

Scalability: Adapting technology solutions to fit your state's assessment and accountability needs

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Empowering Accountability and Assessment Using Technology

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The Challenge: More, Faster, Cheaper, Fewer Mistakes

- States are being called on to do more with their assessment and accountability programs
 - Assess
 - Report
 - Support improved learning
 - Communicate more complex things with more audiences
 - Make no errors; less forgiving environments



Growth Potential Resources: Tools and Technologies

- States (and their contractors) can develop and implement a wide array of tools and technologies to help them deliver high quality assessments and accountability reports and supports in cost-effective ways



Session Overview

- **Thinking broadly about technology**
- Orienting your efforts for improvement
- Examples from assessment and accountability
- What next?



Thinking Broadly about Technology

- Tools and technologies – any thing constructed to help us work
- Tools and technologies for assessment and accountability
 - E.g., Alignment methods, rubrics, DIF, reliability calculation methods: models and procedures (culture, infrastructure)
- *Scaling up*: How many ways can a computer not run your software application?



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Orienting Your Efforts for Improvements

- Plan, plan, plan, plan
- Decide, decide, decide
- Implement, implement
- Monitor



Plan, Plan, Plan, Plan

- What tools and technologies can you bring to bear on your planning?
 - Purposes and goals
 - Objectives and strategies
 - Plans, policies, procedures
 - Politics, expertise, personnel, money, time



Plan – Purposes & Goals

What should schools be held accountable for? Analyze the scores for the four schools and rank the schools in terms of their performance. Indicate your reason for the ranking. Note: Scores are percent of students proficient or above.

School 1

Grade	School Year		
	2000	2001	2002
3	55	56	54
4	60	61	62
5	66	67	65

School 2

Grade	School Year		
	2000	2001	2002
3	92	90	88
4	93	89	88
5	88	88	89

School 3

Grade	School Year		
	2000	2001	2002
3	65	70	71
4	66	70	72
5	63	65	68

School 4

Grade	School Year		
	2000	2001	2002
3	80	76	78
4	82	75	76
5	81	79	77



Plan – Accountability Models

Purpose and Goals

- What do you value? What is a “good school”? “What is a “bad school”? What do you want to encourage through your state accountability system?

School 1

Grade	School Year		
	2000	2001	2002
3	55	56	54
4	60	61	62
5	66	67	65

“Status” system – How high are the scores at the end?

“Improvement” system – How much did scores change for successive groups (grade 3 to grade 3)?

“Effective” system – How much did (the same) students learn from one year to next (grade 3 to grade 4)?



Plan, Plan, Plan, Plan

- Purposes and goals
- Objectives and strategies
- Plans, policies, procedures
- Politics, expertise, personnel, money, time



Decide, Decide, Decide

- Needs
 - Assessment life cycle
 - Bottlenecks and threats
- Priorities
 - Assessment services
 - Products
 - Responsibility and capacity
- Sequence



Decide - #1

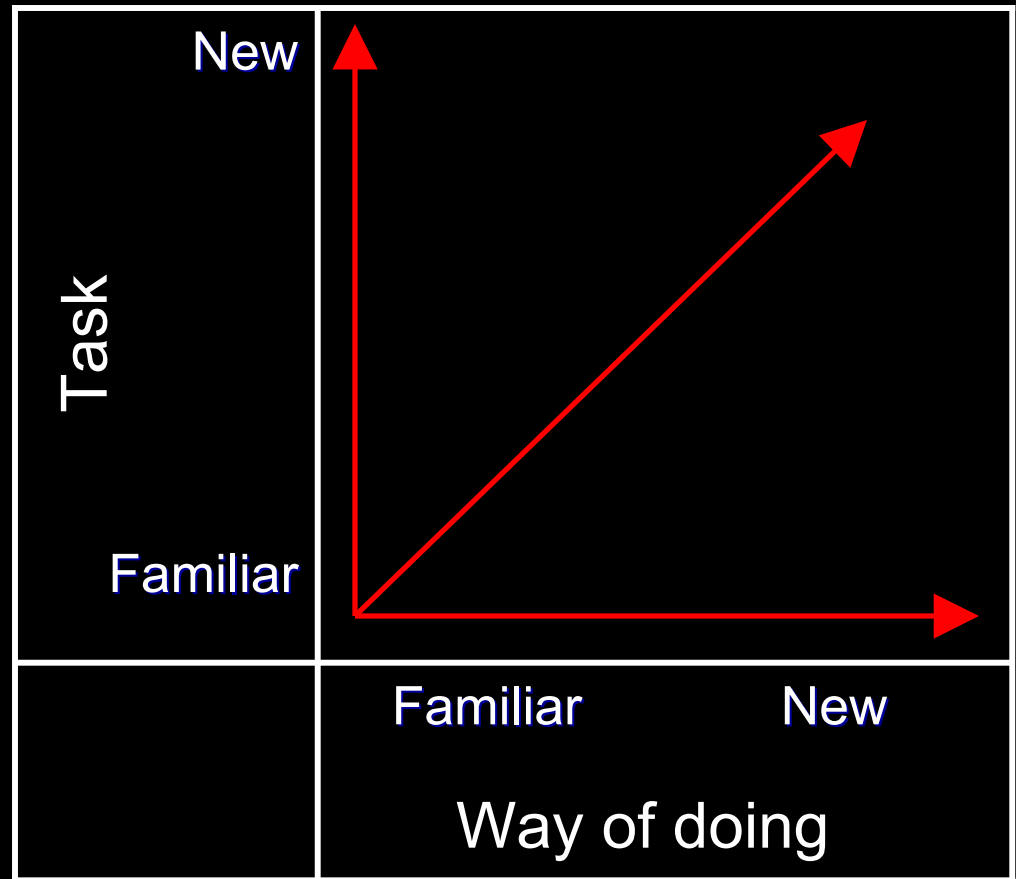
- Risk/benefit assessment
 - Think of omissions and commissions

