



Multigrade teaching and age composition of the class: The influence on academic and social outcomes among students



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HIGHLIGHTS

- We looked at the effects of the age composition of the class on student outcomes.
- We used Growing Up in Ireland data on nine-year-old children.
- We found few overall differences between single-grade and multigrade classes, all else being equal.
- However, girls had lower achievement and more behavioural problems in classes with older peers.
- Girls were more negative about their academic performance and popularity when taught with older or younger peers.

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ABSTRACT

This article presents innovative analyses on the effects of the age composition of the class using the first wave of a large-scale longitudinal study of nine year old children, the Growing Up in Ireland study. The analyses focus on both academic and social outcomes. Taking account of a rich set of control factors, few overall differences were found in student outcomes between single-grade and multigrade classes. However, girls were found to experience a range of negative effects, depending on the age composition of the class.

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1. Introduction

Multigrade teaching, where more than one class group of children is taught together in the same classroom by one teacher, is common in many developed and developing countries (Little, 2001). Given the prevalence of multigrade classes, it is remarkable that relatively little research has focused on its impact on teaching approaches and on student outcomes. Existing research has pointed to the challenges for teachers in working with a multigrade class (Mulryan-Kyne, 2004) but few studies have pointed to a consistently negative effect of being taught in a multigrade class on student outcomes (Veenman, 1995). Multigrade teaching can be seen as challenging because of the requirement to differentiate class

material and activities to cater for children of different ages and stages. But multigrade structures also involve children of very different ages engaging with each other in the same classroom and the potential impact of these peer processes on academic and social outcomes has been largely ignored (for an exception, see Leuven & Rønning, 2011). This article seeks to address this gap in the research on the effects of the age composition of the class using the first wave of a large-scale longitudinal study of nine-year-old children in Ireland. Ireland is a useful case-study of this international phenomenon because of the prevalence of multigrade teaching, with one in three children being taught in these settings at primary level. The analyses presented in this paper aim to answer a number of research questions. Firstly, the prevalence and characteristics of multigrade class structures were examined. We distinguished between four groups of children: single-grade; mixed with younger year groups; mixed with older year groups; and mixed with both younger and older year groups, which allowed us to disentangle the effects of class composition on children's outcomes. Secondly, we

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explored the impact of this age composition of the class on children's academic outcomes as measured by reading and maths test scores. Thirdly, in contrast to much of the existing research on multigrade classes, the analyses go on to look at children's social outcomes, exploring the impact of age composition of the class on behavioural adjustment, intellectual status and perceived popularity (measured using three sub-scales of the Piers-Harris self-concept measure). Finally, further analyses were completed to test for potential differences in outcomes for boys and girls.

2. Previous research on multigrade teaching

Multigrade classes refer to classes in which two or more separate grades (or year groups) are taught in the same setting. Several terms have been used to describe this phenomenon, including 'combination', 'multi-age' and 'mixed-age' classes. Multigrade classes generally arise because of constraints relating to small school size but in some settings they are the product of design with different age groups purposively mixed in order to promote educational development. Multigrade classes are prevalent in many Western countries as well as developing countries (Little, 2001).

In Ireland, small average school size at primary level means that many children are taught in multigrade settings. In 2010/11, just under a third (32%) of primary school students were taught in multigrade classes. Overall, just under a quarter (24%) of students were in consecutive grade classes (two-grade multigrade classes) while 8 per cent were in classes made up of three or more grades. Fig. 1 shows trends over time in the prevalence of multigrade classes. The proportion of children in multigrade classes has declined since 1989/90, with the sharpest decrease found in classes of three or more grades. In spite of this decline, multigrade classes remain an important feature of the Irish educational landscape.

Despite the significant numbers of children in Ireland being taught in multigrade classes, there has been little research on the consequences of this grouping method for teaching and learning in the classroom. Existing Irish research has focused on teacher perceptions as well as teacher job satisfaction/stress and take-up of professional development (see, for example, Banks and Smyth, 2011; Darmody and Smyth, 2011; Mulryan-Kyne, 2004, 2005), with no research conducted to date on the effect on children's outcomes. The remainder of this section places a discussion of existing Irish research in the context of international research on the impact of multigrade teaching.

