



Lean Learning Value Stream[©]

Harmonizing Lean Thinking Manufacturing Principles in Teaching and Learning

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Biography

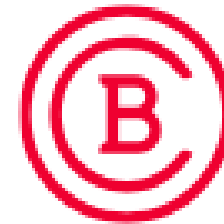


Education

- B.S. in Secondary Education
- M.S.A in Business
- PhD in Higher, Adult, and Lifelong Learning

Work Experience

- Baker College – Business Online Program Director
- Apple Corporation – 2017-2018
- General Motors Corporation (1982-2017)
 - Engineering Manager
 - Expertise: Leadership, Change Management, Project Management, Workshop facilitation, Lean Leadership, Experimental Materials Management, Engineering and Test Laboratory Processes



**Baker
College**



Understanding Value Stream within the Manufacturing Industry

Raw Material →



→ Customer

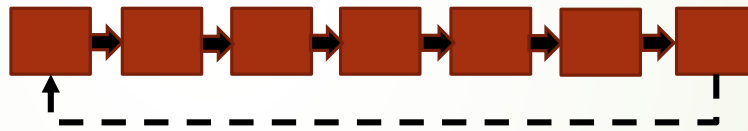
How do we utilize lean principles and apply to teaching and learning?

Instructor



- Provider of value
- Owner / designer of the Lean Learning Value Stream (LLVS)
- Provide feedback

Lean Learning Value Stream ©



Students / Customer



- Receiver of the LLVS output
- Active participant in the LLVS
- Assesses the value
- Provides feedback
- Transformed



Lean Learning Value Stream[©]

- The Lean Learning Value Stream[©] (LLVS) is a process developed to utilize for teaching and learning model application. The LLVS is used as a framework for structuring a learning event that ensures the following:
 - No waste
 - Value as defined by the student
 - Continuous flow
 - Feedback loops



Defining Learning Value

- ▶ How would you define value for the student?
 - ▶ Multiple types of students
 - ▶ Recent High School graduates
 - ▶ Working adults (returning to school)
 - ▶ Working adults (in job training)
 - ▶ Different kinds of value
 - ▶ Credit or grade
 - ▶ Skill set addition
 - ▶ Learning
 - ▶ Career movement
 - ▶ Institutional value through student learning outcomes
 - ▶ Current & Future Employers (Students of Choice)

Scaffolding versus LLVS

Scaffolding	LLVS
Focus on build of content	Focus on value
Push based	Push & Pull based
No emphasis on waste	Waste focus
Flow stop/start	Continuous flow
Value defined by instructor	Value defined by student

Scaffolding involves helpful, structured interaction between an adult and a child with the aim of helping the child achieve a specific goal. '[Scaffolding] refers to the steps taken to reduce the degrees of freedom in carrying out some task so that the child can concentrate on the difficult skill she is in the process of acquiring' (Bruner, 1978, p. 19).

Resource: <https://www.simplypsychology.org/bruner.html>

Characterizing Waste in a Learning mindset

Waste		Definition
Defects	Low Grades Poor Responsiveness	Information, products and services that are incomplete or inaccurate
Overproduction	Redundancies	Making more of something - making it earlier or faster- than it's needed
Waiting	Slow Feedback	Waiting for information, equipment, materials, parts or people
Non-Utilized Talent	Not using skills, creativity, experience	Not properly utilizing people's experience, skills, knowledge or creativity
Transportation	Delivery of information is not in proper sequence	Unnecessary movement of materials, information or equipment
Inventory	Information provided superfluous and not value added	Accumulation of parts, information, applications, etc. beyond what is required by the customer
Motion	Misdirection, faulty instructions	Any movement by people that is not of value to the customer
Extra-Processing	Lack of direct inputs and feedback causing rework	Any steps that do not add value in the eyes of the customer



Continuous Learning Flow

- How do you ensure Continuous Flow?
 - Eliminate waste
 - No inventory (no unused information or technology)
 - Balance of action and learning feedback
 - Forward movement & momentum towards learning outcome achievement

Formative Feedback

- How do you develop feedback loops in the LLVS?
 - Student Action
 - Instructor Feedback
 - Student Response
 - Instructor Feedback
 - Student Response / Learning Outcome Achieved



