



# **Value-added Assessment: Challenges & Pitfalls**

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# Learning Outcomes

**At the end of this workshop, you will be able to ...**

- Develop a better understanding of value-added assessment:
  - Why do we care about value-added assessment?
  - What can be value-added measures? And how can value-added scores be obtained?
  - How can value-added assessment be implemented? What is required for its implementation? What are the challenges? What may be the pitfalls in using VAA?
- Develop a preliminary plan for value-added assessment for your own working environment

# What is value-added assessment?



Swimming class

Week1	0	0	0	1	2
Week10	9	8	10	10	10

**Who is the most successful student?**

Measure 1: student achievement

Measure 2: growth



# What is value-added assessment?

- Two measures of student learning:

Measure 1: student achievement

Measure 2: growth

- The value-added approach to assessment takes into account the level at which students first entered the academic program, and focuses on their growth rather than the absolute level of student achievement.

# Applications of value-added assessment

- Value-added assessment can be used to measure
  - (1) the progress in student learning;
  - (2) how much an “environmental variable” has contributed to student learning (e.g., teacher effect; program effect; school effect etc.).

# Why value-added assessment?

- Accountability
- Requested by various stakeholders
- Represents a perspective of learning outcomes assessment
- Represents a way of measuring the quality of post-secondary education
- ... ..

# VAA-Related Literature

- **Literature in K-12 education:** teacher effect/effectiveness; value-added modeling (e.g., OECD, 2008; Schafer, et al., 2012).

***Value-added models*** are “a class of statistical models that estimate the contributions of schools to student progress in stated or prescribed education objectives (e.g. cognitive achievement) measured at least two points in time” (OECD, 2008, p. 49).

- **“college impact” literature**

- Feldman and Newcomb (1969): *Under what conditions have what kinds of students changed in what specific ways?*
- Astin (1991): “talent development”
- Pascarella & Terenzini (1991; 2005):

*What evidence is there that individuals change during the time in which they are attending college? (“change during college”)*

*What evidence is there that change or development during college is the result of college attendance? (“net effects of college”)* <sup>7</sup>

# VAA-Related Literature

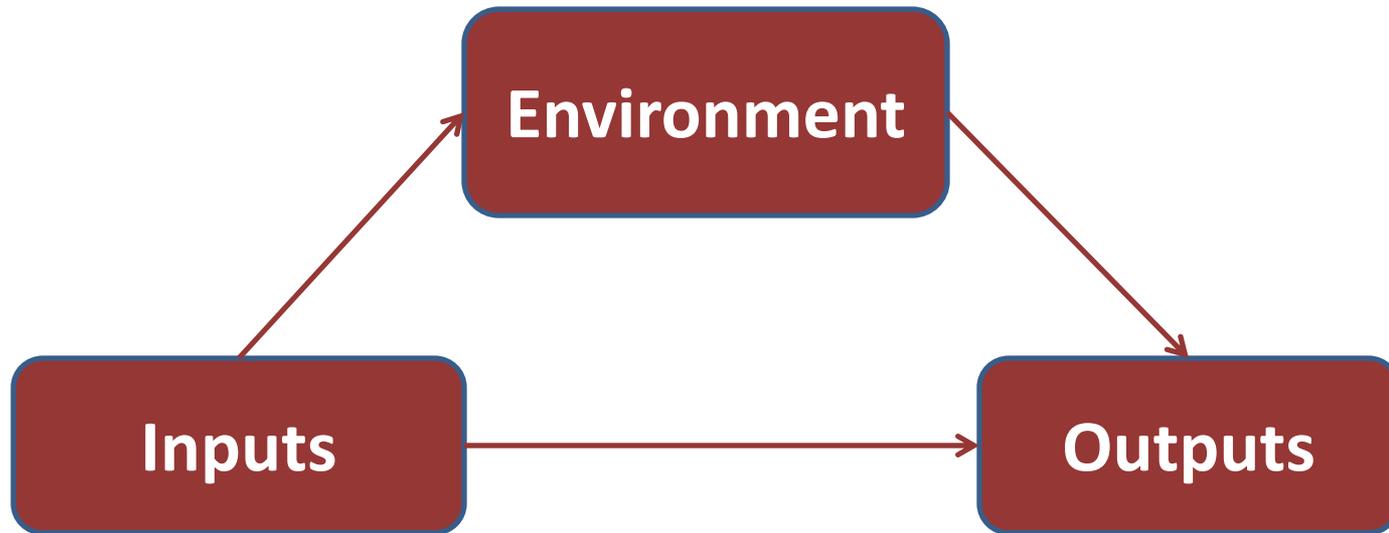
- **Globally:** the Assessment of Higher Education Learning Outcomes (AHELO) project - the value-added measurement strand

