



ePedagogy as a threshold concept: a reflection on a programme for Science Teaching Assistants

Juliet Stoltenkamp^a, Valentino van de Heyde^{a,b}  and André Siebrits^a 

^aCentre for Innovative Education and Communications Technologies (CIECT), University of the Western Cape, Bellville, South Africa; ^bDepartment of Physics and Astronomy, University of the Western Cape, Bellville, South Africa

ABSTRACT

A Science Teaching Assistant (TA) Programme, at the University of the Western Cape (UWC), focused on preparing promising lecturers. A key component of this programme was the contribution by the Centre for Innovative Education and Communication Technologies (CIECT), which promoted the pedagogical adoption of eTools to assist development of Science TAs. A questionnaire enabled TAs to reflect on the eTools and CIECT's sessions. The authors reflect on academic developer roles in higher education. Within CIECT's contribution, ePedagogy was identified as a threshold concept that the TAs found challenging, but that could lead to transformed and improved teaching and learning.

ARTICLE HISTORY

Received 25 February 2016
Accepted 11 August 2017

KEYWORDS

ePedagogy; student development; teaching and learning; teaching assistants; threshold concept

Introduction

At UWC in South Africa, the CIECT is responsible for driving emergent technologies and eLearning-related teaching and learning initiatives across faculties. Paradoxically, while the use of technologies for teaching and learning has increased rapidly at UWC, it has been observed that many Science educators still do not introduce them into their learning activities. An important aspect of promoting the adoption of impactful learning technologies is ePedagogy, which is defined as 'strategies of instruction or a style of instruction to support eLearning' (Australian Catholic University, 2015) and builds on 'traditional learning theories, such as constructivism, cognitivism, and behaviourism, with contemporary theories such as connectivism' (York St John University, 2016). This reflective paper concentrates on the promotion and adoption of learning technologies within the Science disciplines. Within this effort, ePedagogy was viewed as a threshold concept, and can promote a transformed way of thinking (Meyer & Land, 2003), enabling educators to effectively deliberate on the design of an online environment that promotes student learning. A threshold concept is

one that, once grasped, leads to a qualitatively different view of the subject matter and/or learning experience and of oneself as a learner ... [They] are transformative – once understood

they lead to changes in perception of the subject and a possible shift in identity. (Kiley & Wisker, 2009, p. 432)

The team approached this specific programme with the goal of preparing TAs to apply blended teaching and learning practices. It should be noted that these TAs had never been exposed to the use of eTools, specifically in relation to the concept of ePedagogy, which in this case refers to the design and application of good online teaching and learning principles. The TAs were guided by the instructional designers through a series of sessions, including workshops, consultations, presentations, and meetings. These constituted a liminal space in which their thinking was transformed regarding the utilisation of eTools for teaching and learning (in both their teaching and personal Science projects).

Conceptualisation of the programme and grappling with a threshold concept

The broader TA development programme was designed to guide TAs to become lecturers in Science fields at UWC. The Centre collaborated with the Deputy Dean (Faculty of Natural Sciences) and the teaching and learning faculty specialist, and contributed ePedagogy as a threshold concept for this programme.

The pilot phase of the programme was undertaken in 2014 with a group of 11 TAs, with the aim of promoting the development of a reflective enquiry base to inform and develop their teaching methodology. The team held initial meetings with the lecturers prior to the programme. A workshop session was held with the TAs and the lecturers, advising them on setting up an online environment within the institutional Learning Management System (LMS) and related emerging eTools. Importantly, while the sessions began by showcasing specific features and their value (Cousin, 2006), they were aligned to the threshold concept of ePedagogy, because they lead to a 'transfiguration of identity and adoption of an extended discourse' (Meyer & Land, 2005, p. 375). In this way, the TAs could be exposed to the pedagogical value of the eTools and how this affects the design of online environments for their professional practice and development.

The TAs and lecturers could grapple with the troublesome concept of ePedagogy, which could be observed as seeming 'strange to the new entrants' of the discourse (Meyer & Land, 2003). Various online modules were showcased by the Centre, emphasising the importance of design and the structuring of manageable units, which constituted threshold concepts. In discussions around design, exemplars highlighted course outlines, weekly lectures, digital media components, simulations, calendar, announcements, and assessments. Design aspects also emphasised the importance of self-directed learning spaces that enable students to participate at their own pace and time.

