MYTHS ON ASSESSMENT

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Outline

- Seven common assessment myths
- Myths and facts on Likert data

Myths on Assessment

- (1) High-stakes tests are good as they motivate students

The Case Against High-Stakes Testing

- Many people are against the practice of relying on test scores to make critical educational decisions about students or schools (e.g. retaining a child in a grade level on the basis of his/her score on a test)

- http://www.fairtest.org/arn/caseagainst.html

Disadvantages of High-Stakes Testing

- Teaching to the test
- Inappropriate to many diverse and disadvantaged learners
- Emphasis placed on punishing lower-performing schools and personnel

- http://www.fairtest.org/arn/caseagainst.html
- http://study.com/academy/lesson/high-stakes-testing-accountability-and-problems.html

The Good News

- No high-stakes testing in the country

  - NCEE was abolished in 1994!!!

Nevertheless…

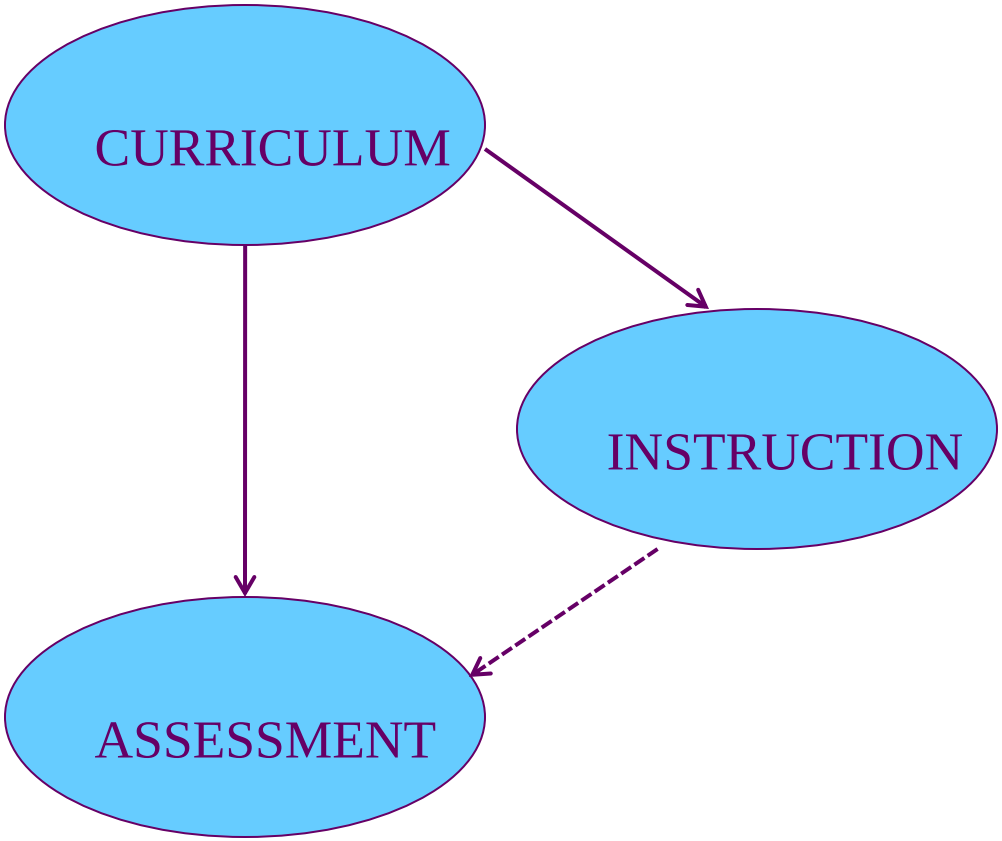
- National standardized assessments exist

