Chapter 4

Chain Reaction: The Irish Context

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ABSTRACT

This chapter presents a case study of the experience of the Irish Chain Reaction (CR) team, which took place during a time of significant curriculum change in the lower secondary school system. As such, it is hoped that those interested in teacher professional development will find the case of interest while acknowledging the varied cultural, material and structural resources, and limitations that influence the context of any educational change process. The authors have placed a significant focus on describing the Irish context to begin this chapter, initially comparing the old science syllabus with the new “specification,” with thought given to the existing modalities of student learning and the nature of teacher professional collaboration and the developments that will be required by the new curriculum. The authors then summarize the plan for CR implementation through a professional learning community (PLC) focused on supporting teacher agency and autonomy in the design of inquiry-based science education (IBSE) classes. Teacher and student reflections of experience are presented.

INTRODUCTION

This chapter presents a case study of the experience of the Irish Chain Reaction (CR) team, which (uniquely within the project) took place during a time of significant curriculum change in the lower secondary school system. As such, it is hoped that those interested in teacher professional development will find the case of interest while acknowledging the varied cultural, material and structural resources, and limitations that influence the context of any educational change process. We have placed a sig-
nificant focus on describing the Irish context to begin this chapter, initially comparing the old science syllabus with the new “specification”, with thought given to the existing modalities of student learning and the nature of teacher professional collaboration and the developments that will be required by the new curriculum. We then summarise the plan for CR implementation through a professional learning community (PLC) focused on supporting teacher agency and autonomy in the design of Inquiry-Based Science Education (IBSE) classes drawing on their experience of the prompts provided by the Pupil Research Briefs (PRBs). In essence, this represents the epistemology developed by the Irish CR team and is informed by a brief review of the literature pertaining to IBSE professional development (PD).

In reviewing the project implementation, the focus is on teacher sense-making within the PLC, considering initial workshops that tried to establish a culture of cooperation and the sharing of existing understandings of IBSE and further workshops that reviewed ongoing work. Core experiences that the teachers found valuable are explored alongside obstacles and issues that arose. This is contextualised in relation to new, emerging models of IBSE that include psychological and power dimensions in the classroom. We conclude with a consideration of the impact of CR on the Irish context, to include our own learning as teacher educators and the likely long-term influence of CR on the new Irish curriculum. Reflections are offered on the aspirations we held in relation to developing teacher agency and autonomy and the practical realisation of same, comparing our experience with lessons emerging from recent reviews of the curriculum change process in Scotland.

BACKGROUND

Setting the Scene: Previous Irish Curriculum

The curriculum in Irish post-primary schools is divided into two cycles, the junior and senior cycles. The previous junior cycle general science syllabus (2003-2016) is transitionally being removed from schools as part of a wider curriculum reform. This is in part driven by PISA reports which show that Irish students’ science proficiency was considerably lower than the OECD average with one in nine students scoring low on the assessment scale (Perkins et al., 2012). The educational culture in Ireland emphasised the memorisation of facts (Cullinane & Liston, 2015) due in part to the assessment structure of the varying syllabi.

In the science syllabus, mandatory experiments were completed as a cookbook approach and seen as a “tick the box” exercise for students to complete. Resources and time constraints often meant that students did not complete these experiments and simply wrote information into the laboratory notebook directed by the teacher (Broggy, Boyle & Forde, 2012). Two prescribed “investigations” were submitted for external assessment, although students had the option to complete their own investigation, a chance for them to engage in open inquiry. However, the Chief Examiners Report (2010) suggests that only 0.6% and 0.7% of Lower and Higher Level students respectively chose this option. While this is a small cohort of seemingly adventurous students, most used investigations from previous years for their answers and the average mark received was 59.5% for Lower Level students (Chief Examiners Report, 2010). Some teachers reported that students preferred to be “spoon fed” and did not like opportunities for independent learning (Cheevers et al., 2006). All of these factors contributed to a culture where genuine IBSE experiences do not take place.