

Features and Functions of Home Math Learning Activities in Urban China

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Definition and Dimensions of Home Math Learning Activities

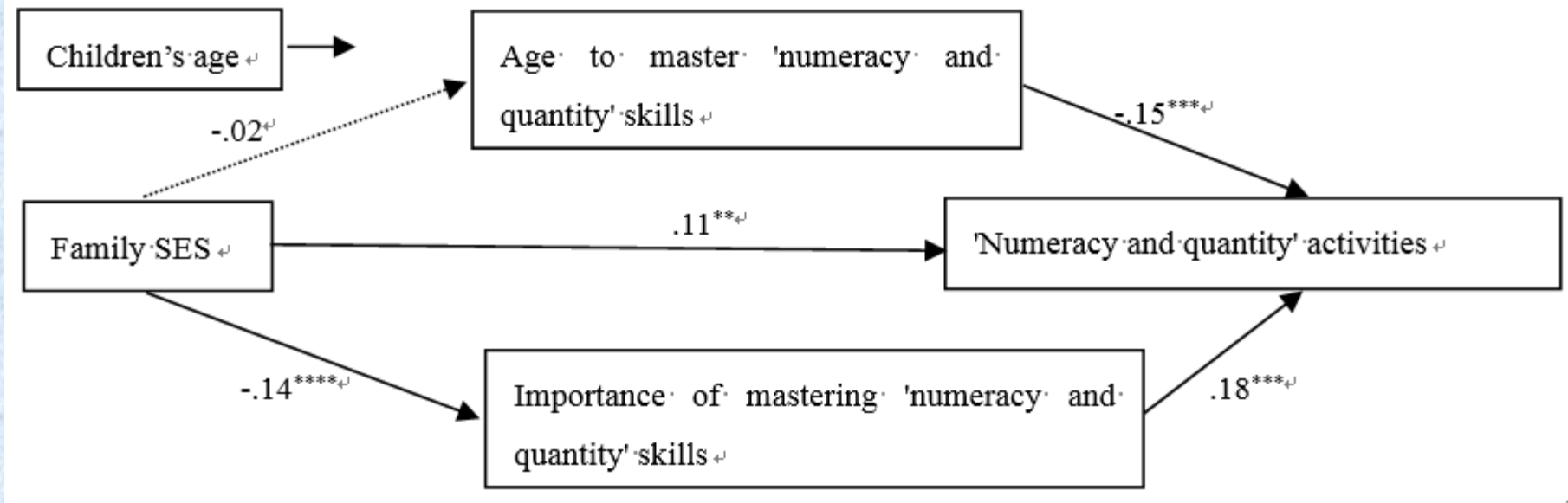
- Home math learning activities refer to the interactions between parents and their children to stimulate children's math learning.**
- HMLA was operationalized into two dimensions of 'numeracy and quantity' (6 items. e.g., 'do simple addition or subtraction with children in daily life. For example, talk about prices with children during shopping) and 'geometry and space' activities (3 items . 'distinguish the direction like front or back, up or down, right or left, inside or outside with children, and encourage children to describe directions with direction words').**