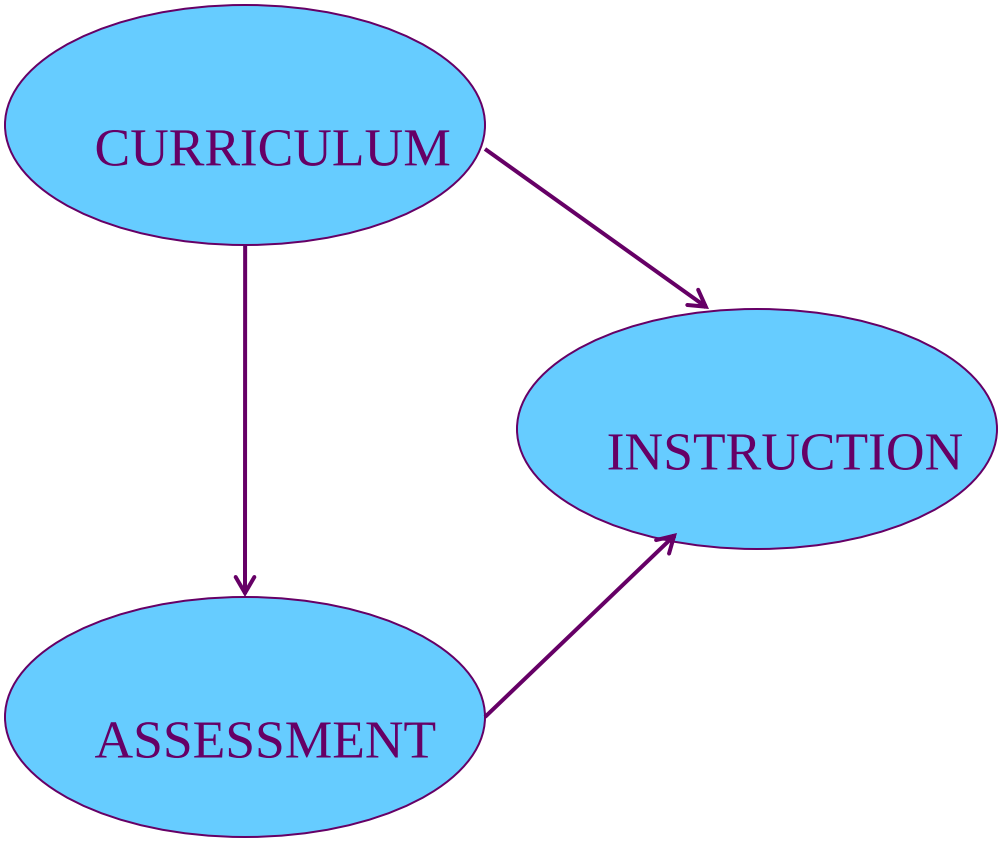
  - Focus is less on student performance and more on school performance

  - Assessment results are used to reward (or punish schools)

Are they motivating to…

- Schools?
- Teachers?
- Students?


CURRICULUM
INSTRUCTION
ASSESSMENT


CURRICULUM
INSTRUCTION
ASSESSMENT

Myths on Assessment

- (2) Formative assessment results are used primarily by teachers to guide them in their instructional decisions

On Formative Assessment

- What teachers learn from formative assessment can certainly help shape teaching decisions. Identifying areas where students are having difficulty as well as where they have clear understandings can lead teachers to change classroom practices in order to reach instructional goals.

