Talk Moves som ett verktyg för en likvärdig matematikundervisning

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Exploring the potential of using talk moves with young students when striving towards an equitable mathematics education

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Talk moves (teacher-posed questions that orchestrate discussions) can be understood as an equity-focused endeavour that enables a shift in mathematics discussions from teacher-directed recitation to student-directed reasoning. In this study, talk moves have been explored and adapted to suit young students, which resulted in the addition of one talk move, the exclusion of another, and the expansion of one talk move to include multimodal elements. The findings suggest that talk moves do not necessarily contribute to an equitable early mathematics education unless all students are first given the opportunity to understand the mathematical content being discussed. Thus, a focus on students' understanding of mathematical content – by using representations and repetitions of students' solutions – can be viewed as a prerequisite for successful use of talk moves with young students.

Keywords: Talk moves, early mathematics, equity, intervention study.

Introduction

Previous research shows a strong connection between students' possibility to participate in rich classroom discussions and their learning (Jacobs et al., 2022; Resnick et al., 2010). However, the creation of norms for rich mathematics discussions is complex. In most classrooms there are different forms of communication, the domination form referred to as teacher-directed recitation (Michaels & O'Connor, 2015). It has been argued that discussions about mathematics dominated by teacher-directed recitation prevent students from reasoning on their own and from building on the reasoning of others so that they can make progress together (Kazemi & Hintz, 2014). Defined as teacher-posed units of talk, talk moves intend to have students respond in a specific way (O'Connor & Michaels, 2017) and can be used to build norms for mathematics discussions (Kazemi & Hintz, 2014).

In this study, talk moves are tried out as a tool to develop an equitable mathematics education where all students have access to both mathematical content as well as an opportunity to develop a positive attitude towards mathematics. In previous studies, talk moves have been used to guide teachers so that they can nurture the norms needed for productive mathematical communication (Kazemi & Hintz, 2014), used to enable a shift in mathematics discussions from teacher-directed recitation to student-directed reasoning (Cazden & Beck, 2003; Michaels & O'Connor, 2015), and adapted to fit specific contexts (Herbel-Eisenmann et al., 2013). Thus, the use of talk moves can be understood to be an equity-focused endeavour (O'Connor & Michaels, 2017) that aims to give students equal access to participation and subject matter content (Resnick et al., 2010).

Talk moves

According to Michaels and O'Connor (2015), discussions in mathematics classrooms have by tradition been dominated by a form where teachers initiate a question, a student responds to the question, and the teacher evaluates the student's contribution in terms of correct or incorrect. This

Talk Moves – en forskningsstudie

- Den svenska förskoleklassen
- Ett klassrum
- Interventionsstudie
- Syfte

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Normer för matematikdiskussioner

- Eleverna sitter i en ring
- Alla elever pratar lika mycket
- Eleverna är inte vana vid att bygga vidare på varandras resonemang
- Traditionell kommunikation (läraren ställer frågor, eleverna svarar)

Normerna för matematikdiskussioner i detta klassrum behövde förändras!

- Vi önskade att eleverna skulle bygga sina resonemang på andra elevers argument/lösningar/tankar
- Vi önskade att tidsutrymmet i samtalen skulle baseras på det matematiska innehållet

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Talk Moves

- Talk moves kan användas för att bygga normer för matematikdiskussioner i klassrummet. (Kazemi & Hintz, 2014)
- Matematikdiskussioner som domineras av lärarledda frågor, hindrar eleverna från att resonera på egen hand och från att bygga vidare på andra elevers resonemang så att de kan lyckas tillsammans. (Kazemi & Hintz, 2014)
- Ett starkt samband mellan elevernas möjlighet att delta i rika klassrumsdiskussioner och deras lärande. (Jacobs et al., 2022; Resnick et al., 2010)
- Talk Moves syftar till att få eleverna att svara på ett specifikt sätt. (O'Connor & Michaels, 2017)

Talk Moves

Talk Moves (TM)		Teacher-posed units of talk
TM1	Revoicing	"So you're saying that it's an odd number?"
TM2	Repeating	Asking Students to Restate Someone Else's Reasoning. "Can you repeat what he just said in your own words?"
TM3	Reasoning	Asking Students to Apply Their Own Reasoning to Someone Else's Reasoning. "Do you agree or disagree and why?"
TM4	Adding on	Prompting Students' Further Participation. "Would someone like to add something more to this?"
TM5	Waiting	Using Wait Time. "Take your time… we'll wait…"

Talk moves (TM) as described by Chapin et al. (2009, p. 13)

Talk Moves: "units of talk, intended to get the other player(s) to respond in some way, to bring something particular to the table"

(O'Connor & Michaels, 2017, p. 168)

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Dilemma

Vad vi önskade:

- Vi önskade att eleverna skulle bygga sina resonemang på andra elevers argument/lösningar/tankar
- Vi önskade att tidsutrymmet i samtalen skulle baseras på det matematiska innehållet

Dilemma: eleverna förstod inte det matematiska innehållet som diskuterades

Lösning på dilemmat:

- ny talk move (be eleverna beskriva en lösning)
- en talk move togs bort (använda väntetid)
- en talk move utökades med multimodala element (upprepa och visa vad en elev har sagt)

Talk Moves adapted to fit young students

Talk moves (TM)			Teacher-posed units of talk
TM1 Revoicing/ Representing Teacher repeats what a student said and use representations to show a solution.	TM0	Sharing	Asking students to describe a solution. “How did you complete this task?”
	TM2	Repeating	Asking Students to Restate Someone Else’s Reasoning. “Can you repeat what he just said in your own words?”
	TM3	Reasoning	Asking Students to Apply Their Own Reasoning to Someone Else’s Reasoning. “Do you agree or disagree and why?”
	TM4	Adding on	Prompting Students’ Further Participation. “Would someone like to add something more to this?”

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Exempel på dialog

Lärare: Kan du berätta hur du tänkte?

Tove: Ja, jag räknade typ så här: en, två, tre, fyra, fem, sex. [Tove pekar på lärarens illustration på smartboarden]

Lärare: Bra! Annika, kan du berätta hur Tove tänkte? Hur hade Tove tänkt?

Annika: hm ...

Lärare: Stämde det här?

Annika: Ja.

Lärare: Var det sex ben?

Annika: Ja, för tre plus tre blir ju sex. Och så blir det ju.

Lärare: Tack!

Lärare: Är det någon som hade en annan idé?

Flera: Ja! [Flera elever räcker upp handen]

Lärare: Elin och Annika, ni hade en annan idé som inte såg ut så där... Hur såg eran idé ut? [Elin och Annika går fram till läraren och får sin teckning av läraren]

Lärare: Får jag rita upp eran också?

Referenser

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Thank you for listening!