***Value-added*** is defined as “the contribution of HEIs to students’ outcomes, or ‘learning gain’, after taking into account the students’ incoming abilities” (Tremblay, Lalancette, & Roseveare, 2012, p. 95).

- **In Canada,** Evers & Gilbert (1991): *Outcomes assessment: How much value does university education add?*

# Conceptual Framework for VAA

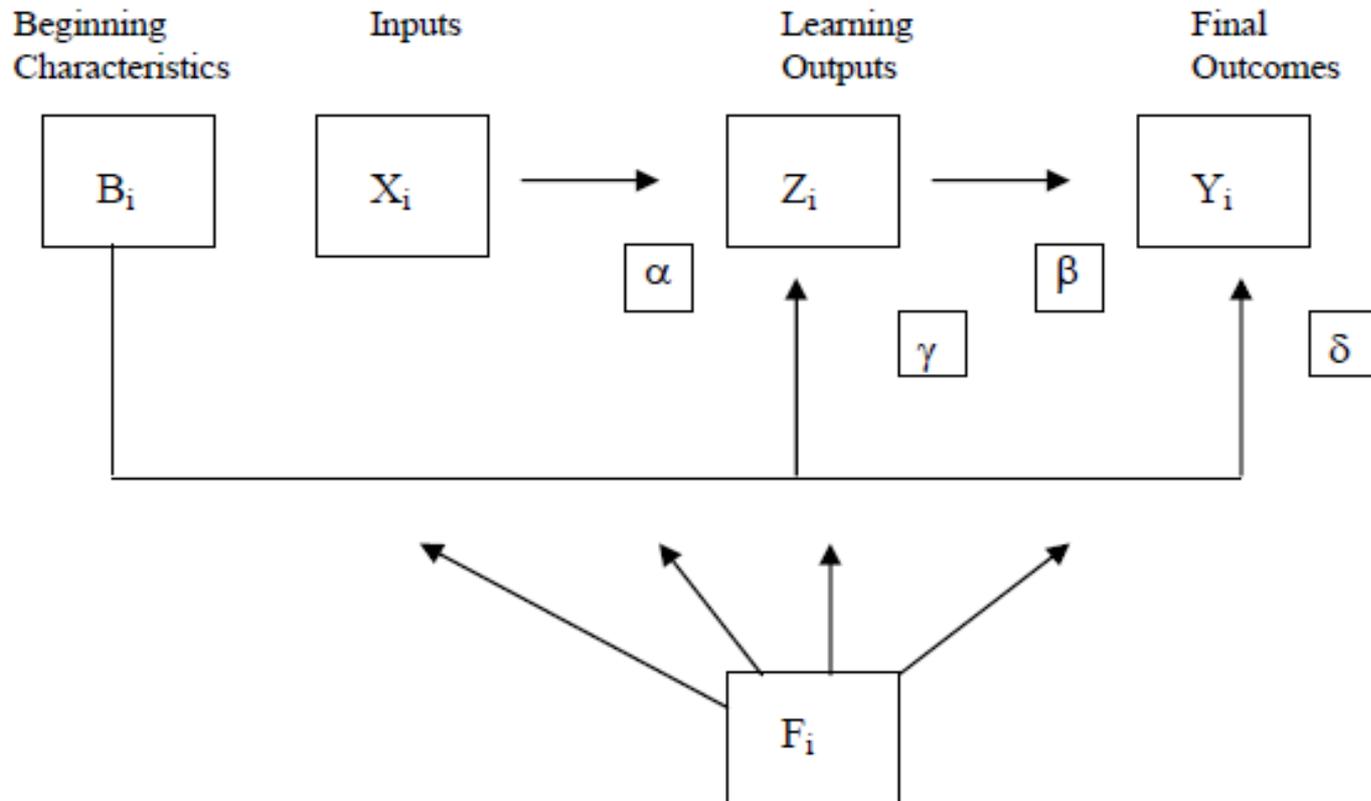
Astin's I-E-O model for assessment



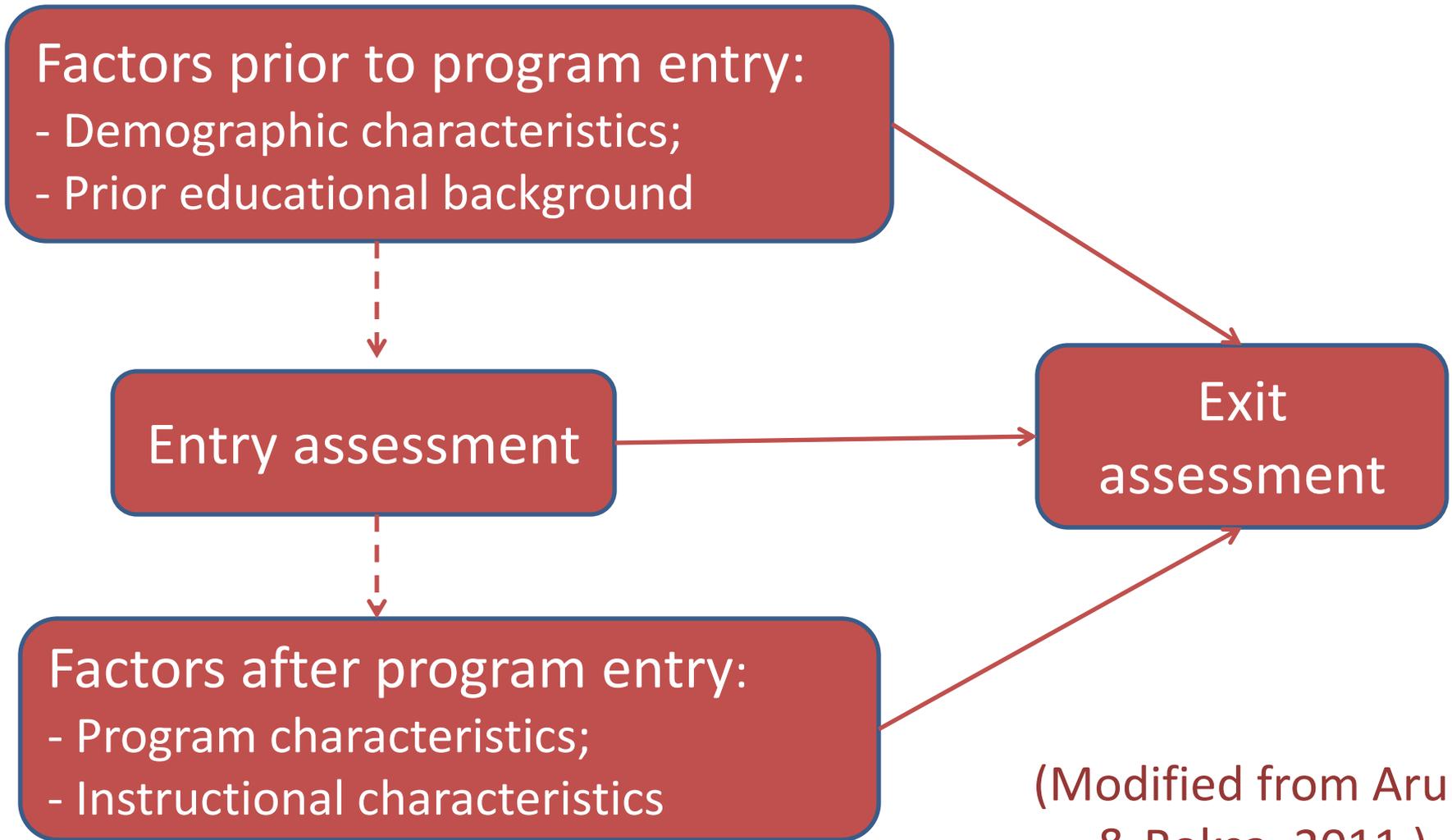
# Conceptual Framework for VAA

Finnie and Usher (2005)

Figure 1 - A Structural Model of Quality in Higher Education



# Conceptual framework for VAA



(Modified from Arum & Roksa, 2011<sub>11</sub>)

# How to obtain value-added scores?

**Two applications of value-added assessment: to measure**

- (1) the progress in student learning;
- (2) how much an “environmental variable” has contributed to student learning (e.g., teacher effect; program effect; school effect etc.).