Prob- ability of Error	High		
	Low		
		Low	High
		Cost of Error	

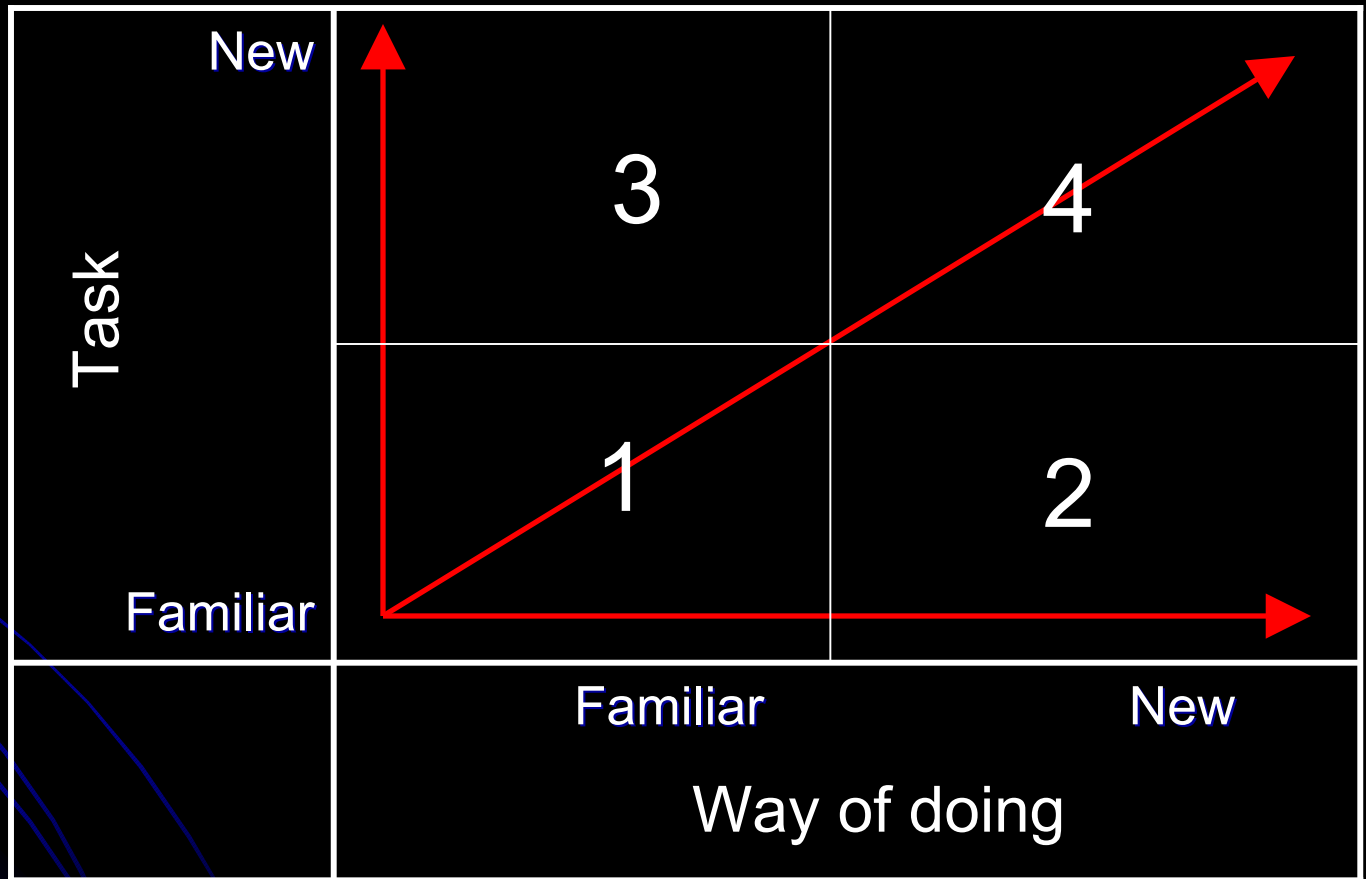


Decide - #2

Technology, like any change, has an adoption cycle of tasks and ways of doing them



Decide - #2



Implement, Implement

- Implementing technology solutions will differ according to where you are in the adoption cycle
- Plan for the cost of going from one stage to another
 - Accuracy, integrity
 - Execute the plan with quality
 - Coherence
 - Make things work system-wide



Monitor

- Commit to improve
- Know what happened
- Act



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Examples From Assessment and Accountability

Item development, test administration, scoring, QC, reporting, etc.

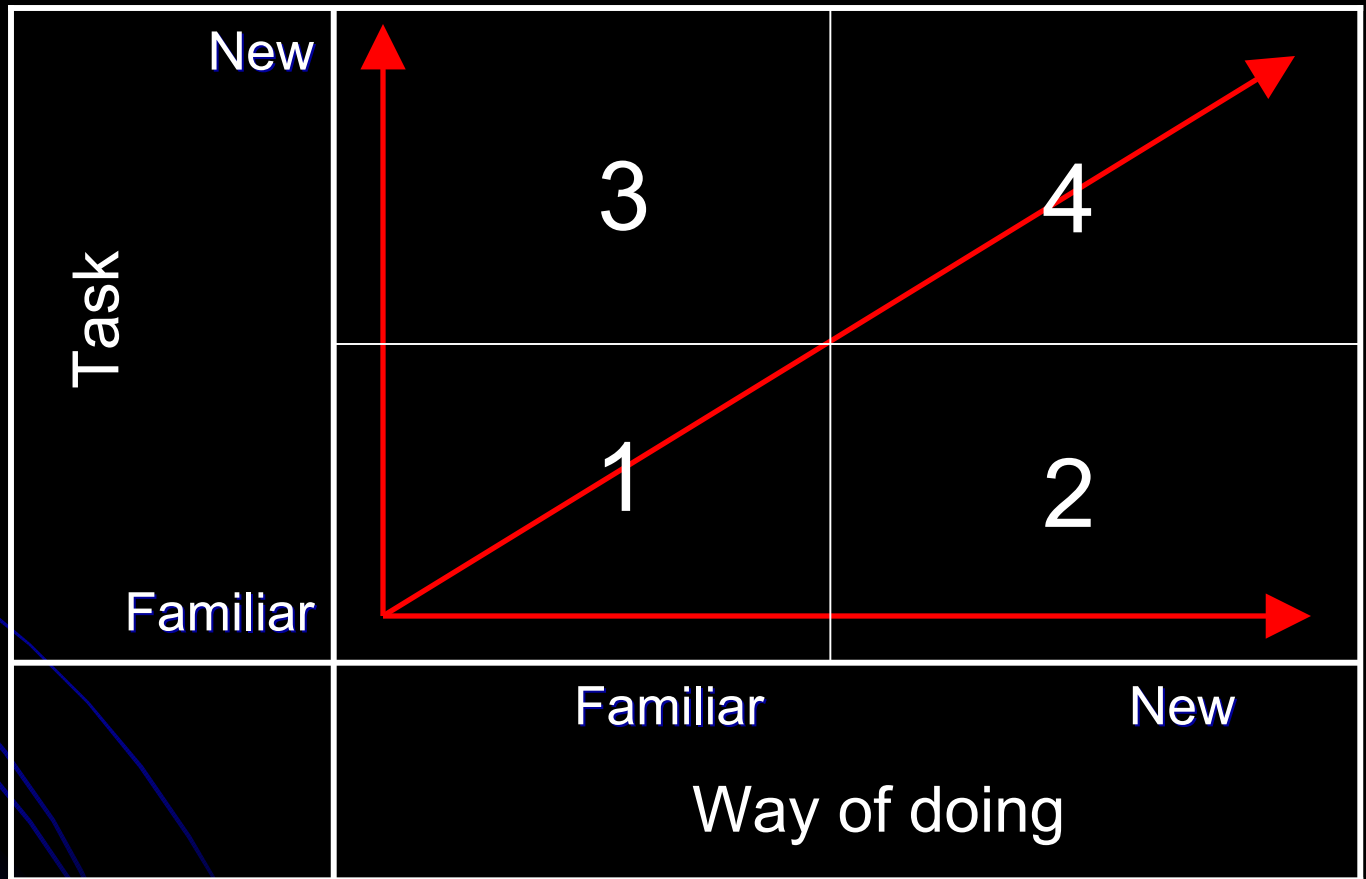
Assessment and Accountability tasks (life cycle)

Technologies & tools (ways of doing things)

Innovation, Adoption, & Scaling up



Example: Item development



Item development

1 – Familiar task, familiar way of doing

- Front-end alignment, development by design

2 – Familiar task, new way of doing

- Templates, structured generation, databases

3 – New task, familiar way of doing

- Cognitive complexity coding (e.g., Webb)