During these sessions, which created a liminal space since they 'characterise[d] the transitional space/time within which the rites were conducted', the emphasis was not placed on any specific eTool. Even though the LMS offers numerous eTools, the focus was placed on structure aligned to the selection of a small number of tools, each serving a specific purpose. This philosophy is in line with Cousin's (2006) 'less is more' design approach, which encourages careful scrutiny regarding the essence of what students must grasp in terms of subject-matter. This showcase of the design and structure of online environments made it possible to draw the attention of the TAs to the effective use of specific eTools, and to the

outcome of this on effective student learning (Middendorf & Pace, 2004, p. 5; Stoltenkamp, Kies, & Smit, 2007).

A point was made to discuss the perception among some lecturers that ePedagogy does not relate to their discipline. The integration of an online Physics lab schedule was also showcased, i.e. 'one-stop-shop', which was designed and developed by one of the instructional designers who lectured the course. This first-hand lecturing experience was beneficial to the TAs because it made their passage through the liminal state easier and more relatable. This is especially important since the liminal state often involves 'much oscillation and confusion' (Kiley & Wisker, 2009, p. 432). The instructional designer showcased the lab schedule, which illustrated a projected lab activity, resources to be used, and other relevant activities the students had to engage in before attending a practical laboratory session. Salmon states that:

[L]ecturers need to ensure that students are not linked to too many outside resources, since this could be confusing. Students will look to the facilitators to provide direction through the mass of messages and encouragement to start using the most relevant content material. (Salmon, 2004, p. 39)

The showcasing of these eTools, specifically Science examples, constitutes an effort to develop the TAs' 'third ear' by taking cognisance of the subject knowledge of the TAs, and their perceptions toward the use of eTools (Land et al., 2006, p. 200, in Cousin, 2006).

The TAs were also informed to cater for different learning styles of learners. For example, the challenging topic related to static electricity was highlighted through an entertaining simulation, namely 'John Travoltage'. The instructional designers were following the principle of Stambor (2006, p. 62) related to making content enjoyable. Hence, 'comedy must complement – and not distract from – course material'.

Reflections by the Teaching Assistants (TAs)

A questionnaire was administered to the TAs from the 2014 pilot group during 2015 to obtain their reflections on the training sessions. This allowed a period of time for the TAs to implement what they had learned in theory and practice.

Eight out of eleven responses were received (73%) which represented a broad range of Science disciplines. Respondents were asked how the sessions facilitated by the Centre assisted them in the selection of eTools for their projects. Six responses (75%) indicated that the sessions were beneficial in various ways: '[the Centre] were well trained and assisted us in the right selection of appropriate eTools'; 'I have personally learned a lot from that contact sessions such as Google Drive, Form etc, and I am using them to draw the course evaluations questionnaire for project across the department'. Two respondents indicated that they were not able to select appropriate eTools on their own, despite the Centre's interventions. Hence, it was clear that these TAs require further assistance in order to grapple with the concept of ePedagogy, and specifically the application of eTools for teaching and learning.

When asked to clarify their selection of specific eTools, seven TAs (88%) identified ePortfolios, Google Drive, LMS ('in order to scaffold a better understanding by students of Math problems'), and Assessment (to 'use the marks records of first year students in Sta from 2008 to 2014 and run statistical analysis'). Seven (88%) respondents indicated they would recommend the guided sessions to their fellow Science TAs.

TAs were asked whether their lecturers would be able to make use of their discipline specific projects to support lectures or lab sessions, of which four (50%) stated yes. Of these

four, three explained why: 'to do their course evaluation using Drive'; 'to identify problematic areas i[n] students writing, especially where they are required to provide evidence for the claims they make', and 'this will help a lecture[r] to assist students in this problematic area'. Four stated no ('I am afraid I cannot say at this time'; 'We haven't really worked on it. Due to time constraints'). Hence, it is clear that these TAs face difficulties related to managing their own academic timetable and fully committing to a development programme.

The final question asked whether the TAs had any additional comment/observation they would recommend regarding the ePedagogically sound use of eTools for their discipline. Only two (25%) considered it necessary to add additional comments, namely, 'helpful' and 'eTools are definitely the way forward and I think that it should be integrate[d] more explicitly'.

These findings enabled the authors to reflect as academic developers within a complex higher education setting. Academic developers (including, in this case, instructional designers), have to constantly grapple with threshold concepts, in order to guide TAs to grapple as well. Moreover, academic developers should strive to find solutions to guide lecturers and students through the liminal spaces in which they are expected to engage.

