



Bedömning av kunskap och för lärande i matematik

Vetenskaplig bas för bedömningsarbete i matematik

Trender i resultat

PRIM en nationell resurs



Vetenskaplig bas för bedömning i matematik

- Institutionella perspektiv på bedömning
- Syn på lärande och kunskap
- Elevers och lärares interaktion
- Att hantera bedömningsens relativitet/subjektivitet

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen



Institutionella perspektiv på bedömning

- Ramar
- Traditioner
- Relationella aspekter

(Lundgren, Mellin Olsen, Foucault)

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen



Institutionella perspektiv på bedömning

- Nivåer
- Statlig
- Kommunal
- Skol
- Arbetslag
- Klassrum

Forskning

Föräldrar m.fl.

Media m.m.

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen



Syn på kunskap och lärande

- Kommunikativt perspektiv
- Situationens betydelse
- Historiskt perspektiv

(Kress, Säljö, Wyndhamn)

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen



CONVERGENT ASSESSMENT	DIVERGENT ASSESSMENT
Assessment which aims to discover <i>if</i> the learner knows, understands or can do a predetermined thing. This is characterized by: Practical Implications a. precise planning and an intention to stick to it; b. tick lists and can-do statements; c. an analysis of the interaction of the learner and the curriculum from the point of view of the curriculum; d. closed or pseudo-open questioning and tasks; e. a focus on contrasting errors with correct responses; f. judgmental or quantitative evaluation; g. involvement of the student as recipient of assessments. Theoretical Implications h. a behaviourist view of learning; i. an intention to teach or assess the next predetermined thing in a linear progression; j. a view of assessment as accomplished by the teacher. This view of assessment might be seen less as formative assessment, rather as repeated summative assessment or continuous assessment.	Assessment which aims to discover <i>what</i> the learner knows, understands or can do. This is characterized by: Practical Implications a. flexible planning or complex planning which incorporates alternatives; b. open forms of recording (narrative, quotations etc.); c. an analysis of the interaction of the learner and the curriculum from the point of view both of the learner and of the curriculum; d. open questioning and tasks; e. a focus on misconceptions - aspects of learner's work which yield insights into their current understanding, and on prompting, metacognition; f. descriptive rather than purely judgmental evaluation; g. involvement of the student as initiator of assessments as well as recipients. Theoretical Implications h. a social constructivist view of learning; i. an intention to teach in the zone of proximal development; j. a view of assessment as accomplished jointly by the teacher and the student. This view of assessment could be said to attend most closely to contemporary theories of learning and accept the complexity of formative assessment.

Torrance & Pryor (1998, 2001)

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

CONVERGENT ASSESSMENT	DIVERGENT ASSESSMENT
Assessment which aims to discover if the learner knows, understands or can do a predetermined thing. This is characterised by: Practical Implications a. precise planning and an intention to stick to it; b. tick lists and can-do statements; c. an analysis of the interaction of the learner and the curriculum from the point of view of the curriculum; d. closed or pseudo-open questioning and tasks; e. a focus on constraining errors with correct responses; f. judgmental or quantitative evaluation; g. involvement of the student as recipient of assessments. Theoretical Implications h. a behaviourist view of learning; i. an intention to teach or assess the next predetermined thing in a linear progression; j. a view of assessment as accomplished by the teacher. This view of assessment might be seen less as formative assessment, rather as repeated summative assessment or continuous assessment.	Assessment which aims to discover what the learner knows, understands or can do. This is characterised by: Practical Implications a. flexible planning or complex planning which incorporates alternatives; b. open forms of recording (narrative, quotations etc.); c. an analysis of the interaction of the learner and the curriculum from the point of view both of the learner and of the curriculum; d. open questioning and tasks; e. a focus on misconceptions - aspects of learner's work which yield insights into their current understanding, and on prompting metacognition; f. descriptive rather than purely judgmental evaluation; g. involvement of the student as initiator of assessments as well as recipient. Theoretical Implications h. a social constructivist view of learning; i. an intention to teach in the zone of proximal development; j. a view of assessment as accomplished jointly by the teacher and the student. This view of assessment could be said to attend more closely to contemporary theories of learning and accept the complexity of formative assessment.

