# LIVED HISTORIES OF SCIENCE EDUCATION IN MODERN LUXEMBOURG: INTERACTIONS BETWEEN GLOBAL POLICIES, NATIONAL CURRICULUM AND LOCAL PRACTICES

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*The current paper is part of a larger research project, that seeks to gain insights into the policy and curricular reform of science education in Luxembourg's primary schools through a state of the art approach that integrates research in educational sciences (interviews and classroom observations) with research in the history of education (interviews and document analyses). Beginning with the premise that "science education" as a school discipline is the product of culturally shaped expectations, we examine the interface of international and national educational policy with local educational practice through the lens of primary school science education in Luxembourg (from 1920 through the present).*

*This papers focuses on the historical analysis of science education and policy changes in modern Luxembourg using (1) a document-based historical analysis of curricula, textbooks and public discourses and (2) interviews with curriculum developers from the 1980s and 1990s and with key participants in science education in Luxembourg to examine the lived practices in a local context. In the synergy of the different approaches, local analysis of historically shaped notions of science education can be integrated with a transnational global perspective.*

*Our analysis shows, among other findings, that the science education curriculum was conceived as a response to a variety of specific national educational needs (e.g. environmental protection, love of nature, scientific rational thinking, economy development, technological progress, social progress, demographic changes and challenges). But at the same time, it was covertly in line with international "scientization" policies (e.g. Drori & Meyer, 2009) building on transnational ideas such as the "spiral curriculum".*

*The analysed educational reform is thus a relevant example to understand culturally and historically embedded perspectives of what "science" is, and how this shapes ideals of "science education" as a discipline in school.*

*Keywords*: science education curriculum, interviews, document analysis

## INTRODUCTION

Contemporary responses to "pressures" of change are best understood in a longer historical perspective that provides the important intellectual distance needed to make specific social and political contours of the time and place more apparent (Rudolph 2001). curricular studies have attempted to conceptualize change in schooling through historical perspectives, like the theory of a "grammar of schooling" (Tyack & Cuban, 1995), or the analysis of Kliebard (1986) that understood curricular negotiations as a "struggle" between interest groups (such as humanists, developmentalists or social meliorists) and different agendas, at the same time shifting away from the dominant teleological thinking of curricular development as a history of progress.

Using Luxembourg as the context from which to examine the negotiation of science curriculum and policy, the paper evolves around one concrete case study: the introduction of science education as a new subject into the Luxembourgian curriculum in 1989, a key example to study change(s) of educational processes and how these can be understood from their historical contexts.

## METHODS

Examining historically shaped notions of science education will reveal characteristics of processes of science education development with the following objectives:

1. Document, describe, and analyse the language and practice of international and national educational policy and local educational practice from 1920 to the present.
2. Identify processes of curriculum policy development; Luxembourg primary school science.
3. Situate local practices and processes in national and global events and discourses.

The historical analysis will draw on the following materials: Historical curricula, textbooks, and discourses, through professional journals, newspaper articles, official and unofficial teaching materials.

This will be complemented by semi-structured interviews (open question interviews) of several prominent Luxembourgian curriculum developers, policymakers and stakeholders (retired and still active ones).

## RESULTS

The findings from the document analysis and the statements voiced in the interviews are brought together in a nonlinear way and emerge from the multiperspective research. Underlying assumptions to the practice of science as a school discipline come to the forefront through our incorporation of diverse approaches to researching the historical development of science education. In connecting diverse layers of science education, global, national and local elements, the historical development as it reaches into contemporary practice, curriculum, materials, and discourse, we present a holistic but multifaceted picture of how a science education curriculum has been born.

Our analysis shows (among other findings that we will elaborate on at the conference) that the Luxembourgish science education curriculum was conceived and implemented as a response to a variety of specific national educational needs (e.g. environmental protection, love of nature, scientific rational thinking, economy development, technological progress, social progress, demographic changes and challenges). But at the same time, it was covertly in line with international "scientization" policies (e.g. Drori & Meyer, 2009) building on transnational ideas such as the "spiral curriculum" or the idea that it should be deployed using an "inquiry-oriented approach" to learning and teaching.

## DISCUSSION AND CONCLUSIONS

The analysed educational reform clearly is a relevant example to understand culturally and historically embedded perspectives of what "science" is, and how this shapes ideals of "science education" as a discipline in school, within a given context and the associated struggling forces. The present "lived history" study will be completed by other studies (foreseen in the SciPol:Lux research project) revealing lived "science education" practices in classrooms. Ethnographic observations will allow to further study how global policies, national curriculum and local practices interact, in (often) non-linear ways and what other dynamics impact local practices in science education.

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