4 – New task, new way of doing

- Automated generation; model-based tasks



Example: ITS instructional assessment

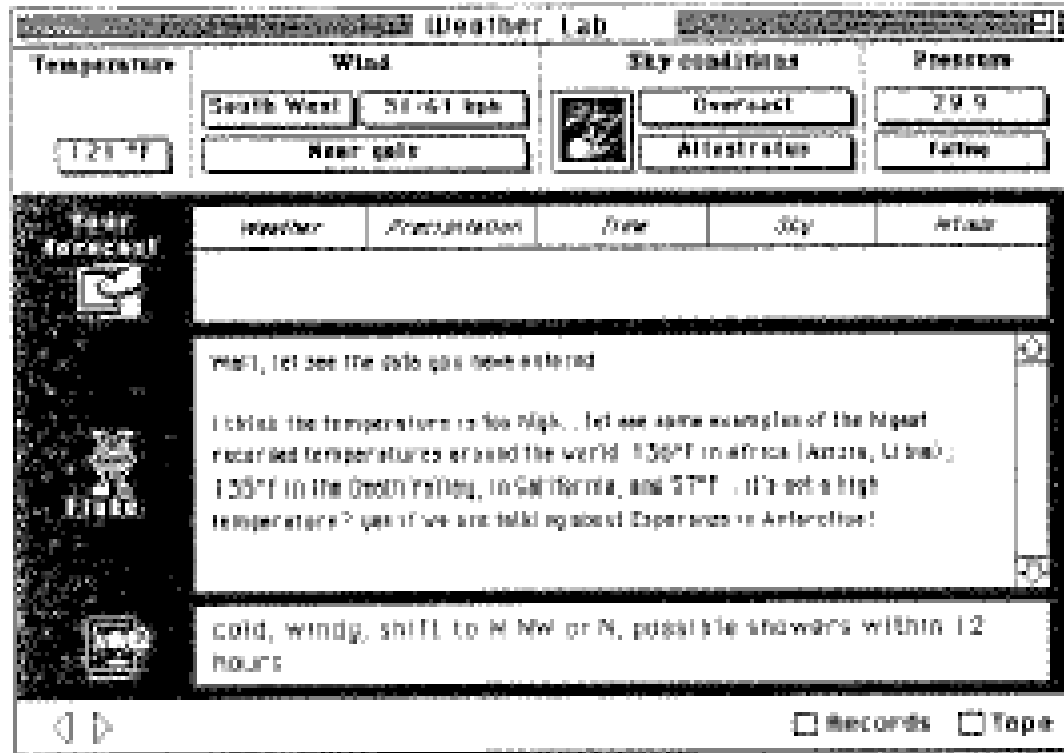
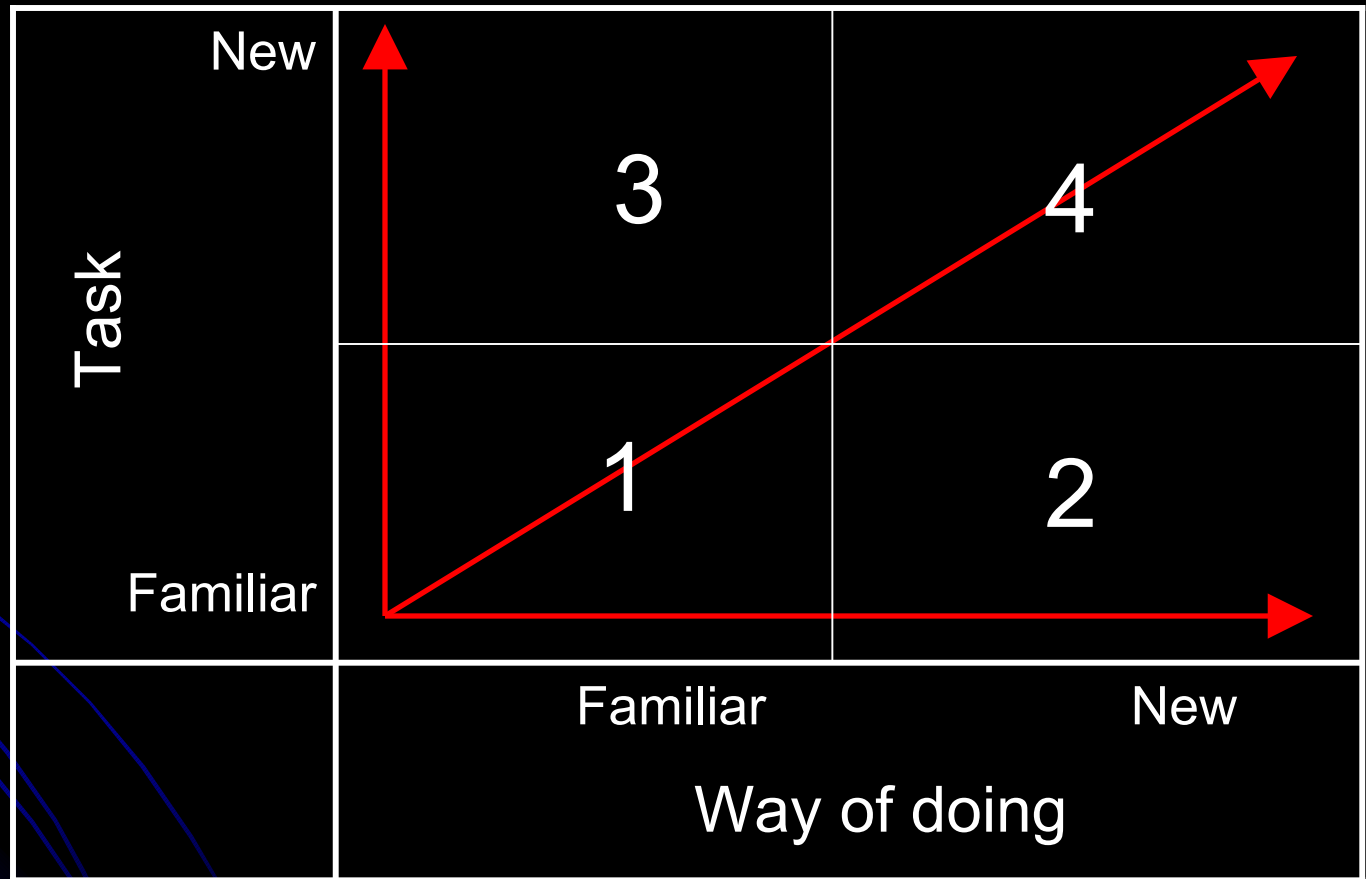