Stockholms universitet

Torrance & Pryor (1998, 2001)

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Convergent assessment

Theoretical Implications

- h. a behaviourist view of learning;
- i. an intention to teach or assess the next predetermined thing in a linear progression;
- j. a view of assessment as accomplished by the teacher.

Divergent assessment

Theoretical Implications

- h. a social constructivist view of learning
- i. an intention to teach in the zone of proximal development;
- j. a view of assessment as accomplished jointly by the teacher and the student.

Stockholms universitet

Torrance & Pryor (1998, 2001)

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Stockholms universitet

Elevens och lärares interaktion

- Feedback åt två håll (Hattie och Timperley, 2007)
- Självreflektion för elever respektive lärare (t.ex. Gardner, red, 2006)
- Konsekvenser av bedömning (Black & Wiliam, 1998; Pettersson, 2007)

Stockholms universitet

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Stockholms universitet

Feedback åt två håll



- Feed back
- Feed up
- Feed forward

Stockholms universitet

(Björklund Boistrup & Nordlund, 2009)

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Stockholms universitet

Konsekvenser av bedömning



(Pettersson, 2005)

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Stockholms universitet

Att hantera bedömnings relativitet/subjektivitet

- Vikten av att erkänna relativiteten/subjektiviteten
- Elevens *visade* kunskap och ej *visade* kunskap
- Som fångas/tolkas av någon
- Utifrån ställda frågor
- I ett sammanhang
- Vikten av trovärdighet och giltighet

Stockholms universitet

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Konsekvenser av den vetenskapliga basen

- PRIM-gruppens arbete
- Bedömningsarbete i matematik i kommun, skolor och klassrum

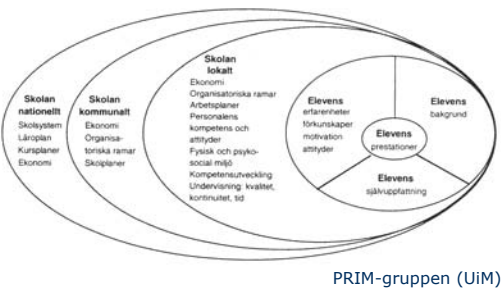
2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Konsekvenser av institutionella perspektiv – PRIM-gruppens arbete

- Hantera traditioner – gamla och nya
- Låter oss påverkas
- Interaktion med Skolverket (påverka ramar)
- UiM ett exempel

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Institutionella perspektiv på bedömning



2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Konsekvenser av institutionella perspektiv – kommun/skola/klassrum

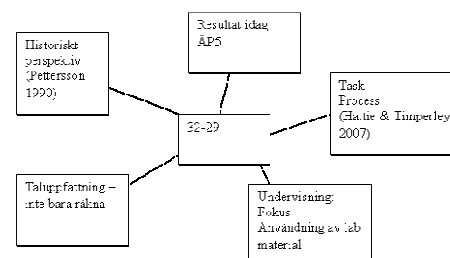
- Olika nivåer närvarande samtidigt
- Vikten av samverkan
- Vikten av att låta traditioner påverkas

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Konsekvenser av syn på lärande och kunskap – PRIM-gruppen

- Olika kommunikationsformer
- Olika bedömningssituationer
- Historisk medvetenhet
- Att hantera 32-29

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen



2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Konsekvenser av syn på lärande och kunskap – Kommun/skola/klassrum