2.1. Teaching approaches

In his review of existing research, Veenman (1995) argued that the teaching processes used in multigrade settings were not well

understood (see also Mulryan-Kyne, 2005). Using classroom observation, one Dutch study (Veenman et al., 1986, cited in Veenman, 1995) found that multigrade children spent more time working individually than single-grade children; their time on task was found to be about 6 per cent lower. Generally, teachers worked with the different year groups in turns, rather than organising groups of similar ability, a finding confirmed by an observational study in the US (Mason & Good, 1996). An English study (Galton, Simon, & Croll, 1980) found that multigrade children had less focus on task and spent more time waiting for their teacher; however, no significant differences in achievement were found as a result of these differences in class processes. One American study (Mason & Good, 1996) found that multigrade teachers used less active teaching and learning methods in mathematics, with less individualised attention to students and fewer challenging curriculum tasks. In addition, multigrade teachers were found to spend more than twice as much time on non-academic tasks as single-grade teachers.

In an Irish study based on the reports of teachers with four-grade classes, Mulryan-Kyne (2005) found that children 'spend a large proportion of their time working on seatwork tasks without the direct attention of the teacher' (p. 12). The teaching approach taken varied across subject areas, with teachers more likely to teach all the grades together for visual arts, drama, music and physical education. In contrast, teaching each grade separately was the dominant pattern for maths. Teachers were found to combine a variety of approaches, taking all grades together, teaching two grades together, taking each grade separately and teaching across grades as well as cross-age and peer tutoring. While this research provides useful insights into the processes operating in four-grade classes, the design of the study does not allow comparison with the processes in single-grade or other multigrade classes in the Irish context.

Many studies have referred to the lack of explicit focus on multigrade classes in initial and continuing teacher education (see, for example, Mulryan-Kyne, 2007). In an intervention study, Veenman and Raemaekers (1995) found that training on the theory and practice of multigrade classes enhanced teachers' instructional and management skills (including time on task) and improved student behaviour (but not achievement). These effects were seen as stable over time, lasting up to five years after participation in the professional development course.

2.2. Impact on teachers

Existing studies emphasise the additional challenges associated with multigrade teaching. In one Canadian study (Daniel, 1988), multigrade teachers reported a heavier workload and greater difficulties in addressing the needs of a diverse class. This finding was echoed in the accounts of Australian teachers in multigrade schools (Pratt & Treacy, 1986; Russell, Rowe, & Hill, 1998). School principals in England saw multigrade classes as more challenging for teachers (Bennett, O'Hare, & Lee, 1983; see also Mason & Doepner, 1998, in the US).

From the perspective of teachers in Ireland (Mulryan-Kyne, 2004), multigrade teaching was seen to have some advantages (in contrast to the emphasis on negative aspects in many international studies), facilitating a wide range of methodologies and allowing teachers to get know children better. The main disadvantage cited by teachers related to time, with most feeling they did not have sufficient time to spend with each grade level in each subject area. Finding time to work with individuals was also seen as a challenge. Around half of the teachers reported difficulties keeping all of the grade levels on task, with some feeling that children (especially those with lower levels of achievement) were losing out. It was

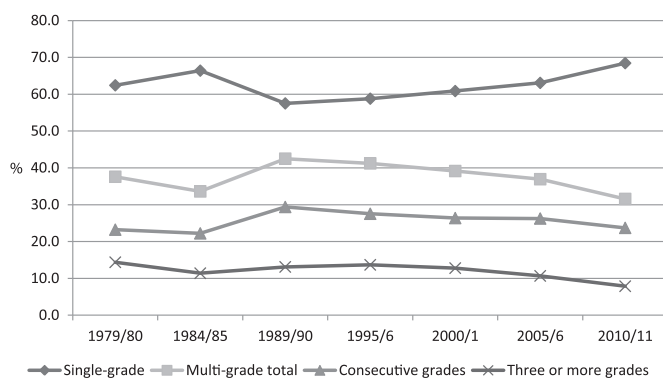


Fig. 1. Trends in the proportion of primary school students in multi-grade classes.

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