Novice supervisors' research supervision pedagogies and dilemmas in undergraduate research projects. (0105)

Mayke Vereijken[1], Roeland van der Rijst[1], Jan van Driel[1], Friedo Dekker[2]

[1]ICLON, Leiden University Graduate School of Teaching, The Netherlands,

[2]Leiden University Medical Center, The Netherlands

Abstract

Research supervision in undergraduate education is a multilayered and complex activity. This qualitative study aims to provide insight into pedagogical strategies which novice supervisors use to foster student learning and the dilemmas novice supervisors face when supervising. Eleven individual interviews with novice supervisors were held immediately after a supervision meeting with their student (cf. stimulated recall interviews). The supervisors explained at what moments they felt the student needed guidance. A constant comparison analysis using noticing as a synthesizing concept was conducted on the interview data. A variety of pedagogies emerged from the data which promote student learning in varying degrees. Currently we conduct further analysis into supervisors' dilemmas in supervision practice which might be related to research pedagogies. This study will result in a description of a research supervision pedagogy for undergraduate student research projects. Implications will inform instructional development initiatives in higher education.

Introduction

Over the last decade there has been an increased emphasis on student engagement in research within universities. One way of gaining insight into the integration of research into student learning is to examine student research projects which can be found in the UK (e.g. Todd, Bannister & Clegg, 2004), Australia (e.g. Brew, 2010) and the Netherlands (e.g. de Kleijn et al., 2015).

Undergraduate research supervision is a multilayered and complex didactic skill which requires supervisors to continuously assess student performance and student learning needs (cf. Wichmann-Hansen et al., 2015). Results from expert-novice studies suggest that experts make such judgements based on different information than novices and that correct judgements influence effectiveness of, in this case, supervision behavior (Endsley, 2006). *Noticing,* as a concept in teaching, refers to teachers' ability to use evidence of student learning to assess the effectiveness of instruction and to adapt a pedagogy accordingly. This requires supervisors to notice student learning in interaction with the student, to interpret student understanding and to decide how to respond to student learning needs in order for research supervision to be effective (Van Es & Sherin, 2008). Prior research

explains that it is difficult for novices to interpret such cues, although novices' situation awareness can be developed (Endsley, 2006).

In the present study, we aim to gain insight into research supervision by analysis of novice supervisors' use of pedagogies. We also attempt to provide insight into supervisors' dilemmas in promoting student learning within research contexts. This will result in suggestions for instructional development initiatives in higher education (cf. Pearson & Brew, 2002).

Research aims

The aim of this study is (1) to describe pedagogical strategies used by novice supervisors in undergraduate research supervision aiming to foster student learning and (2) to understand to what extent pedagogies are related to supervisors' dilemmas in undergraduate research supervision.

Method

This study has been conducted involving 11 novice supervisors within two departments of a Dutch research university. All supervisors are researchers within the domain of health sciences and their supervising experience varies from one to six years. Data collection consisted of 11 individual interviews with supervisors immediately after a research supervision meeting with their student in which we used the videotape of the supervision meeting (cf. stimulated recall interviews) as a tool to promote supervisors' reflective thoughts. The supervisor then selected fragments which they wanted to explain. Key question for selection was: "At what times during the supervision meeting you felt you needed to guide the student and what were your thoughts?" Interviews were transcribed and coded based on a constant comparison analysis using a grounded theory approach. Analytical rigour was ensured via multiple coding by several researchers and the combination of video material and interview transcripts when coding. Patterns in de data are to be explored in a case-variable matrix.

Preliminary results

The first phase of analysis involved coding the interviews by two researchers using noticing as a synthesizing concept. This led to a tentative coding scheme to describe supervisors' pedagogies. Secondly, one of the researchers adjusted the tentative scheme together with a third researcher and established a stable coding scheme. After two rounds of independent coding with two researchers an interrater agreement of 64% was reached. Ten core categories emerged from the data concerned pedagogies:1) affective aspects of learning, 2) student acknowledgement, 3) creating awareness, 4) checking student knowledge, 5) letting the student explicate, 6) meaningful interpretation, 7) thinking along with the student, 8) providing feedback, 9) giving hints and 10) instruction. Other descriptive codes entail supervisors' concerns about timely completion of the student research project and their beliefs about teaching research. Three codes concerned whose characteristics influenced supervision in case no pedagogy was described: student, supervisor or other.

Nine of the supervisors used 'instruction' as a pedagogy and this category is reflected in 83 of 444 fragments. These fragments reflect supervisor guidance and concrete directions such as lecturing. An example of instruction: *'Here, I'm really lecturing how to write the discussion section* […]. *I* [supervisor] *want this in that paragraph and then you* [student] *have to do this and that* […].'

'Thinking along with the student' reflects fragments that result in a spontaneous research discussion with the student. Two supervisors used this pedagogy in six fragments. For example: *'The data is that new, she* [student] *asks herself whether we can come up with alternative explanations for this.* […] *I'm* [supervisor] *thinking yes, this* [explanation] *could also be true. That's really a discussion that occurs between us.'* Five supervisors in this study related their pedagogical strategies to their aims of supervision in ten fragments. Such as: *'He* [student] *has had quite some statistics, but the terms aren't always in the right place. He isn't wrong at all, what matters are those concepts.'*

Based on the cases in this study we hypothesize that there is a variety among supervisors with regard to the extent they focus on promoting student learning which might be related to dilemmas supervisors face when supervising students (cf. Wichmann-Hansen et al., 2015). During the presentation we will describe in detail the relationship between supervisors' pedagogies and their perceived dilemmas.

Literature

Brew, A. (2010). Imperatives and challenges in integrating teaching and research. *Higher Education Research & Development, 29*(2), 139-150.

Endsley, A. (2006). Expertise and situation awareness. In K.A. Ericsson, N. Charness, P.J. Feltovich, & R.R. Hoffman (Eds.), *The Cambridge handbook of expertise and expert performance* (pp. 633-651). Cambridge: Cambridge University Press.

Pearson, M., & Brew, A. (2002). Research training and supervision development. *Studies in Higher Education, 27*(2), 135-150.

Todd, M., Bannister, P., & Clegg, S. (2004). Independent inquiry and the undergraduate dissertation: perceptions and experiences of final-year social science students. *Assessment & Evaluation in Higher Education, 29*(3), 335-355.

Van Es, E.A. & Sherin, M.G. (2008). Mathematics tachers' "learning to notice" in the context of a video club. *Teaching and teacher education, 24*, 244-276.

Wichmann-Hansen, G., Thomsen, R., Nordentoft, H.M. (2015). Challenges in Collective Academic Supervision: supervisors' experiences from a Master Programme in Guidance and Counselling. *Higher Education, 70*, 19-33.