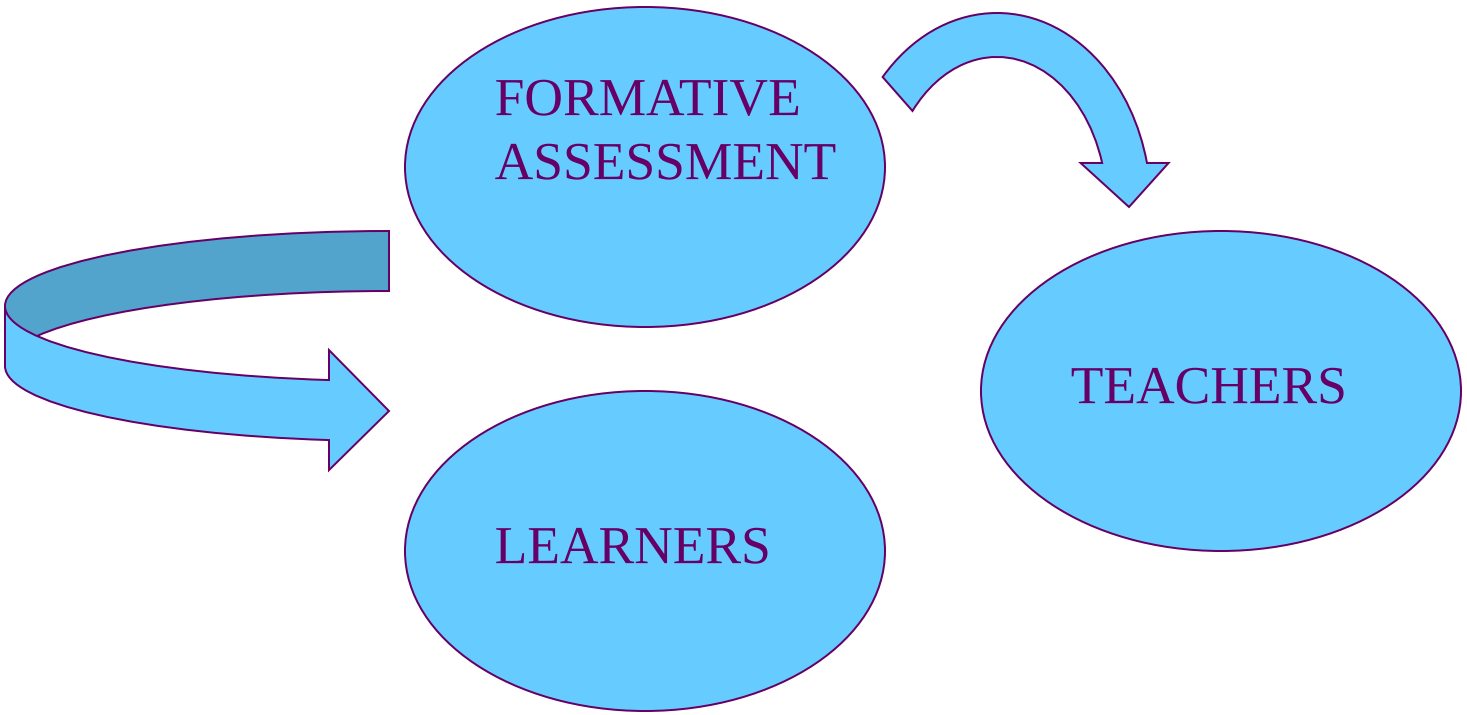
- Formative assessment can also address curriculum development by helping teachers and instructional leaders develop strategies for improving student learning.