**Two types of value-added scores:**

- (1) Student value-added scores;
- (2) Teacher/school/program value-added score

# How to obtain student value-added scores?

## (1) self-reported gains

*To what extent has your experience at this institution contributed to your knowledge, skills, and personal development in the following areas? (very much; quite a bit; some; very little)*  
(NSSE)

*In thinking about your college or university experience up to now, to what extent do you feel you have gained or made progress in the following areas? (very much; much; some; very little)* (CSEQ)

# How to obtain student value-added scores?

**(2) Gain scores obtained from a repeated measure in a longitudinal design:** collecting data at both entry and exit levels and directly measuring learning outcomes

e.g., Wabash National Study of Liberal Arts Education;

Collegiate Learning Assessment

# How to obtain student value-added scores?

- (1) Self-reported gains;**
- (2) Gain scores obtained from a repeated measure in a longitudinal design;**
- (3) Gain scores obtained from the same measure in a cross-sectional design**  
e.g., Tam (2010). Using students' self-reported gains as a measure of value-added

# Challenges in building an appropriate database

- Extensive data that link student records over time:

Data components include (OECD, 2008):

- Student assessment data;
- Student-level contextual information
- School-level information

# Unit of Assessment

- Course-level assessment
- Program-level assessment
- Institution-level assessment

# Currently used instruments in Canada

Student Surveys	Sponsors	Outcomes Measures
National Survey of Student Engagement (NSSE)	Indiana University Center for Postsecondary Research	<b>Student engagement; self-reported gains</b> [first-year & fourth-year students]
The Canadian University Survey Consortium (CUSC)	Canadian University Survey Consortium	<u>Growth and development</u> ; satisfaction with university education; financing education; plans after graduation
National Graduates Survey (NGS)	Statistics Canada	<b>Occupational competencies:</b> Employment outcomes two years and five years after <b>graduations</b> .
Youth in Transition Survey (YITS)	Statistics Canada	<b>Occupational competencies</b> , including questions on postsecondary education and engagement and employment outcomes.
Canadian Graduate and Professional Student Survey	Canadian Association of Graduate Studies	<b>Quality of student experiences</b> of current graduate students
Ontario Colleges KPI surveys	Ontario	Student <b>satisfaction</b> , graduate satisfaction & employer satisfaction
Ontario University Graduate Survey	MTCU/Ontario University Applications Centre	<b>Employment outcomes</b> of graduates six months and two years after graduation
Baccalaureate Graduates Survey (BGS)	B.C. Stats / Student Outcomes project	Target at baccalaureate <b>graduates</b> two years and five years after graduation on program evaluation, <u>skill development</u> , usefulness of skills acquired from program in job, further education since graduation, debt incurred and outstanding.
Alberta Graduate Outcomes Survey	Alberta Advanced Education and Technology	Target recent <b>graduates</b> on satisfaction, financing, transition, and employment
Graduate Follow-up Survey	Maritime Provinces higher Education Commission (MPHEC)	Target recent <b>graduates</b> on employment outcomes; mobility since graduation; education experience after graduation; financing education.

# Activity: Designing your VAA

- What is the purpose of your value-added assessment (VAA)? What question may get answered by a VAA project?
- What data sources are currently available? What type(s) of data need to be collected?
- How can the data sources be used?

# Pitfalls of VAA

- In K-12 literature, doubts have been raised about the accuracy and validity of teachers' value-added scores. (Hill, et al., 2011; Misco, 2008).
- Measurement: Reliability of gain scores?
- Limited explanatory power

# Summary

**To conduct value-added assessment, consider**

...

- Use of a direct measure or an indirect measure;
- Research design: cross-sectional or longitudinal design;
- Value-added assessment of student learning or the effect of educational experiences (e.g., teaching effectiveness)
- The importance of a longitudinal data base
- Unit of assessment

***Thank you for your participation!***

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