Figure 2. The dialog environment



Example: Test construction

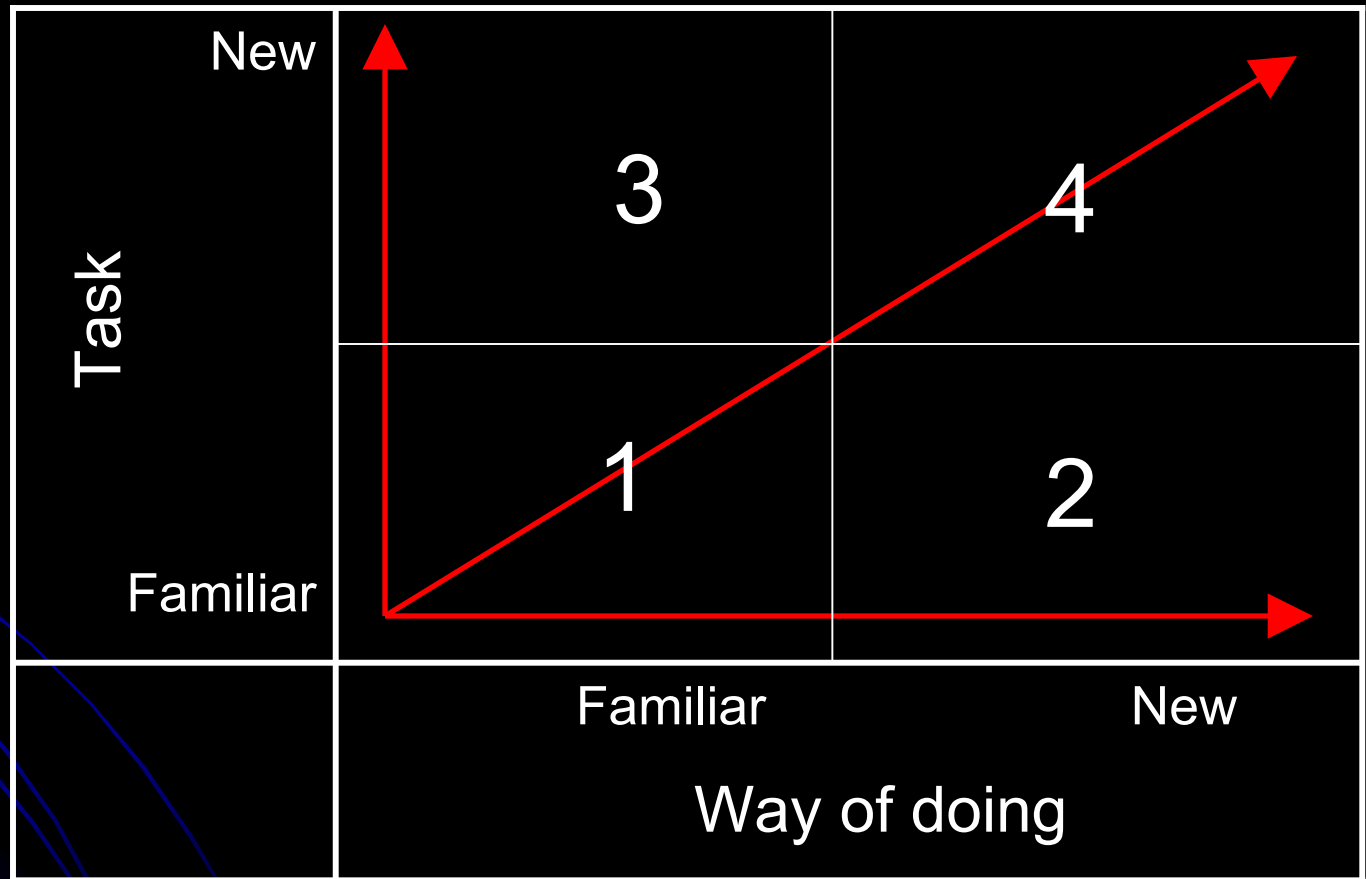


Test construction

- 1 – Familiar task, familiar way of doing
 - Front-end alignment, development by design
- 2 – Familiar task, new way of doing
 - Templates, generators and assistive tools
- 3 – New task, familiar way of doing
 - Adaptive tests (IRT difficulty)
- 4 – New task, new way of doing
 - Interactive sets of tests (cognitive models, learning progress models)