- Fostering High-Quality Formative Assessment: A Policy Research Brief

However…

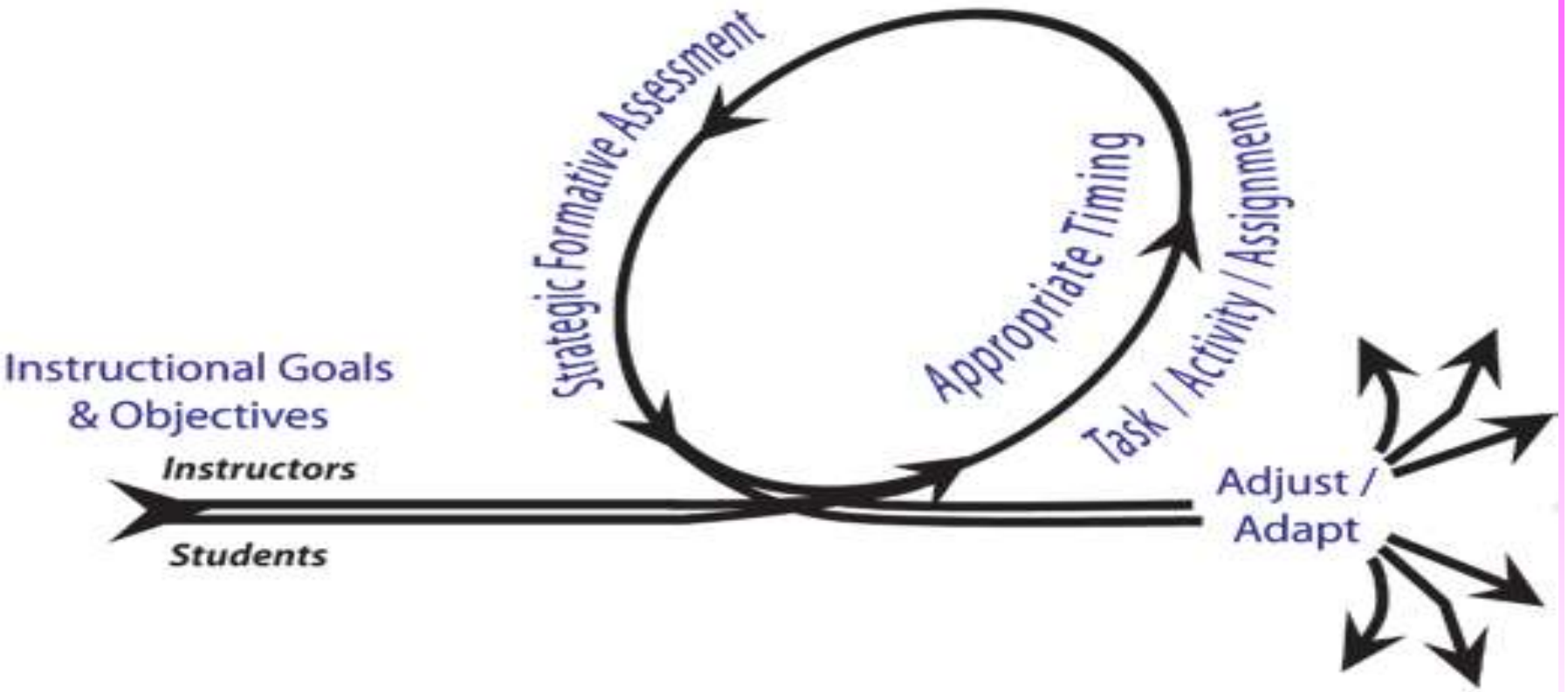
- Changes in teaching and curriculum are not the central purpose of formative assessment.
- High-quality formative assessment always puts student learning at the center.

- Fostering High-Quality Formative Assessment: A Policy Research Brief


FORMATIVE ASSESSMENT
TEACHERS
LEARNERS

Moreover….

- Formative assessment helps students to evaluate their own learning more effectively.
- High quality formative assessment helps students see how closely their own work matches a given goal, and this in turn, enables them to understand and monitor their own learning.
- Students who are clear about what and how to learn in a given class become more motivated and engaged learners.
- Fostering High-Quality Formative Assessment: A Policy Research Brief



- Fostering High-Quality Formative Assessment: A Policy Research Brief

High Quality Formative Assessment…

- emphasizes the quality rather than the quantity of student work
- prizes giving advice and guidance over giving grades
- avoids comparing students in favor of enabling individual students to assess their own learning
- provides feedback that engenders motivation and leads to improvement.
- Fostering High-Quality Formative Assessment: A Policy Research Brief

Myths on Assessment

- (3) Formative assessment is subjective while summative assessment is objective

Myths on Assessment

- BOTH *Formative Assessment* and *Summative Assessment* is and should be objective

On Formative Assessment

- Formative assessment avoids being subjective by focusing on the learning task (and not on the student)
- Subjective and student-centered:

  " You are a great writer."

