Introduction
Mathematics textbooks as educational resources and artefacts are widely used in classroom teaching and learning. What is presented in a textbook is often taught by teachers in the classroom. Similarly, what is missing in the textbook may not be presented by the teacher. Textbook content reflects pedagogical intention. This study is based on an assumption that pedagogical content knowledge (PCK) (Shulman, 1986) is embedded in the subject content presented in textbooks. Textbooks contain both subject content knowledge (CK) and pedagogical content knowledge (PCK). The embedded PCK in textbooks varies depending on which teaching culture a textbook reflects. Quadratic equations as part of algebra content are taught at Swedish upper secondary school. This study is about analysing algebra content concerning different methods, including factorisation, for solving quadratic equations presented in Swedish mathematics textbooks, using the constructs PCK-CK (Shulman, 1986; Mishra & Koehler, 2006) as analytical tools. The study has been presented in the form of a licentiate thesis (Sönnerhed, 2011).

The primary aim of the study was to explore what pedagogical content knowledge (PCK) regarding solving quadratic equations is embedded in the mathematics textbooks. The secondary aim was to analyse the algebra content as subject content (CK) from the perspective of mathematics as a discipline related to the historical development of algebra.

Research methods
Content analysis with the PCK-CK as theoretical tools has been applied for the study. The criteria for analysing mathematics exercises in the textbooks were based on the previous research on textbook analysis. Four rounds of analyses were carried out on 12 Swedish upper-secondary mathematics textbooks. One of them was selected for a deep analysis. The results were generated accumulatively in every round of analysis.

Results
The results show that the selected textbooks all presented four methods for solving quadratic equations. There was an accumulative relationship among these
methods with a final goal of presenting how to solve quadratic equations by the ‘quadratic formula’ (often called the pq-formula). It was found that one of the textbooks contained an overall embedded teaching trajectory with five sub-trajectories in the presentation of solving quadratic equations with the four solving methods (i.e. the square root method; using a factorization method to solve simple quadratic equations; completing the square method, and a direct solution with the quadratic formula). Instead of factorization, among the four methods the quadratic formula is emphasised as a final goal in the overall trajectory. The five sub-trajectories were organized and connected by four historically related geometrical models according to a part-whole relationship. These four geometrical models of areas for rectangles and squares represent basic algebra rules for building up the four different solving methods. That way, a complete teaching sequence on solving quadratic equations was offered in the textbook. The result from presenting the quadratic formula, the last among the four solving methods in the 12 textbooks, may imply that teaching in Swedish classrooms puts focus on solving quadratic equations by the quadratic formula (the pq-formula), which however will need further empirical evidence.

Teaching quadratic expressions has different focuses in different mathematics classroom cultures. In Singapore and China, for example, teaching the factorisation method (also called cross-multiplication method) is emphasised (Kemp, 2010; Leong et al., 2010). Consequently, this may lead students to solve quadratic equations with the factorisation method in focus. Learning to use the pq-formula may implement an instrumental understanding of quadratic equations while the factorisation method may provide students with opportunities for understanding quadratic structures and preparing them for the future study of factorising polynomials of higher degrees. However, the hypothesis requires further research. The continued study will compare the same algebra content between Chinese textbooks and the analysed Swedish textbooks.

References