Example: Test administration



Test administration

1 – Familiar task, familiar way of doing

- Security, tracking, pre-slugging

2 – Familiar task, new way of doing

- On-line, same time

3 – New task, familiar way of doing

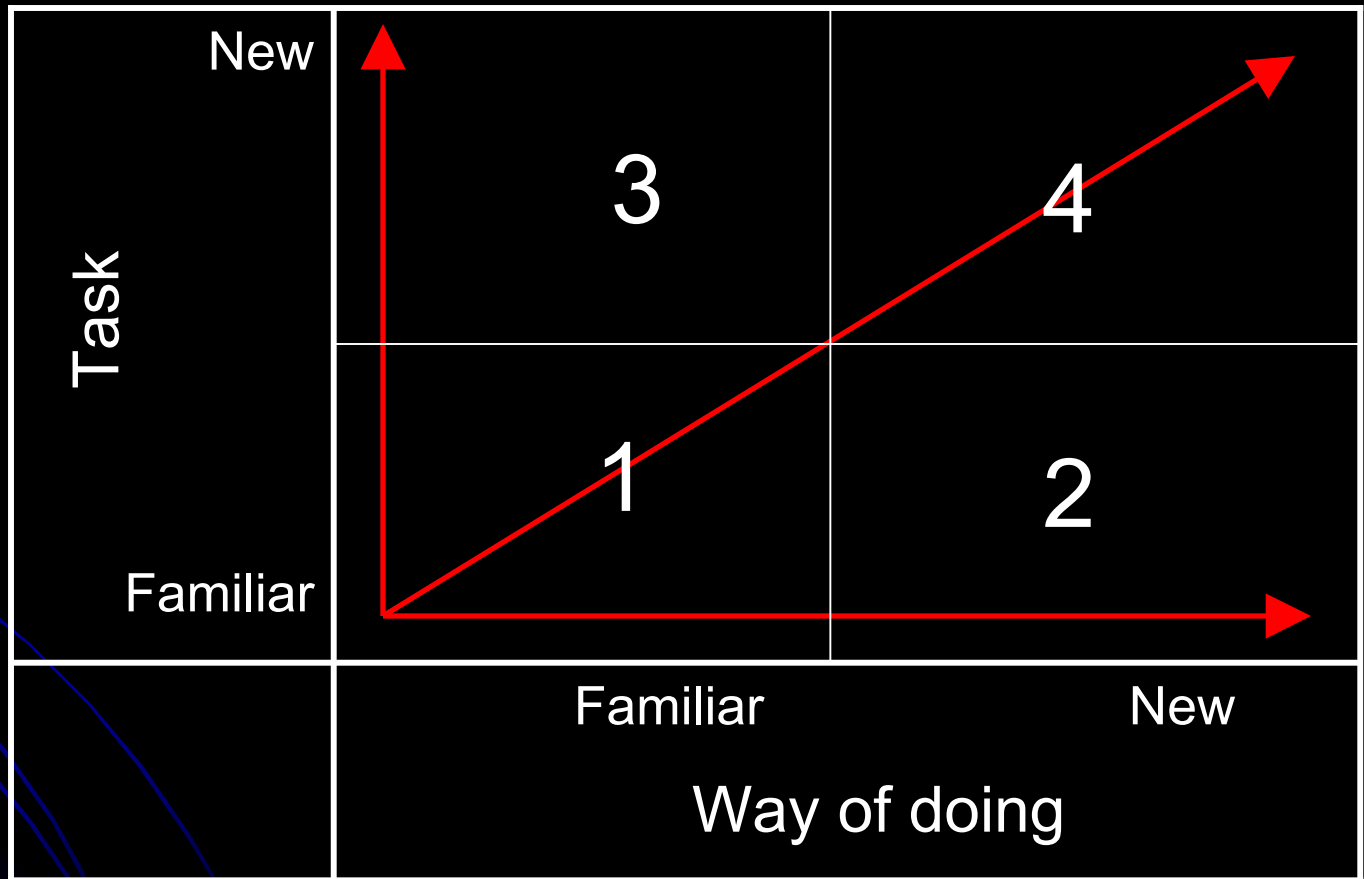
- Student on-demand

4 – New task, new way of doing

- Embedded



Example: Scoring

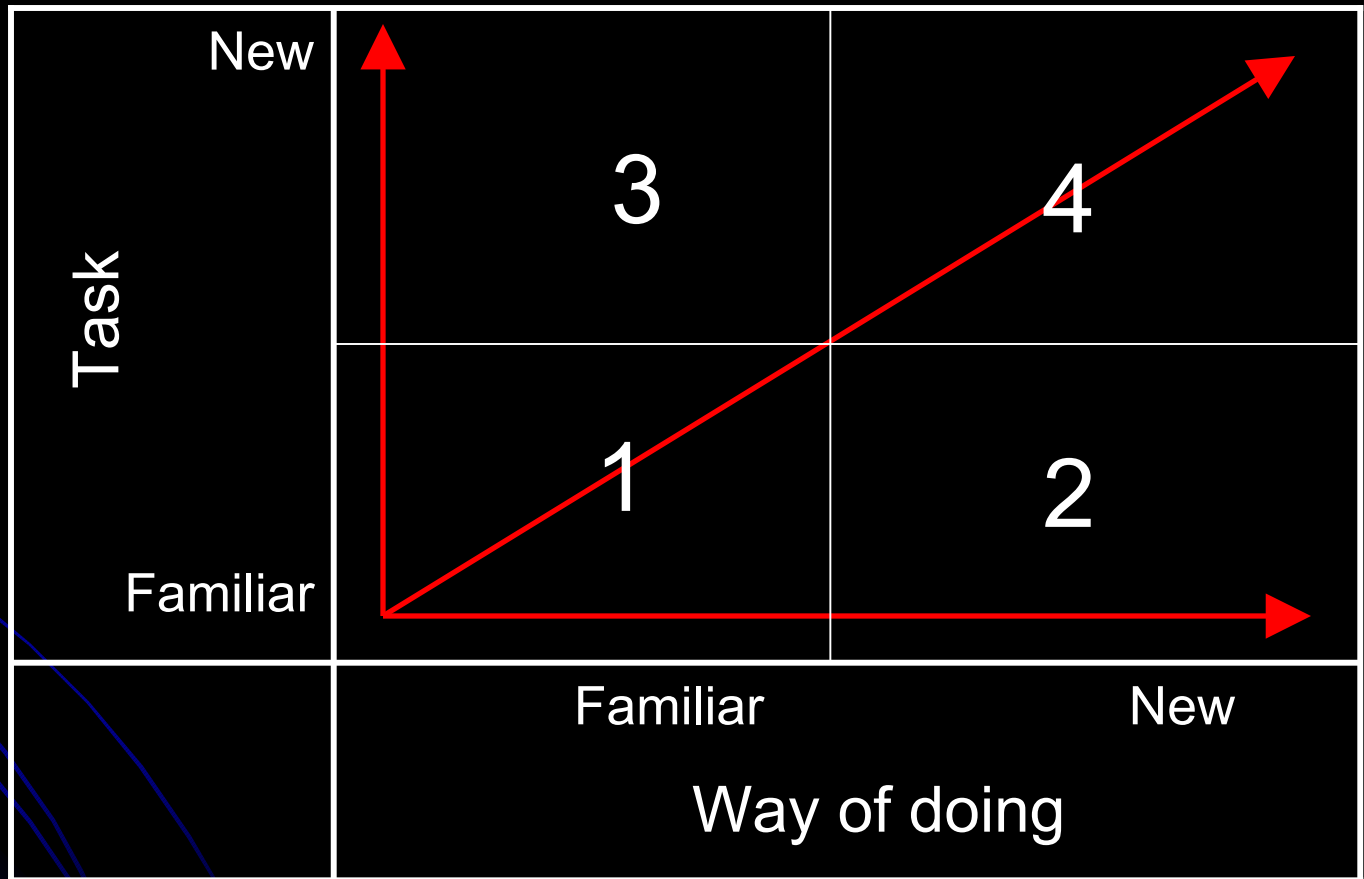


Scoring

- 1 – Familiar task, familiar way of doing
 - Booklet, image-based scoring
- 2 – Familiar task, new way of doing
 - Distributed scoring, model-based rubrics
- 3 – New task, familiar way of doing
 - Gridded constructed response, figural response scoring, computer-based CR
- 4 – New task, new way of doing
 - Automated essay scoring



Example: Scoring QC



Scoring QC

1 – Familiar task, familiar way of doing

- Training packs, inter-rater agreement, seeds

2 – Familiar task, new way of doing

- Distributed scoring?

3 – New task, familiar way of doing

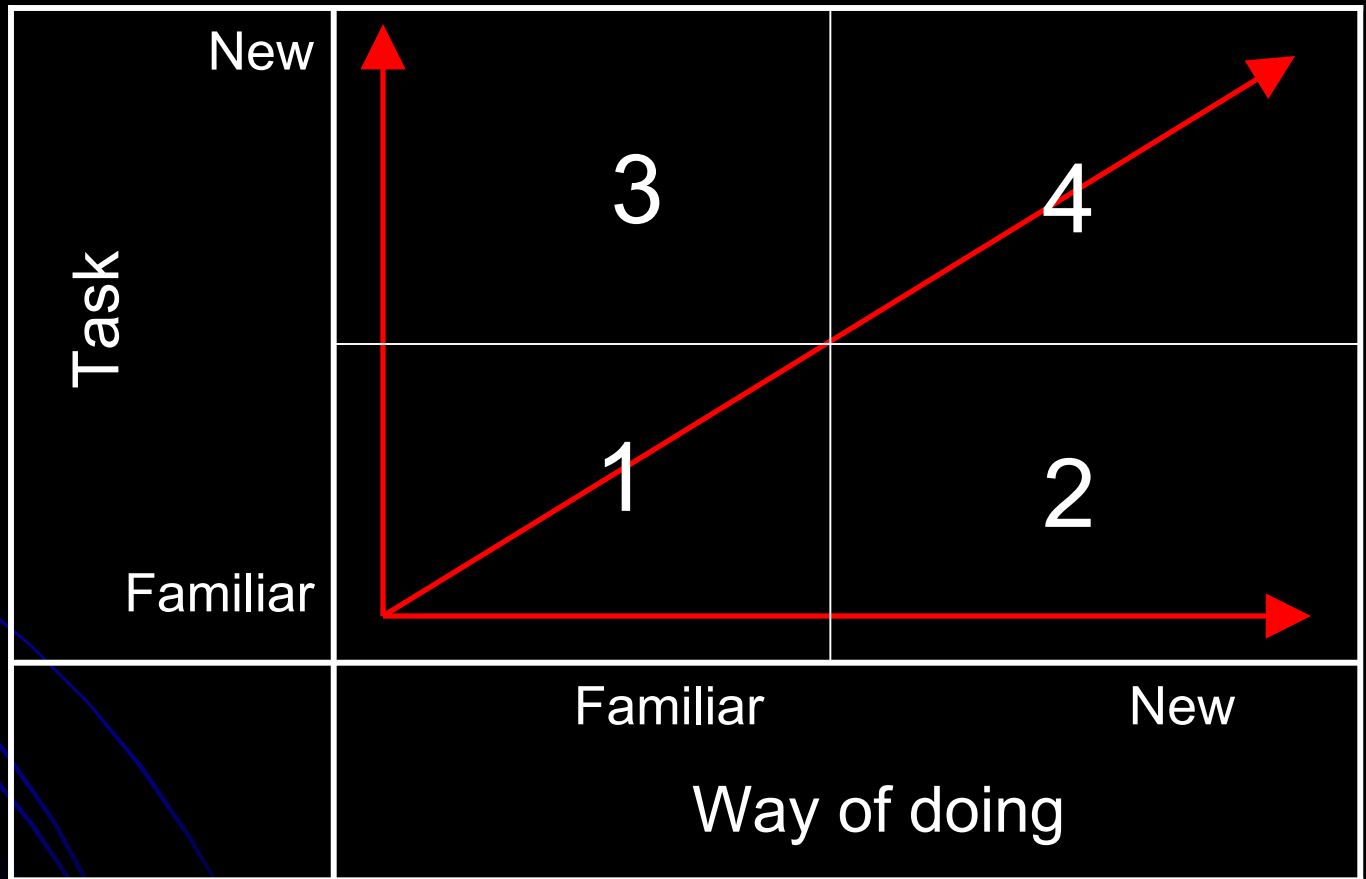
- Scorer year-to-year drift

4 – New task, new way of doing

- ?