- Objective and task-oriented:

  " You used transitions very effectively in this middle section. See if you can do the same thing in the last section of the paper."

Myths on Assessment

- (4) The Principal Components Analysis (PCA) is a form of or approach in Factor Analysis

On PCA

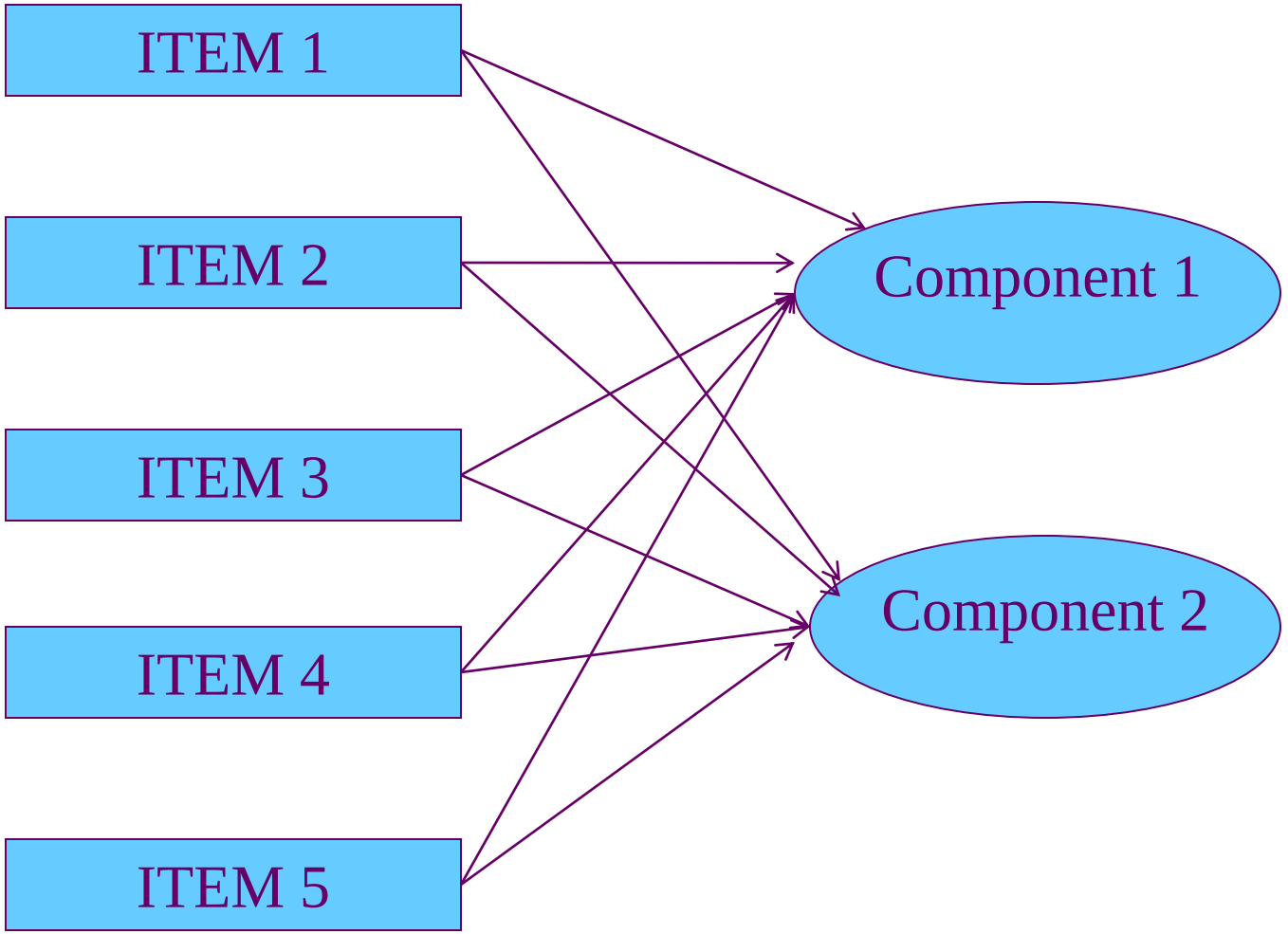
- The purpose of PCA is to derive a relatively small number of components that can account for the variability found in a relatively large number of measures.
- This procedure, called *data reduction, is* typically performed when a researcher does not want to include all of the original measures in analyses but still wants to work with the information that they contain.
- In other words, PCA is a data-reduction technique