- Medvetenhet
- Uttrycks i hur jag handlar

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

CONVERGENT ASSESSMENT	DIVERGENT ASSESSMENT
Assessment which aims to discover <i>if</i> the learner knows, understands or can do a predetermined thing. This is characterised by: Practical Implications - precise planning and an intention to stick to it; - tick lists and can-do statements; - an analysis of the interaction of the learner and the curriculum from the point of view of the curriculum; - closed or pseudo-open questioning and tasks; - a focus on contrasting errors with correct responses; - judgmental or quantitative evaluation; - involvement of the student as recipient of assessments. Theoretical Implications - a behaviourist view of learning; - an intention to teach or assess the next predetermined thing in a linear progression; - a view of assessment as accomplished by the teacher. This view of assessment might be seen less as formative assessment, rather as repeated summative assessment or continuous assessment.	Assessment which aims to discover <i>what</i> the learner knows, understands or can do. This is characterised by: Practical Implications - flexible planning or complex planning which incorporates alternatives; - open forms of recording (narrative, quotations etc.); - an analysis of the interaction of the learner and the curriculum from the point of view both of the learner and of the curriculum; - open questioning and tasks; - a focus on miscues - aspects of learner's work which yield insights into their current understanding, and on prompting metacognition; - descriptive rather than purely judgmental evaluation; - involvement of the student as initiator of assessments as well as recipient. Theoretical Implications - a social constructivist view of learning; - an intention to teach in the zone of proximal development; - a view of assessment as accomplished jointly by the teacher and the student. This view of assessment could be said to attend more closely to contemporary theories of learning and accept the complexity of formative assessment.

Torrance & Pryor (1998, 2001)

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

CONVERGENT ASSESSMENT	DIVERGENT ASSESSMENT
Assessment which aims to discover <i>if</i> the learner knows, understands or can do a predetermined thing. This is characterised by: Practical Implications - precise planning and an intention to stick to it; - tick lists and can-do statements; - an analysis of the interaction of the learner and the curriculum from the point of view of the curriculum; - closed or pseudo-open questioning and tasks; - a focus on contrasting errors with correct responses; - judgmental or quantitative evaluation; - involvement of the student as recipient of assessments. Theoretical Implications - a behaviourist view of learning; - an intention to teach or assess the next predetermined thing in a linear progression; - a view of assessment as accomplished by the teacher. This view of assessment might be seen less as formative assessment, rather as repeated summative assessment or continuous assessment.	Assessment which aims to discover <i>what</i> the learner knows, understands or can do. This is characterised by: Practical Implications - flexible planning or complex planning which incorporates alternatives; - open forms of recording (narrative, quotations etc.); - an analysis of the interaction of the learner and the curriculum from the point of view both of the learner and of the curriculum; - open questioning and tasks; - a focus on miscues - aspects of learner's work which yield insights into their current understanding, and on prompting metacognition; - descriptive rather than purely judgmental evaluation; - involvement of the student as initiator of assessments as well as recipient. Theoretical Implications - a social constructivist view of learning; - an intention to teach in the zone of proximal development; - a view of assessment as accomplished jointly by the teacher and the student. This view of assessment could be said to attend more closely to contemporary theories of learning and accept the complexity of formative assessment.

Torrance & Pryor (1998, 2001)

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

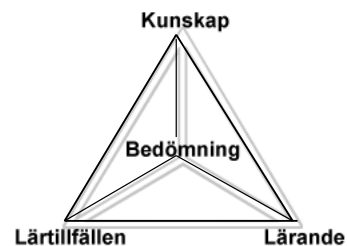
CONVERGENT ASSESSMENT	DIVERGENT ASSESSMENT
Assessment which aims to discover <i>if</i> the learner knows, understands or can do a predetermined thing. This is characterised by: Practical Implications - precise planning and an intention to stick to it; - tick lists and can-do statements; - an analysis of the interaction of the learner and the curriculum from the point of view of the curriculum; - closed or pseudo-open questioning and tasks; - a focus on contrasting errors with correct responses; - judgmental or quantitative evaluation; - involvement of the student as recipient of assessments.	Assessment which aims to discover <i>what</i> the learner knows, understands or can do. This is characterised by: Practical Implications - flexible planning or complex planning which incorporates alternatives; - open forms of recording (narrative, quotations etc.); - an analysis of the interaction of the learner and the curriculum from the point of view both of the learner and of the curriculum; - open questioning and tasks; - a focus on miscues - aspects of learner's work which yield insights into their current understanding, and on prompting metacognition; - descriptive rather than purely judgmental evaluation; - involvement of the student as initiator of assessments as well as recipient.

