

Wilfried Bos & Carola Gröhlich

## Special Issue Editorial

### Longitudinal Assessments and Panel Studies in Educational Research

Education is, by its very nature, concerned with issues of teaching and learning. Therefore, one of the most essential issues of educational research is the study of the educationally induced change that occurs over time within students, schools, and national education systems.

Over the last few decades, national and international large-scale assessments of student competencies have provided valuable information about the functioning of education systems. These studies, however, are based almost entirely on a cross-sectional design, which restricts the explanatory power of their results in several ways. First, cross-sectional studies do not allow for conclusions on the directions of causal relationships. Second, they do not offer the possibility of studying cohort or age effects. And, third, they exclude the option of detecting the state dependence of conditional variables. Learning processes evolve in non-linear and discontinuous ways, an issue that raises fundamental questions about the stability and variability of effects found not only in cross-sectional studies on individual learning rates but also, on a more general level, within the field of school effectiveness and school improvement research.

In contrast, longitudinal research designs provide opportunity to develop a stable information base about the (dis)continuities of learning trajectories during school and lifelong learning processes. These designs are thus an essential requirement for the attainment of reliable results. Although the implementation of longitudinal research is often costly and time-consuming, educational science should not stagnate to the point of obtaining mere “snapshots” at certain points of time during educational careers. Rather, they should progress to efforts aimed at enhancing our understanding of the changes and trends that occur over time in learning and development. The need for such process measures in education has been consistently and emphatically highlighted in recent years.

Given this need for longitudinal research in educational science, this topic is the thematic priority of this first issue of the *Journal for Educational Research Online (JERO)*. This issue includes articles on the designs and results of current panel studies in order to deliver insight into the manifold opportunities of longitudinal research. Taken together, these articles not only stress the potential of longitudinal data but also encourage educational researchers to respond to present and future challenges. This special-issue topic also mirrors the multi- and interdisciplinary approach of *JERO*: the research expertise required to conduct longitudinal

studies often necessitates combining and integrating knowledge and methods from different scientific disciplines.

*Blossfeld, Schneider, and Doll* illustrate the objectives and the purposes of the new German National Educational Panel Study (NEPS). They highlight the apparent demand for longitudinal research in the field of education and give an introduction to methodological advances of longitudinal research as compared to cross-sectional designs. They also present a unique and valuable overview of all longitudinal studies with educational relevance in Germany to date.

*Ditton and Krüsken* discuss whether German primary schools meet the twofold expectation of offering optimum support for weak learners on the one hand and of promoting high-performing students on the other. The authors raise the question of Matthew effects in German primary education, effects that are characterized by unequal privileges for some students and so contradict claims relating to the beneficial effects of early education. They also examine how primary schools respond to the diversity of student preconditions. The authors followed students as they moved from Grade 2 through to Grade 4, analyzing over time the contribution of prior knowledge and social status on achievement results in reading, orthography, and mathematics. Here, the longitudinal approach allowed Krüsken and Ditton to control for student preconditions at a very early stage of the educational career, and from there to describe the stability and the variation of learning trajectories for high- and low-performing students as well as for students with high and low social status.

*König, Wagner, and Valtin* document their study investigating the psychosocial development of students as well as other non-cognitive outcomes of education. The authors focus on the theoretical framework and design of their study, which conceptually ties together certain areas of personal traits supposedly related to academic achievement. The authors are able to parameterize and analytically separate these personal measures.

*Gröhlich, Scharenberg, and Bos* address the issue of ability grouping in academic achievement. They investigate the effects of classroom composition on student achievement by taking into account the range of the students' prior cognitive and achievement preconditions within the classroom. Their article considers the distinct contribution of classroom heterogeneity, which is modeled as one feature of classroom composition in its effect on student achievement. One major advantage of this analysis is the direct measure of prior knowledge made possible by the longitudinal research design.

*Wittenberg, Reinecke, and Boers* investigate delinquent behavior among adolescents. The authors used the theory of planned behavior to analyze the emergence as well as the action of shoplifting as one example of delinquency. Their employment of longitudinal data enabled them to reconstruct the development of delinquency during adolescence and to model growth or decline of such behavior. The longitudinal approach also allowed them to categorize these individual trajectories using a latent class model.

*Pohlmann, Kluczniok, and Kratzmann* examine parental decisions with regard to early school enrolment. Their study is based on data from interviews with and questionnaire surveys of parents at several points in time before enrolling their children in school. The authors complement their qualitative findings with quantitative data that reflect parental appreciations and expectations. This approach allows the authors to reconstruct important dimensions in the decision-making process for an early or regular school enrolment. Most importantly, the longitudinal approach provided them with opportunity to assess parental educational decisions prospectively. Until now, other studies relevant to this area have mainly relied on reconstructing the process retrospectively.

*Wilfried Bos*, Prof. Dr., Direktor des Instituts für Schulentwicklungsforschung,  
Technische Universität Dortmund  
E-Mail: [officebos@ifs.uni-dortmund.de](mailto:officebos@ifs.uni-dortmund.de)

*Carola Gröhlich*, Dipl.-Päd., Wissenschaftliche Mitarbeiterin im Institut für Schulentwicklungsforschung, Technische Universität Dortmund  
E-Mail: [groehlich@ifs.tu-dortmund.de](mailto:groehlich@ifs.tu-dortmund.de)