On the other hand…

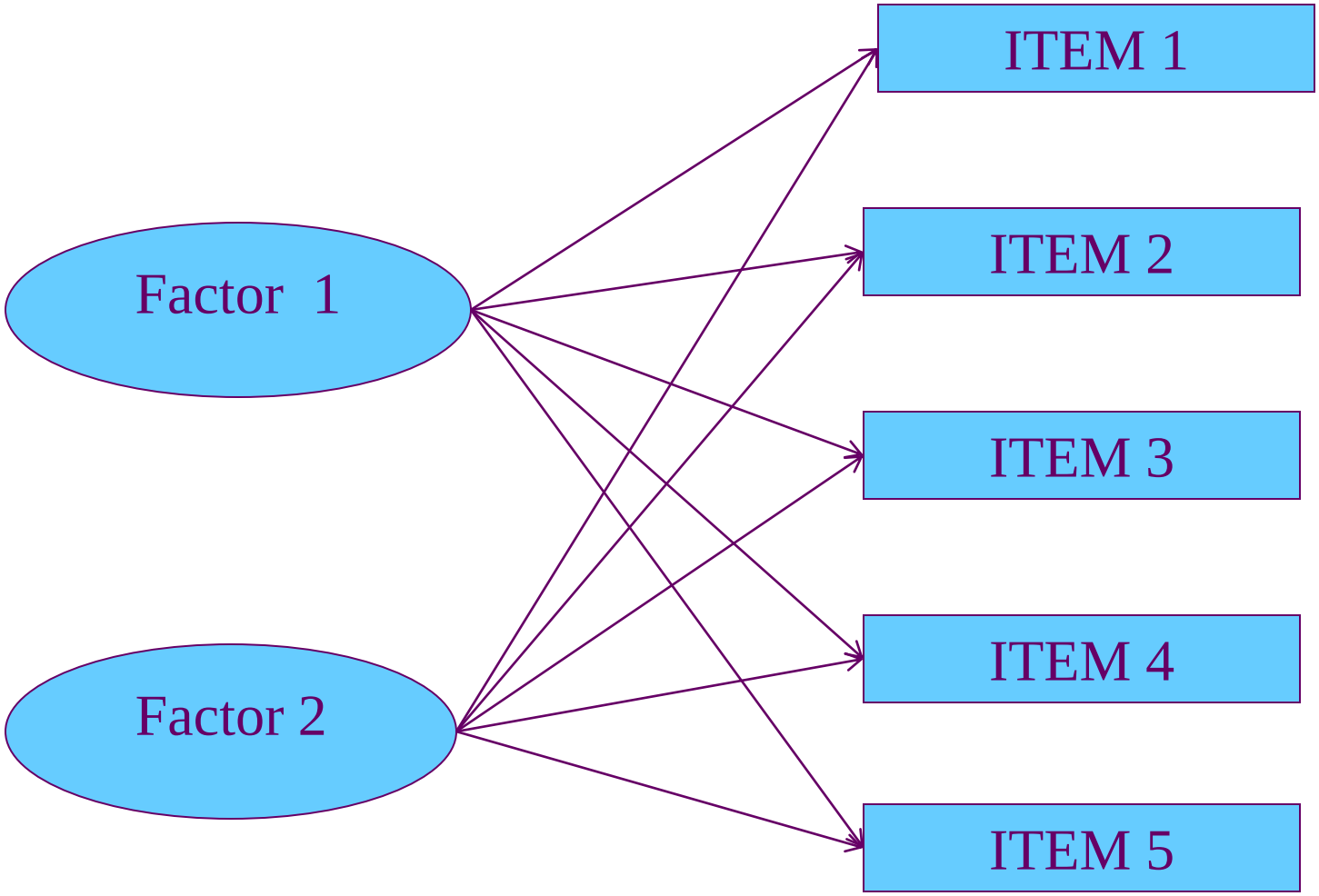
- Factor analysis is a collection of methods used to examine how underlying constructs influence the responses on a number of measured variables.