Torrance & Pryor (1998, 2001)

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Konsekvenser av syn på lärare – elev i samverkan – PRIM-gruppen

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen



2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Kunskapsprofil ÄP 5

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Konsekvenser av syn på lärare – elev i samverkan – Kommun/skola/klassrum

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen



2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Konsekvenser för bedömningens relativitet/subjektivitet – PRIM- gruppen

- Hur vi ställer frågor
- Hur vi uttrycker oss
- Bedömning av elevarbeten
- Kravgränssättning

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Konsekvenser för bedömningens relativitet/subjektivitet – kommun/skola/klassrum

- Hur vi ställer frågor
- Hur vi uttrycker oss
- Medbedömning

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Trender i resultat – nationella prov

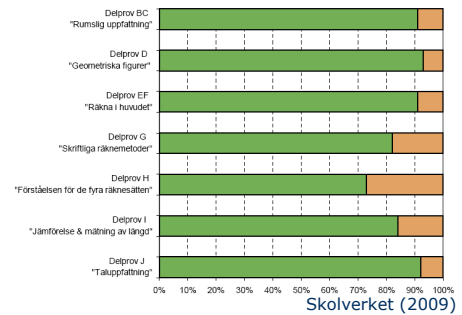
- Elevers visade kunskaper
- Lärarenkäter

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Men först: Senaste nytt om ÄP3

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Diagram 1. Andel elever som uppnår respektive inte uppnår kravnivån på de olika delproven i matematik



2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Skolverket (2009)

Ämnesprovet i åk 5

- Skriftliga räknemetoder har förändrats
- Fler sätt att räkna på
- Geometri
- Gruppuppgift

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Ämnesprovet i åk 5 – viktigt att arbeta med

- Mätandets idé
- Tidsskillnader
- Tal i decimalform
- Avläsning av klockan och visa tid
- Huvudräkning

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Ämnesprovet i åk 5 – lärarenkät

- Inställning till provet
- Samrättning
- Prov under två år

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Kursprov Matematik A

- Aritmetik
- Geometri
- Algebra

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Ämneprov åk 9 - Lärarenkät

- Inställning till provet
- Bedömningsanvisningar
- Muntligt delprov
- Provet i relation till undervisning

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

PRIM-gruppen en nationell resurs

- Ett bidrag till det vetenskapligt baserade samtalet om bedömning i matematik
- Nationella prov och diagnostiska material – mervärde
- Hemsidan
- Publikationer

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Nationella prov och diagnostiska material - mervärde

- Bedömningskonferenser
- Konsekvenser, egen undervisning inklusive bedömning (källa: lärarenkäter)
- Föräldrar (utvecklingssamtal)

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Hemsidan – några exempel

- Uppgiftsboken
- Matematik från början
- MiMa
- MyrA

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Publikationer – några exempel



2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Pågående projekt - exempel

- Forskning:
Kunskapsutveckling över tid
Hur elever löser uppgifter
Klassrumsbedömning
Bedömning i relation till nationella prov
- Lägesöversikten
- Rapporter med provresultat
- Likvärdig bedömning
- Nordic resource book
- Implementeringsmaterial ÄP3 – nästa steg
www.prim-gruppen.se

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

www.prim-gruppen.se

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen

Glöm ej matematikbiennalen!



www.mnd.su.se/matematikbiennalen

2009-10-26 / Lisa Björklund Boistrup, Astrid Pettersson
PRIM-gruppen