Example: Reporting

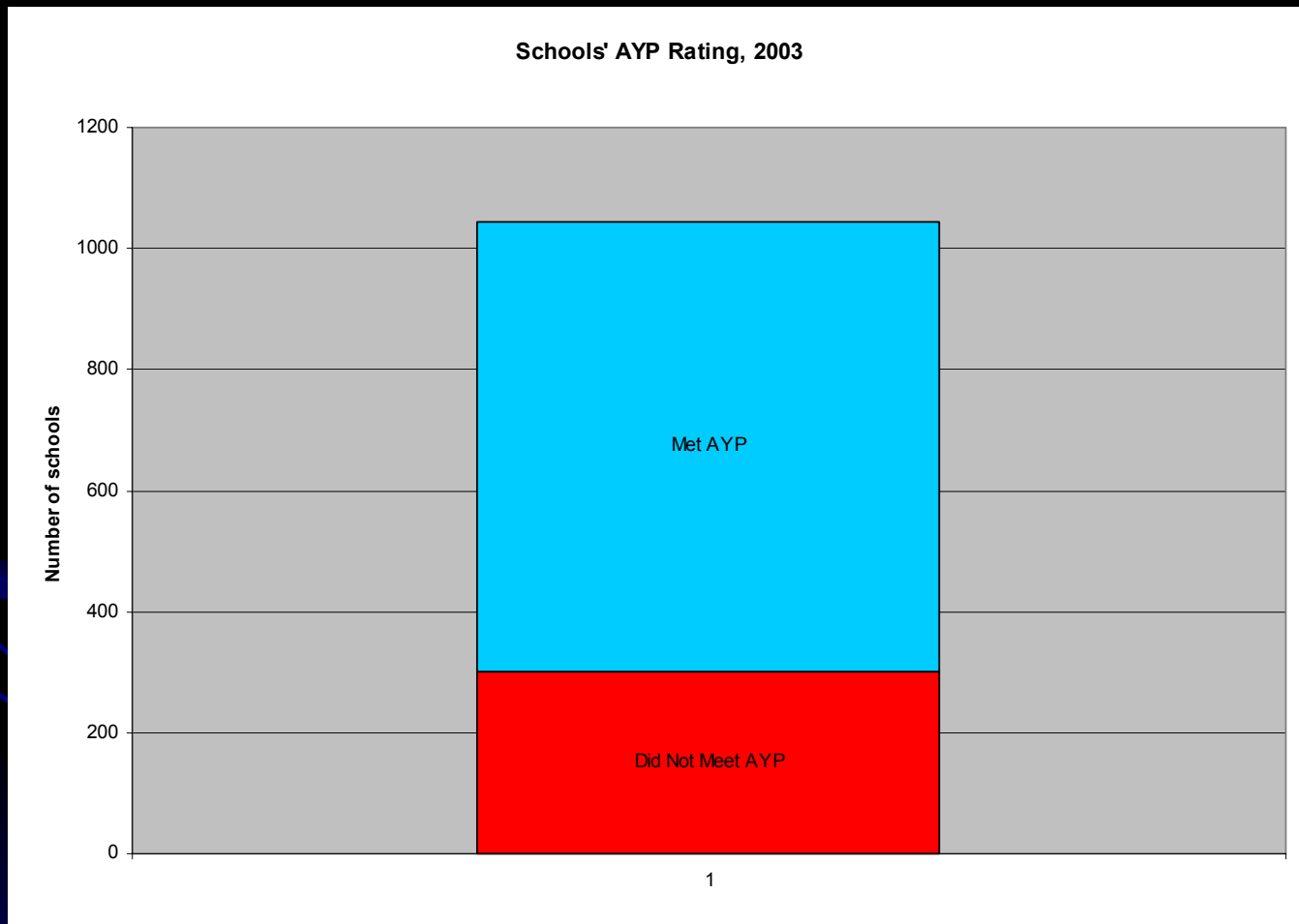


Reporting

- 1 – Familiar task, familiar way of doing
 - Customized reports, web-based reports
- 2 – Familiar task, new way of doing
 - Templates, drill-down capabilities
- 3 – New task, familiar way of doing
 - Query-based, interactive
- 4 – New task, new way of doing
 - Automated generation; model-based tasks, intelligent interpretation