- Exploratory factor analysis (EFA) attempts to discover the nature of the constructs influencing a set of responses.

PCA Model



Common Factor Model



Hence…

- Use EFA when you are interested in making statements about the factors that are responsible for a set of observed responses.
- Use PCA when you are simply interested in performing data reduction.

Myths on Assessment

- (5) Examination of differences in observed scores is a sufficient basis for concluding that 2 or more groups differ

This is not accurate because…

- Differences between groups could be due to lack of measurement invariance in the measures used to assess the constructs to which groups are being compared
- Hence, there is a need to establish measurement invariance

On Measurement Invariance

- A major goal is to assess the lack of significant variance between the measurements of two or more groups in order to ensure that an instrument measures a construct in the same way in each group.
- When measurement invariance is established, we have confidence that the factor loadings of indicator variables on their respective latent factors do not differ significantly across groups.

- Teo (2011), 43-54

On measurement invariance

- Lack of measurement invariance may suggest that the meaning of the latent construct is not constant across groups or over time. Consequently, the meanings of the factors will differ substantially across groups although the same factor label may be used.

- Teo (2011), 43-54

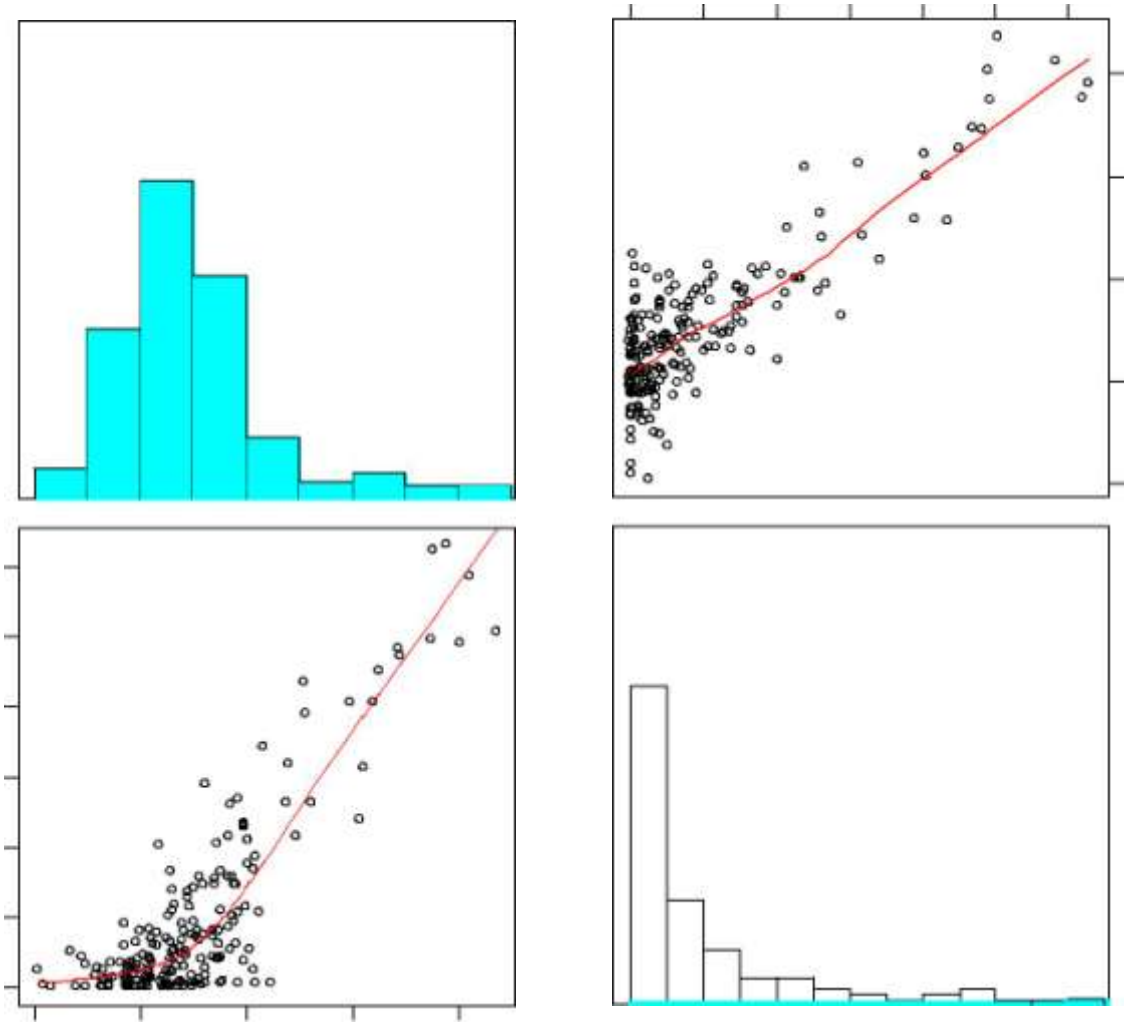
Myths on Assessment

- (6) Data should be normally distributed in t-test, ANOVA, MANOVA, and regression analysis

Fact

- It is the residuals (not the data) that should be normally distributed

- Cheung (2009).



- Cheung (2009).

Myths on Assessment

- (7) Norm is required for the interpretation of research data assessed by non-cognitive measures

Typical Beliefs