Making Paper Airplanes



Handout



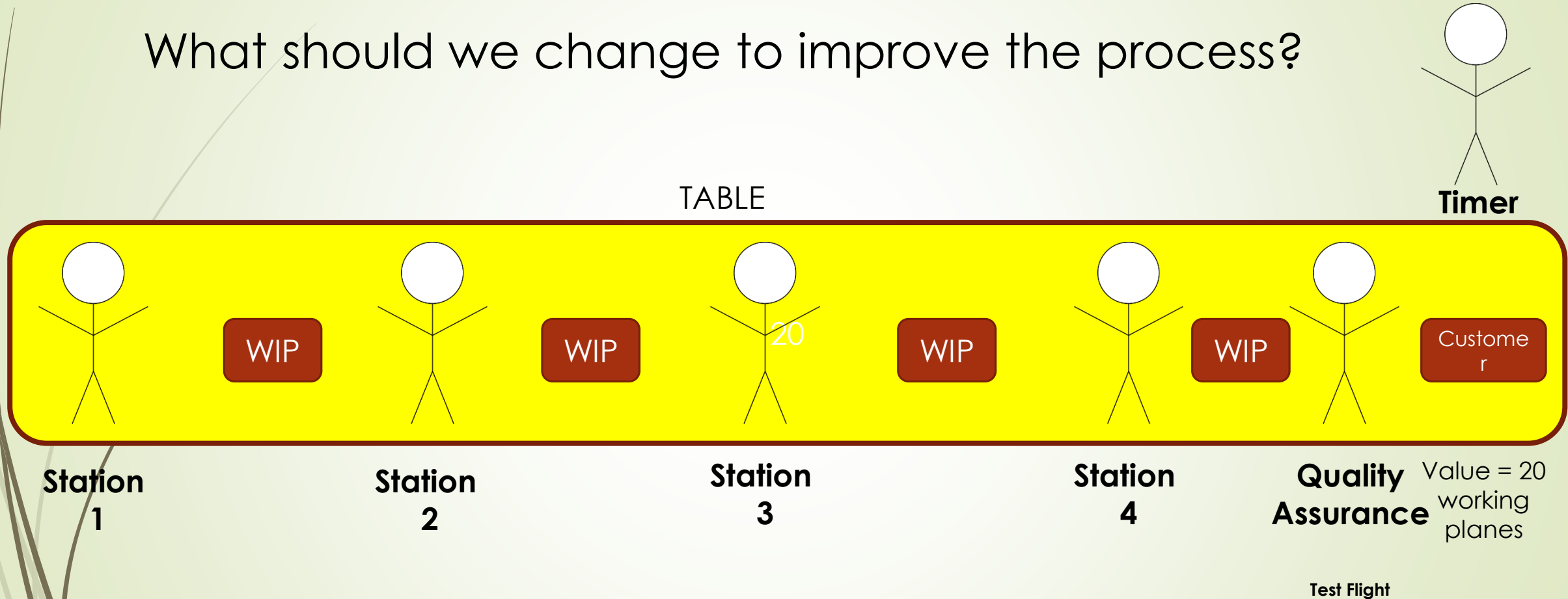


Observations

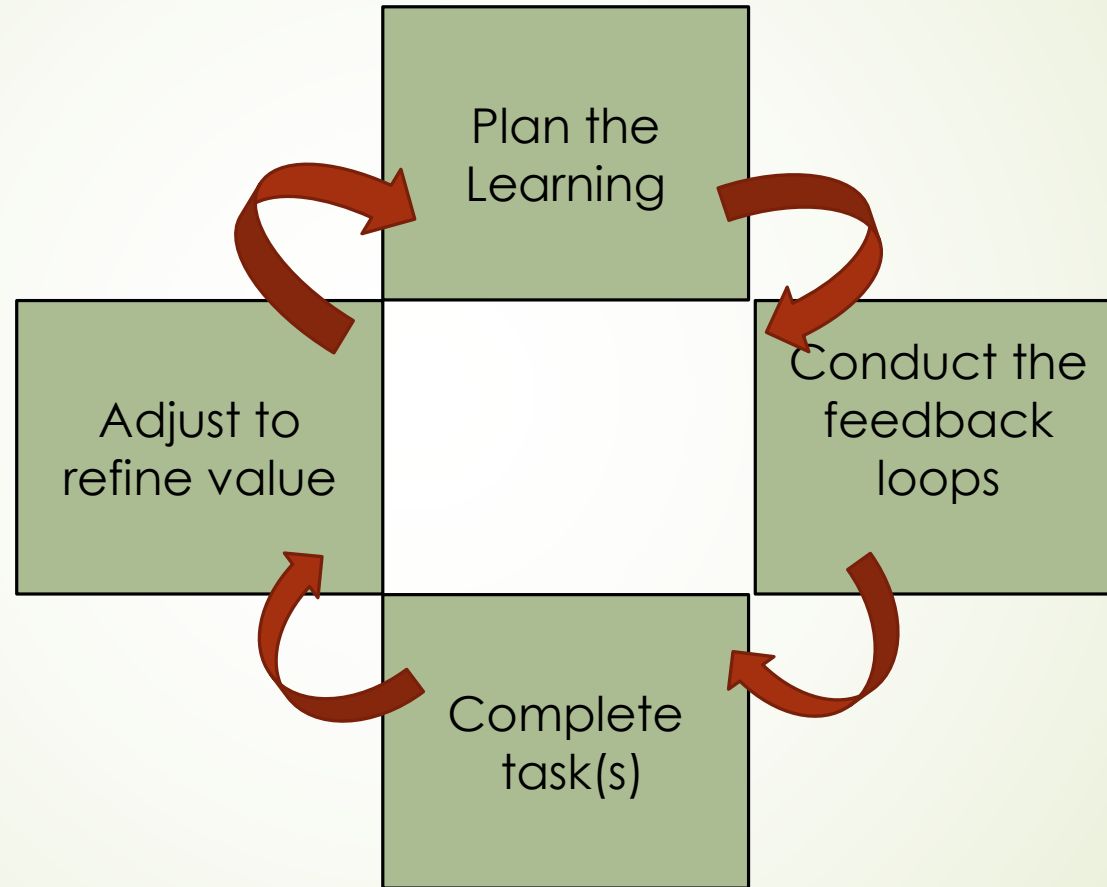
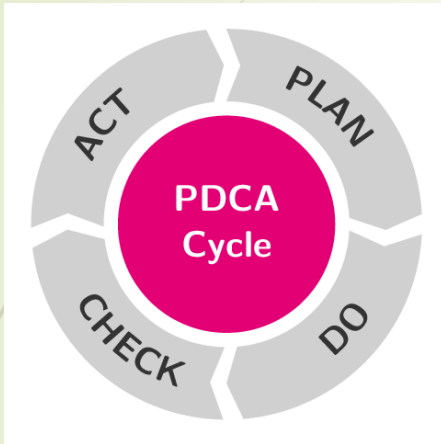
Waste	Flow
