.

3. Data Collection Method

The RCR course is taught in five different variations at SDU, accustomed to the different research traditions of the main disciplines. Within health sciences, the course has been taught since 2014; the remaining disciplines have added this course to their portfolio of PhD courses later. For this reason, but also because we needed a pool of comparable assignments to analyse, we chose the assignments from the 2014 cohort of RCR courses at the Faculty of Health, SDU (N=52). The use of the student assignments was cleared with the university (General Data Protection Regulation; GDPR).

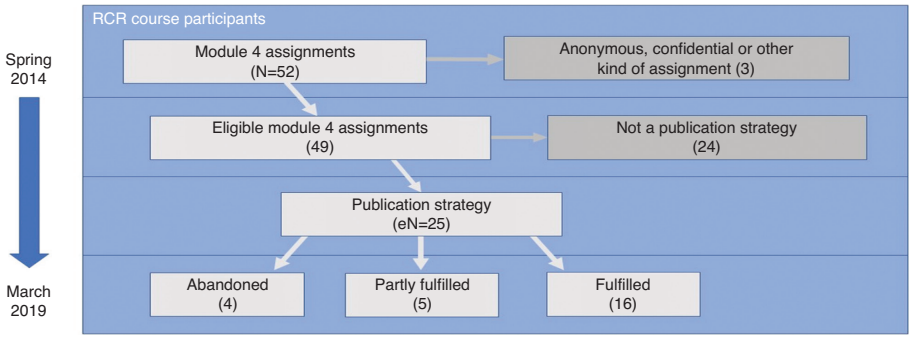
4. Analysis

Three out of the initial pool of assignments had to be dismissed because they were anonymous, confidential or were submitted upon completing an entirely different task. A further 24 assignments did not meet our criteria for the analysis and were deselected; some were not precise in specifying publications so that they could not be verified, others did not specify an ORCID. Assignments specifying publications as identifiable distinct chunks by working title/subjects and journals were classified as ESPS. The material was classified by two coders who went through all ESPSs jointly for final classification (intercoder reliability: 100% agreement). This left us with 25 ESPSs for our analysis (eN=25).

We then verified the publications mentioned in the 25 ESPS by searching in PubMed and Scopus up until March 12, 2019 and classified the publication strategies into three categories: Abandoned, Partially Fulfilled, Fulfilled. The ESPS was considered abandoned if none of the described articles could be identified among actual, realised publications of the author; Partially Fulfilled if at least one title/subject of a publication was matched, and at least one publication had the PhD student as first author; And Fulfilled with at least one title/subject and journal match or at least two article title matches, again also with at least one first authorship. As a result, four publication strategies proved themselves abandoned, five partially fulfilled and 16 fulfilled (see Figure 2).

Thus, most of the publication strategies have materialised over the five-year period, at least in part. To investigate any potential effects of ambition level

Fig. 2: Results overview.



of the PhD students as materialised in the ESPS, en-face characteristics of the ESPS were also inspected. Specifically, ESPS length, number of planned articles, JIF factor, and Open Access intention were inspected. The data did not indicate any systematic between-group differences.

For the same reasons we also tried to match the categorisation of the ESPSs with careers. Interestingly, none of the abandoned strategies was created by PhD students still engaged in research. Among the 16 authors of fulfilled strategies, five were, at the point of our database searching, in active research positions, either within a university or hospital environment or in a private company. Among the 24 authors of dismissed assignments, ten were in active research positions. However, these findings do not, due to the small study population, allow us to detect any effects of neither ESPS ambitions nor careers on ESPS success.

The validation of an ESPS (i.e. the verification of a publication strategy), may be a limitation to this study. Regardless of the validation being carried out by two reviewers in two databases, an optimal validation would be a follow-up from the PhD students on the fulfilment of their ESPS.

Another limitation may be the follow-up time period. We cannot rule out that some publications are still being published and that an absolute higher number of active production years may contribute to more ESPSs being fulfilled. This is a motivation for follow-up. On the other hand, the relatively large proportion of students that have left research indicates that at least some are no longer scientific authors.

5. Conclusion and Discussion

The answer to our research question is first that, PhD students seem, to a relatively high extent, to follow their initial publication strategies. We find minor variations like change of target journal or change of title of paper, but the overall picture is that plans drafted in the first part of the enrolment period are largely followed. We fail to answer the second part of our research question (fulfilling), since we found no unique patterns by which to distinguish between fulfilled, partially fulfilled and abandoned publication strategies. For this reason, we studied the students' career paths instead and found that students who had deviated significantly from their publication strategy during

their PhD enrolment were not likely to have pursued a career in research. However, we are not able to establish cause and effect based on our findings. To do so we would need more data including, e.g, in depth interviews.

However, our study gives reason to consider the efficiency of the training of PhD students. Our RCR course appears to document a successful learning cycle, following all the steps outlined in Kolb's learning cycle; and as such it appears that students perceive what they learned to be useful, leading to a potentially greater emphasis on designing a publication strategy from the part of the university at an early stage of a young researcher's academic life.

From the perspective of the University Library of Southern Denmark this is good news. We are proud that we can document that the courses have an effect and that the students have 'learned something useful'. During the process we have gained more insight into the learning processes of the students. Finally, tracking the publication strategies in this analysis has given us insight into what works and what doesn't, and has thereby enabled us to adjust our program and to provide better guidance for ourselves, our researchers and our students. Consequently, we have put more emphasis on coaching our students, informing them about the consequences of e.g. publishing in respectively high or low impact journals, the advantages and disadvantages of sharing of authorships, and how to use SoMe in a responsible way to gain citations.

Abbreviations

ORCID = Open Researcher and Contributor Identifier
SoMe = Social Media
FFP = Fabrication, Falsification, Plagiarism
QRP = Questionable Research Practices
PS = Publication Strategy
ECTS = European Credit Transfer System
ESPS = Early Stage Publication Strategy
ELT = Experiential Learning Theory
CE = Concrete Experience
AC = Abstract Conceptualizations
AE = Active Experimentation
RO = Reflective Observation
GDPR = General Data Protection Regulation

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