Conclusion

In summary, the TAs and lecturers were made aware that a focus on ePedagogy can transform their thinking to curriculum design in relation to student needs and learning styles, as well as student choices in the use of technology (Stoltenkamp, 2012, p. 52). The Centre's contribution to the programme resulted in TAs starting to think about good online design principles for teaching and learning within their discipline.

This intervention constitutes a step in promoting the use of eTools within Science at UWC. The contribution of the instructional designer 'may be seen in this way as leading the learner on through a transformational landscape in a kind of epistemological steeplechase' (Meyer & Land, 2005, p. 379). This brought about transformational thinking, which stresses the importance of critically reflecting on the impact of learning technologies on graduate student (TAs) development. A way forward is to promote the wider adoption of the TA development programme across faculties and departments at UWC and other Centres at universities. Furthermore, this reflective paper emphasises the importance for academic developers (including, in this case, instructional designers) to grapple with threshold concepts.

Acknowledgements

We wish to thank all stakeholders for constructive collaboration in delivering the Faculty of Sciences Teaching Assistant Development Programme, as well as the coordinators (Prof Gavin Maneveldt and Dr Rita Kizito), teaching assistants and lecturers who embraced the programme and grappled with ePedagogy and new learning technologies. The conceptualisation of this reflective paper, specifically around ePedagogy as a Threshold Concept, was derived from the personal scholarly work of Dr Juliet Stoltenkamp.

Disclosure statement

No potential conflict of interest was reported by the authors.

Notes on contributors

Juliet Stoltenkamp is the Director of CIECT at UWC. She holds a doctorate in the implementation of eLearning in complex higher education institutions, and specialises in the institutionalising of eLearning, change management strategies, effective use of eTools, ePedagogy, and the design and development of blended learning programmes.

Valentino van de Heyde is an academic developer and former instructional designer & PhD Candidate (Physics) at the Department of Physics and Astronomy at UWC. He has a Master of Science in Physics (Space Weather Physics), and lectured undergraduate courses within the Department. He focuses on the training and support of academics and students within the Department, regarding the application of eTools and sound pedagogy, and related research.

André Siebrits is a researcher at UWC and PhD Candidate in Political Studies at the University of Cape Town (UCT). He has a Master of Arts in International Relations. His research focuses on innovative and effective applications of pedagogical approaches, and supporting the successful implementation and adoption of eLearning.

ORCID

Valentino van de Heyde  <http://orcid.org/0000-0001-8017-549X>

André Siebrits  <http://orcid.org/0000-0002-2352-4953>

References

- Australian Catholic University. (2015). *eLearning, ePedagogy and design*. Retrieved from <http://www.acu.edu.au/385212>
- Cousin, G. (2006). Section 1: An introduction to threshold concepts. *Planet*, 17, 4–5.
- Kiley, M., & Wisker, G. (2009). Threshold concepts in research education and evidence of threshold crossing. *Higher Education Research & Development*, 28(4), 431–441.
- Meyer, J. H. F., & Land, R. (2003). Threshold concepts and troublesome knowledge: Linkages to ways of thinking and practising. In C. Rust (Ed.), *Improving student learning – Theory and practice ten years on* (pp. 412–424). Oxford: Oxford Centre for Staff and Learning Development (OCSLD).
- Meyer, J. H. F., & Land, R. (2005). Threshold concepts and troublesome knowledge (2): Epistemological considerations and a conceptual framework for teaching and learning. *Higher Education*, 49(3), 373–388.
- Middendorf, J., & Pace, D. (Eds.). (2004). *New directions for teaching and learning*, no. 98. San Francisco, CA: Jossey-Bass.
- Salmon, G. (2004). *E-moderating: The key to teaching and learning online* (2nd ed.). London: Taylor and Francis e-Library.
- Stambor, Z. (2006). How laughing leads to learning: Research suggests that humor produces psychological and physiological benefits that help students learn. *Monitor Staff*, 37(6), Retrieved July 28, 2016, from <http://www.apa.org/monitor/jun06/learning.aspx>
- Stoltenkamp, J. (2012). *An integrated approach to e-learning implementation in a complex higher education setting: A case study of the University of the Western Cape* (Unpublished doctoral dissertation). University of the Western Cape, Cape Town, South Africa.
- Stoltenkamp, J., Kies, C., & Smit, K. (2007). 'Awareness campaign': A necessity for the adoption of e-learning at a HEI in South Africa. E-Learn 2007, World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education. Quebec City, Canada, October 15–19.
- York St John University. (2016). *ePedagogy*. Retrieved from <http://www.yorks.ac.uk/add/add/technology-enhanced-learning/epedagogy.aspx>