Feedback / Value	Instruction

Airplane Assembly – Round 2

What should we change to improve the process?



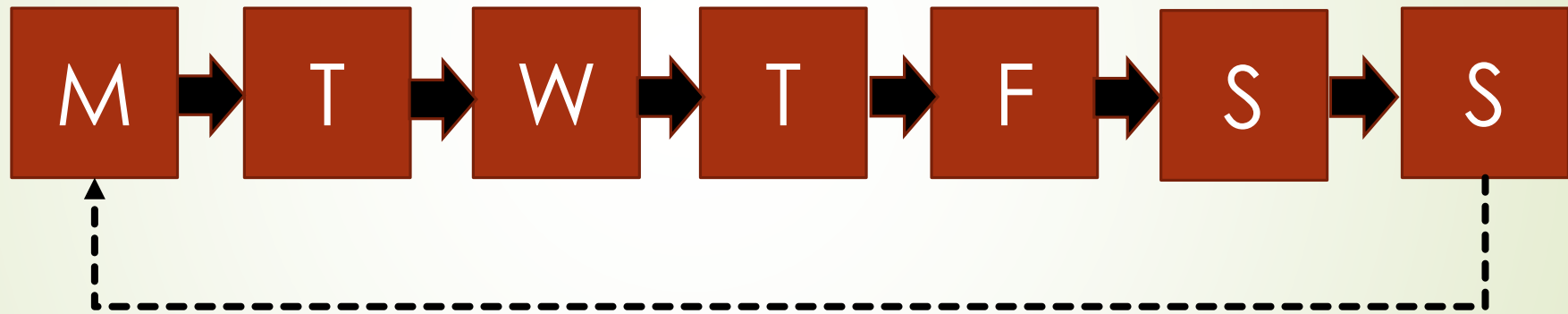
How do we use LLVS for Teaching & Learning?