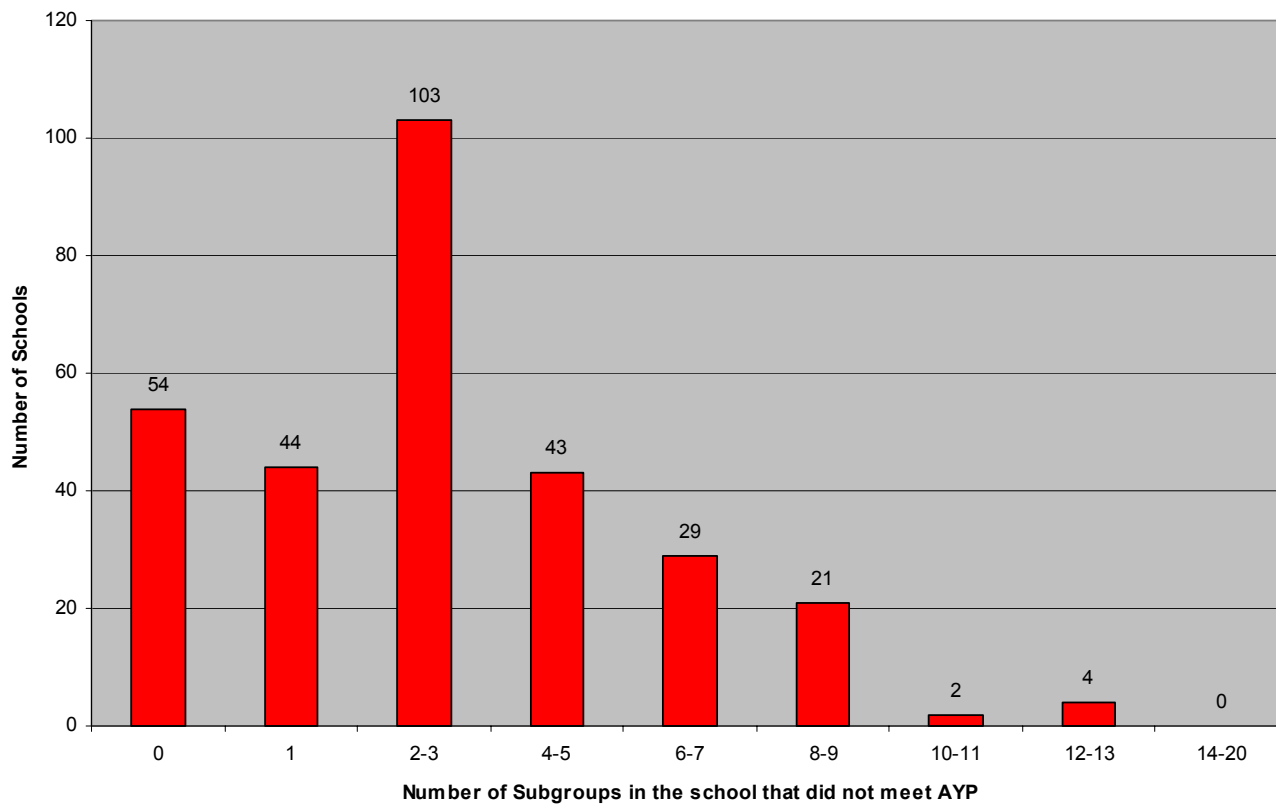


Example: Reporting #1

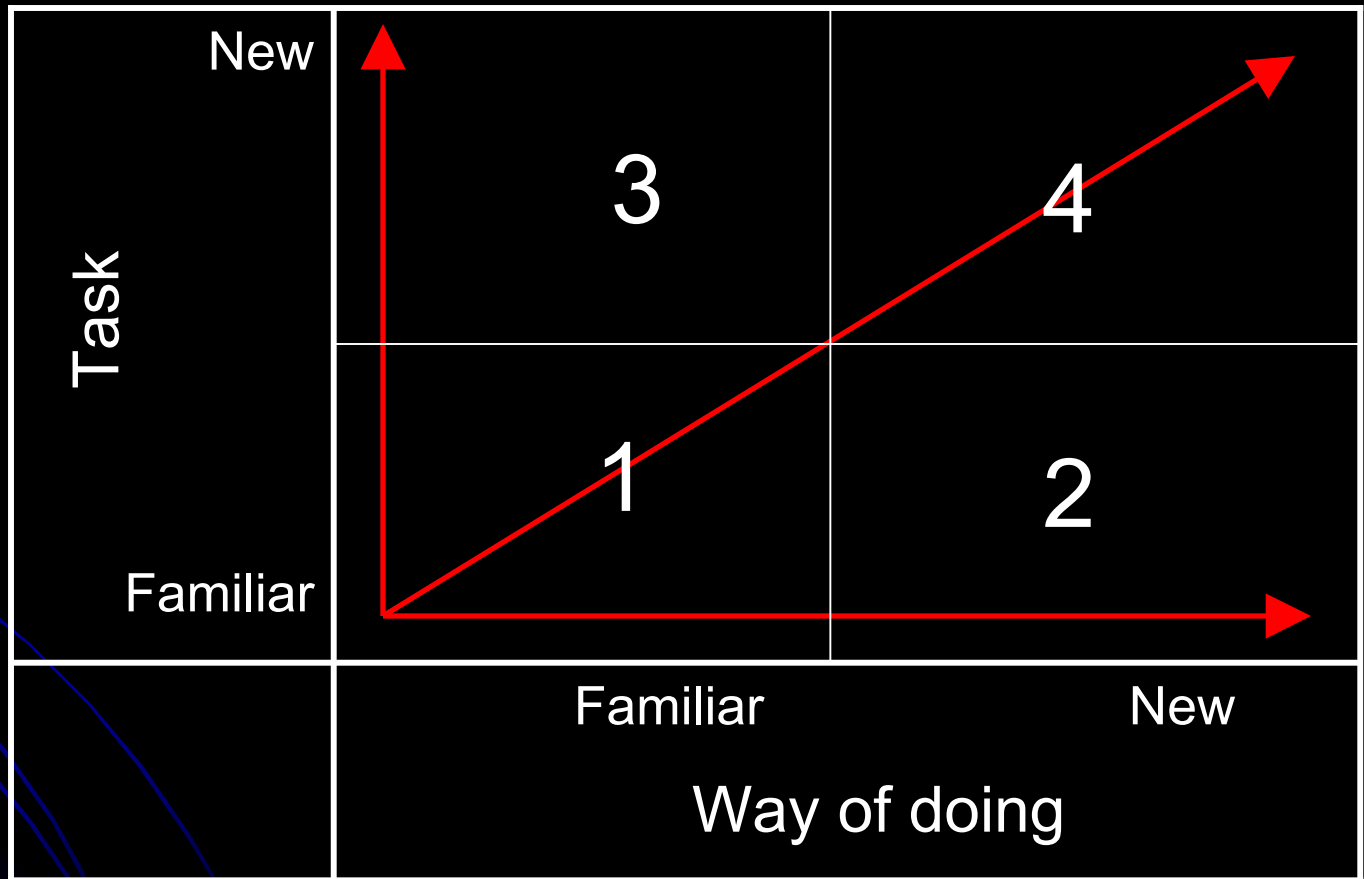


Example: Reporting #2

Number of Subgroups that did not meet AYP, in Schools that did not meet AYP overall



Example: Reporting QC



Reporting QC

1 – Familiar task, familiar way of doing

- List of QC checks and responsibilities

2 – Familiar task, new way of doing

- Automated alerts

3 – New task, familiar way of doing

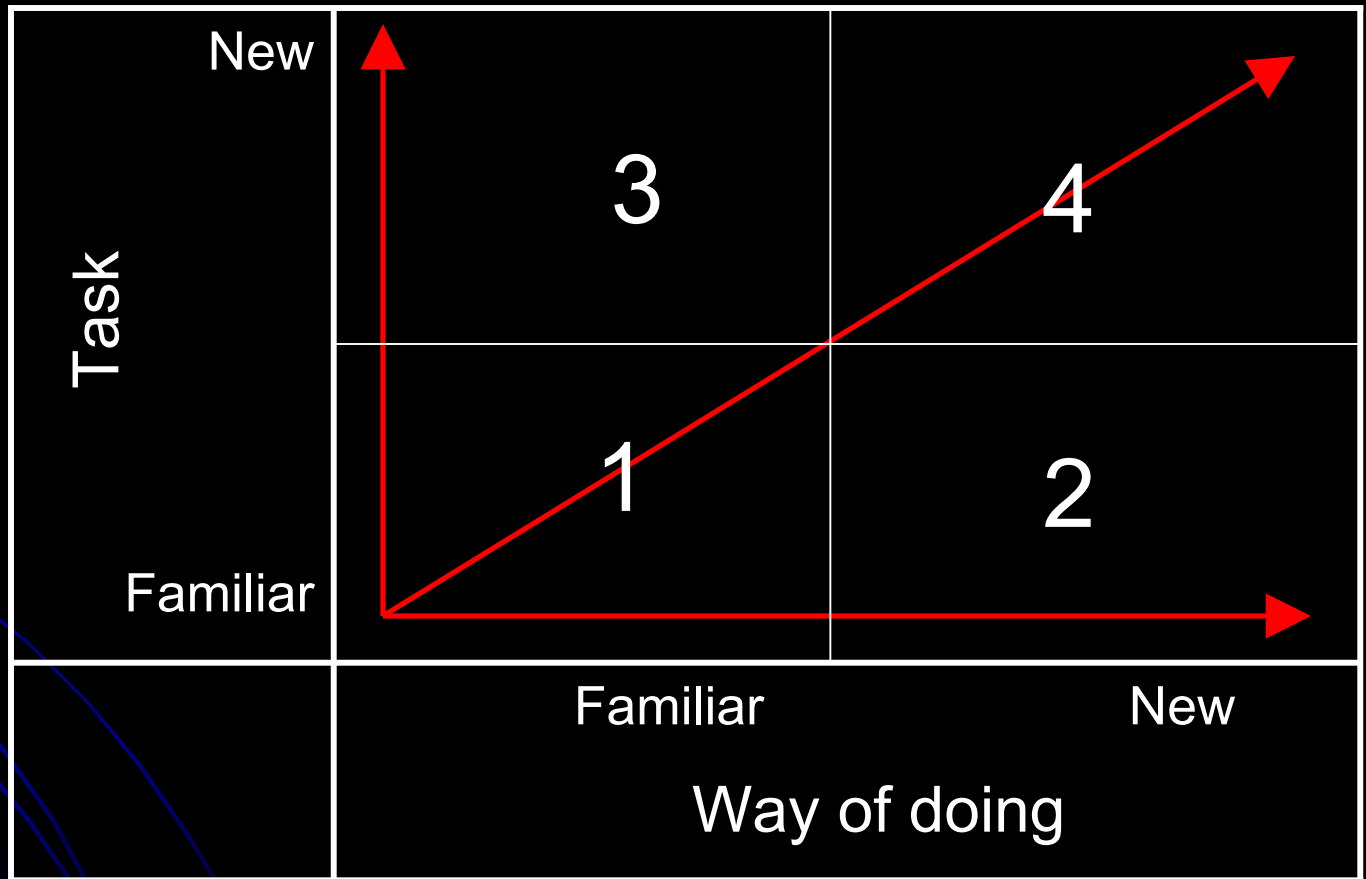
- QA on top of QC

4 – New task, new way of doing

- ?



Example: Accountability design



Accountability design

1 – Familiar task, familiar way of doing

- Subgroup disaggregation, student tracking, accounting for every student

2 – Familiar task, new way of doing

- Student growth models (scaling, accountability)

