

Zeitschrift: L'Enseignement Mathématique
Herausgeber: Commission Internationale de l'Enseignement Mathématique
Band: 46 (2000)
Heft: 1-2: L'ENSEIGNEMENT MATHÉMATIQUE

Kapitel: EARLY ALGEBRA EDUCATION

Nutzungsbedingungen

Die ETH-Bibliothek ist die Anbieterin der digitalisierten Zeitschriften. Sie besitzt keine Urheberrechte an den Zeitschriften und ist nicht verantwortlich für deren Inhalte. Die Rechte liegen in der Regel bei den Herausgebern beziehungsweise den externen Rechteinhabern. [Siehe Rechtliche Hinweise.](#)

Conditions d'utilisation

L'ETH Library est le fournisseur des revues numérisées. Elle ne détient aucun droit d'auteur sur les revues et n'est pas responsable de leur contenu. En règle générale, les droits sont détenus par les éditeurs ou les détenteurs de droits externes. [Voir Informations légales.](#)

Terms of use

The ETH Library is the provider of the digitised journals. It does not own any copyrights to the journals and is not responsible for their content. The rights usually lie with the publishers or the external rights holders. [See Legal notice.](#)

Download PDF: 10.01.2025

ETH-Bibliothek Zürich, E-Periodica, <https://www.e-periodica.ch>

EARLY ALGEBRA EDUCATION

This section encompasses two different readings of the title, being concerned with both the algebra education for young children – say age 6 and above – and also the initial steps in more formal algebra education, which happens in some countries when students are about 12 years old. An ongoing concern is the relationship between arithmetic and algebra. Previous research has documented ways in which students' limited arithmetical experience can constitute an obstacle to the learning of algebra, so that an earlier start might reduce the problem; approaches have been proposed to achieve that. On the other hand, a much favoured approach to initial algebra education is based on the view of school algebra as generalised arithmetic, in which case an earlier start may not be appropriate. The general point here is that different views on the relationship between arithmetic and algebra will probably result in different views on algebra education, and this most important fact is a central concern in this section. The interest in algebra education for students at an early age is recent, and so there are as yet only a few studies in this area. It is important that answers to the following questions be thoroughly research-based:

- How early is «early algebra» and what are the advantages and disadvantages of an early start? How do the answers to these questions link to views on cognitive development and on learning, and on cultural and educational traditions?
- What aspects of algebra and algebraic thinking should be part of an early algebra education? Since the symbolic aspect of algebra is so essential, its early introduction may be beneficial, but is an awareness of algebra as a method to solve problems (for example) more important?
- What are the consequences of an early start to algebra for teachers and teacher education?

TERTIARY ALGEBRA

Problems exist in the teaching and learning of tertiary algebra courses such as abstract algebra, linear algebra, and number theory. Some are similar to the problems of secondary algebra: students' difficulties with abstraction, concerns of relevance, what to do with computing technology, etc. Other problems such as proof-making or seeing the objects of calculus as algebraic objects seem particular to the tertiary level. The questions below are concerned with these issues of learning and teaching and also with the specific question of education for prospective teachers.

- What are the contributions of tertiary algebra courses to the education of prospective secondary mathematics teachers? How do secondary teachers perceive the value of their tertiary algebra courses to their teaching experience?
- Secondary algebra has been well researched, and specific obstacles have been found in making the transition from arithmetic thinking to algebraic thinking. Do tertiary level students similarly experience obstacles in making the transition from secondary-level algebraic thinking to that required for the tertiary level?
- Why are certain types of definitions difficult for students? For example, why are definitions given in terms of properties to be satisfied (for example, subspaces