Frequency of home math learning activities and parents' beliefs

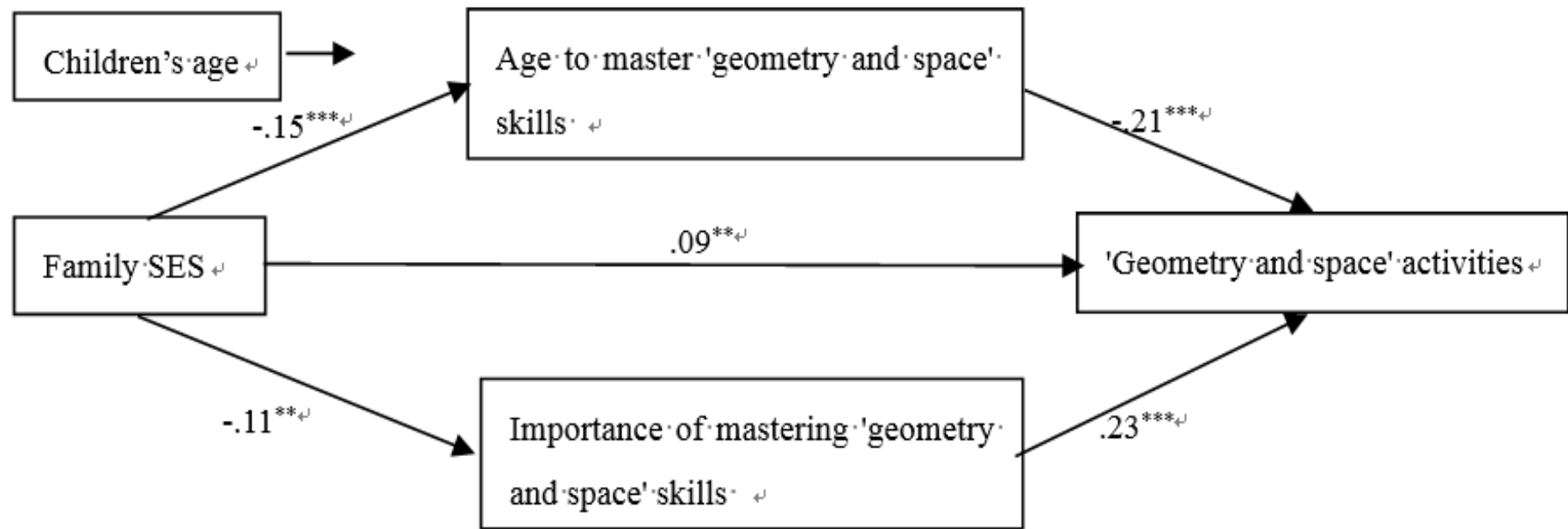
- **Parents did 'geometry and space' activities with their children more frequently than 'numeracy and quantity' activities.**
- **Parents expected children to master skills about 'numeracy and quantity' at the age of four and 'geometry and space' at the age of five on average.**
- **They attached roughly the same importance to mastering the skills about 'numeracy and quantity' and 'geometry and space.'**

Role of Parental Beliefs in the Link of SES and Home Math Learning Activities

- The path analysis revealed that parental beliefs on the importance of early math learning had suppressing effects on the association between family SES and home math activities.**
- Parental beliefs on mastery age only partially mediated the relationship between family SES and home math activities in the domain of ‘geometry and space’.**
- The results implied that different aspects of parental beliefs might play different roles in the association between family SES and home math activities currently in urban China.**



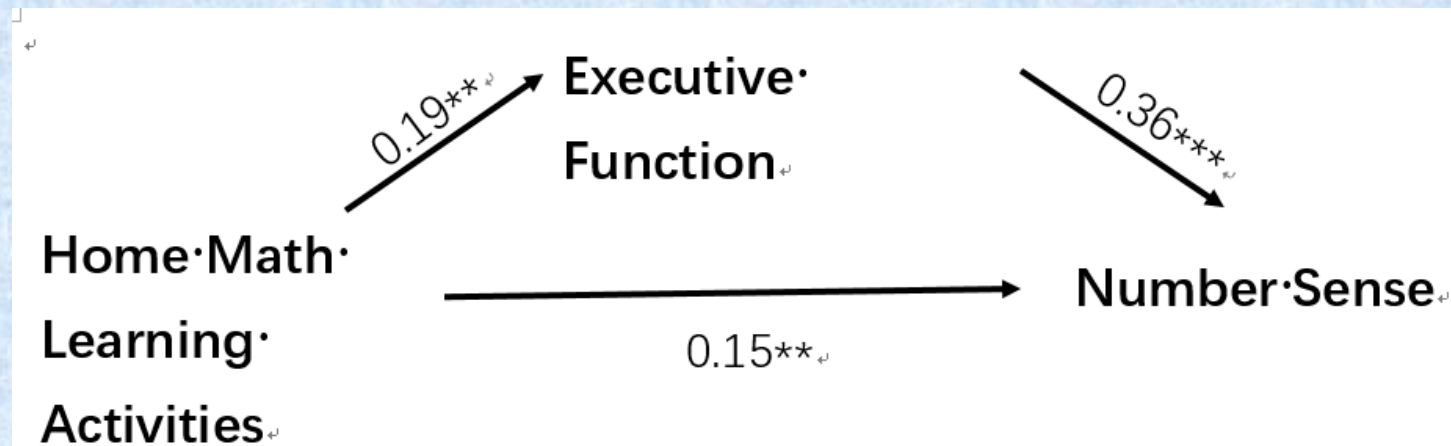
- **Family SES was a significant predictor of parental beliefs on the importance of mastering skills of 'numeracy and quantity' and 'numeracy and quantity'.**
- **Parental beliefs on both age and the importance of mastering skills of 'numeracy and quantity' were significant predictors of the frequency of 'numeracy and quantity' activities.**