3 – New task, familiar way of doing

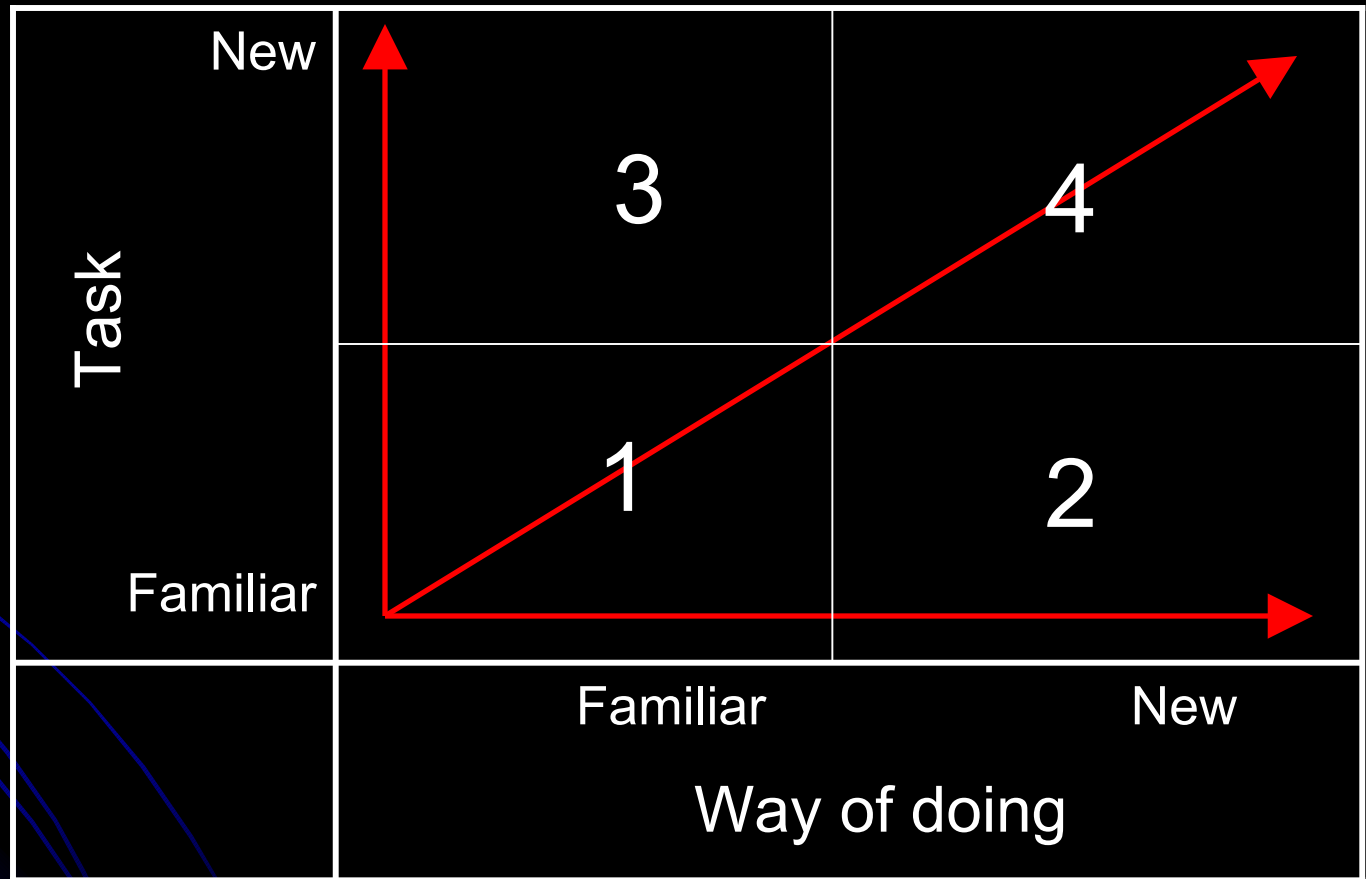
- Local assessment and accountability systems

4 – New task, new way of doing

- Comparability models: standards, common components, review process, external check, expert certification



Example: Interventions to support learning



Interventions

1 – Familiar task, familiar way of doing

- Detailed reports, school identification

2 – Familiar task, new way of doing

- Technology tutoring (reteach model)

3 – New task, familiar way of doing

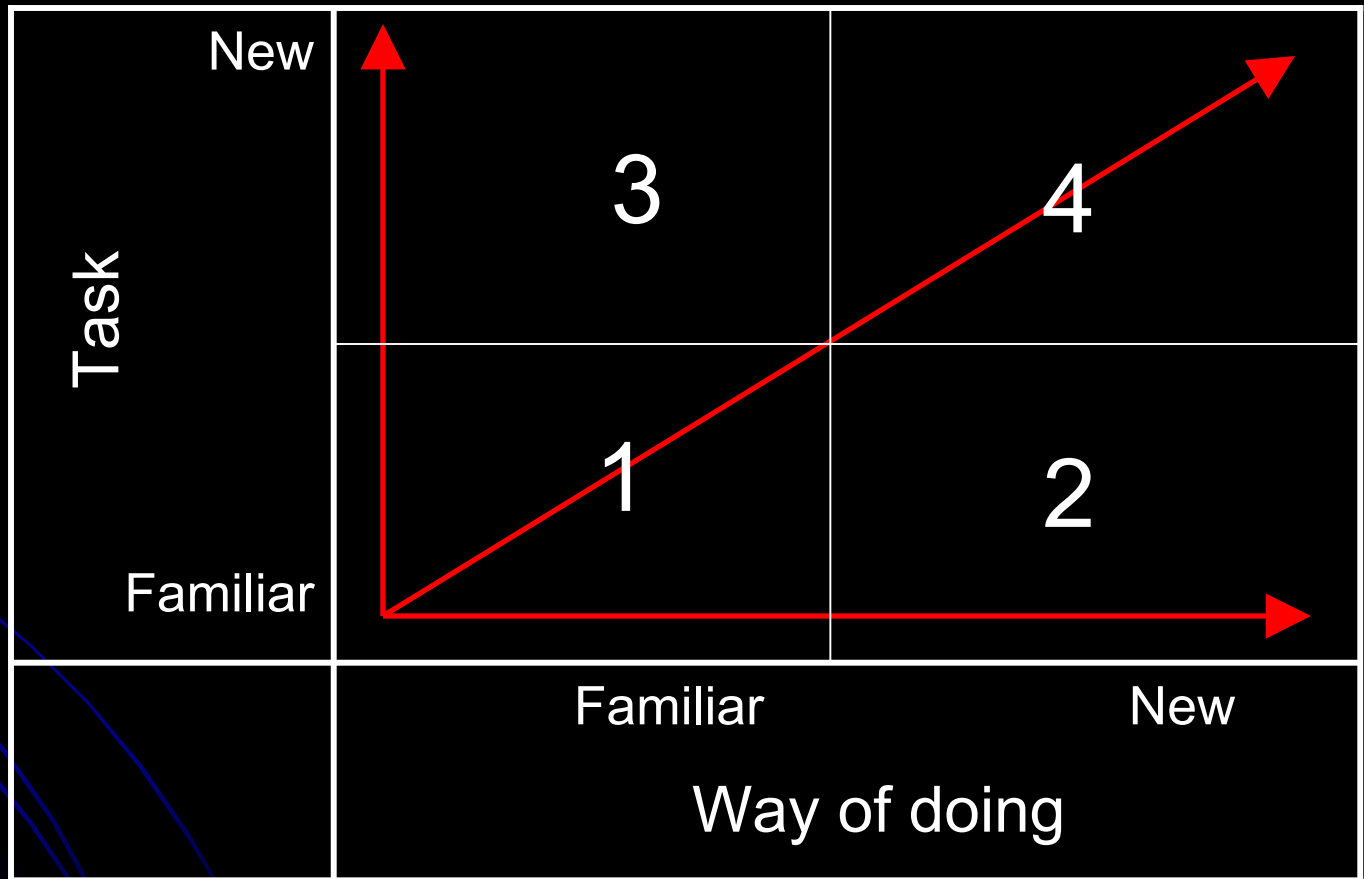
- Work with every student to be proficient

4 – New task, new way of doing

- ? Teacher distribution, motivation



Example: Validity and Reliability



Validity and Reliability

1 – Familiar task, familiar way of doing

- Compliance documentation

2 – Familiar task, new way of doing

- Decision consistency calculations; security

3 – New task, familiar way of doing

- Construct validation

4 – New task, new way of doing

- ?



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Summary

- Tasks and ways to do them (technologies and tools)
- Remember the purpose
 - Instructionally sensitive assessment, assessment-sensitive instruction
 - Technology-enhanced assessment and accountability
- Plan, decide, implement, monitor
- Familiar to new: models, procedures



What Next?

- Manage change
- Leave room for the unexpected
 - Some of what's unimagined by us will be taken for granted by our children
 - Because we worked diligently for their education
- Enjoy the journey!



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