Apply to a weekly discussion

Lean Learning Value Stream

Plan
The
maturation
Student
Learning
Outcomes
(SLO's)



Value:
Student
Learning
Outcome
Mastery
(SLO)

Introduce
Question or
Topic

Receive
Responses

Assess
With
formative
feedback

Probe &
Inquiry to
Push
critical
thinking

Ensure
achievement
Of SLO and
develop
additional
relationship

How to create your LLVS?

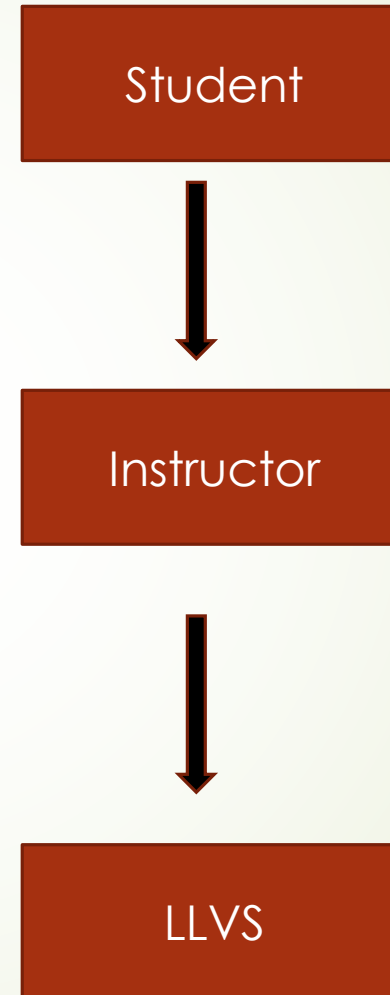
Start with the student (customer)

- What is the desired outcome?
- What is considered of value for the student?

Next consider you as the instructor (provider)

- How will you ensure outcome?
- How will add value?
- How will you sequence tasks, discussions, feedback?
- How will you check/assess for understanding?
- Can technology be used for efficiency?
- Have you eliminated any waste that could occur?

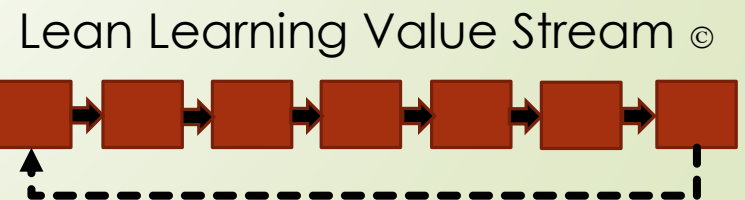
Define the steps to delivery



Suggestion: Select a previous assignment or engagement value stream and define how it transpired. How would you change it?

Wrap Up

- Lean Thinking principles provide a new lens to view and construct learning
- Starts with the end in mind – outcome and value for the student
- Eliminate waste
- Applicable for course and task design
- Tools to use for planning your LLVS
 - Trello
 - Visio
 - LucidChart



Trello Example

The screenshot shows a Trello board interface with the following elements:

- Navigation:** Home icon, Boards tab, Search icon, Trello logo.
- Board Info:** Board name "Lean Learning Value Stream", star icon, "Personal" label, lock icon, "Private" label, profile picture, and "Invite" button.
- Columns and Cards:**
 - Planning:** Review Learning Outcomes and Value, Understand student level and needs, Develop sequence of tasks (scaffold), + Add another card.
 - Doing / Tasks:** Step One, Step Two, Step Three, Step Four, Step Five, + Add another card.
 - Checks for Understanding:** Extend probing questions, Review student feedback, Check to outcomes and value, + Add another card.
 - Actions / Corrections:** Modify assignment, Extend assignment, Continue assignment, Correct Plan, + Add another card.



Questions?





Thank
You



L **ean**

L **earning**

V **alue**

S **tream**©