- One cannot interpret data without a norm
- One need to establish local norms to address norm interpretation

- Cheung (2009)

Typical Beliefs

- *One cannot interpret data without a norm*

  Yes, we can! Not all measures have norms

Typical Beliefs

- *One need to establish local norms to address norm interpretation*

What is important is to establish reliability and validity in one's sample

Likert Scale: Myths and Facts

- Questions about the Likert scale:
  - Are data from Likert scale ordinal or interval nature?
  - Can we use parametric statistics on data gathered through Likert scale?

Likert Scale: Myths and Facts

Strongly Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Strongly Agree
1	2	3	4	5

- *Perspective 1:*

- Data from Likert scale is ordinal as the difference between two points on a scale isn't necessarily the same as the difference between other two points. Hence, means cannot be computed.

Likert Scale: Myths and Facts

Strongly Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Strongly Agree
1	2	3	4	5

- Perspective 2:

- Data from Likert scale is ordinal but we can treat the sum or average of many Likert items as continuous data. Hence, means and standard deviations can be computed.

Item	SD	D	A	SA
I1	4	3	2	1
I2	4	3	2	1
I3	4	3	2	1
I4	4	3	2	1
i5	4	3	2	1

- Perspective 3:
- Data from a Likert scale is quasi-interval

- Perspective 4:
- The typology of Stevens (1946) is not accurate
- Alternate typologies: Chrisman (10), Mosteller & Tukey (6)

What to Do?

1. Adopt any of the perspective, analyze your data and be ready to justify

2. Researchers should consider how respondents perceive the response scale. If the scale is perceived as equidistant, parametric methods can be used. Otherwise, use non-parametric methods (Lant, 2013)

3. Do not use integers in the Likert scale

4. Use Rasch modelling to convert the "ordinal data" to interval data

THANK YOU FOR LISTENING!!!