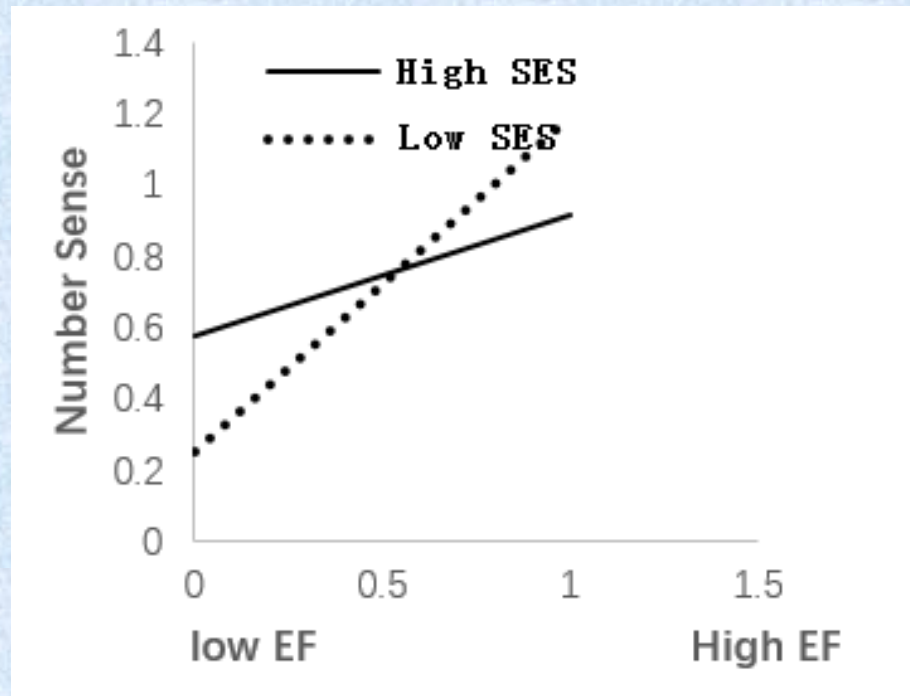
- **Family SES significantly predicted parental beliefs on both age and the importance of mastering 'geometry and space' skills and related activities .**
- **Parental beliefs on both age and the importance of mastering 'geometry and space' skills were significant predictors of the frequency of 'geometry and space' activities.**

Home Math Learning Activities and Young Children's Number Sense: Role of Executive Function and Family SES

- Home math learning activities can significantly positively predict children's number sense.
- Executive function partially mediated the association between the home math learning activities and children's number sense.



- **The mediating effect of the executive function was moderated by the family social economic status.**
- **That is, the executive function has a stronger positive prediction effect on the number sense of children with lower social economic status.**



Implications

- **It is imperative to transform parental beliefs on the importance and age of mastering math skills to buffer the effects of family SES on parental engagement in home math activities.**
- **For lower SES children, it is important to improve their executive functions to remedy or reduce the negative effects of disadvantaged home math learning environment.**

Authors

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