

IBM Lean Six Sigma Training: Delivering Blended Learning across a Global Enterprise

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The IBM logo, consisting of the letters 'IBM' in a bold, black, sans-serif font with horizontal stripes, is located in the bottom right corner of the slide.

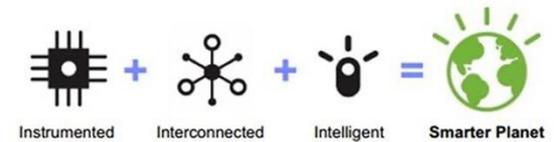
MBB Webcast Series Sponsor: MoreSteam.com

- Founded in 2000
- Trained 435,000+ Lean Six Sigma professionals
- Served over 2,000 corporate customers (including 50+% of the F500)
- First firm to offer the complete Black Belt curriculum online
- Courses reviewed and approved by ASQ and PMI
- Academic Partnerships with Ohio State University, Cal Poly and George Washington University

Select Customers:



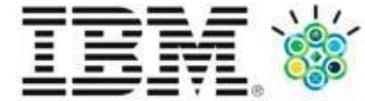
Today's Program



- Welcome
- Introduction of MBB Webcast Series
 - Ellen Milnes, MoreSteam.com
- IBM Panelists:
 - Michael Testani, Don Sobeski, Luca Bencini
- Open Discussion and Questions



About Our Panelists



Michael Testani is a Business Transformation and Learning Consultant for IBM's Corporate Learning organization. He is the Program Manager for IBM's Global Process Excellence learning initiatives and the Course Manager of their Lean Six Sigma Black Belt worldwide learning offering.

Don Sobeski is a Business Transformation and Learning Consultant for IBM's Corporate Learning organization. He is the Course Manager for IBM's Lean Six Sigma Green Belt worldwide learning offering.



Luca Bencini recently retired from IBM where he was a Senior Managing Consultant and is currently delivering IBM's virtual Black Belt course.

Presentation Outline

- Background on IBM
- LSS history within IBM
- LSS course structure and evolution
- Training philosophy, principles and practices
- Current course structure: a Global Blended Learning approach
- Adaptation of the MoreSteam Sigma Brew case study in a virtual environment
- Blended Learning Benefits & Lessons Learned

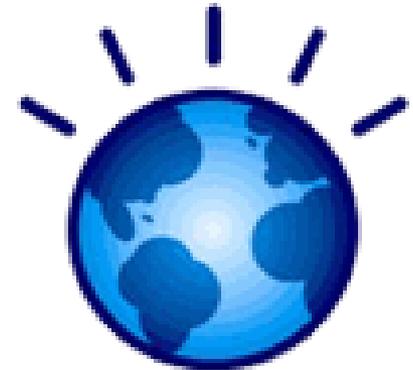




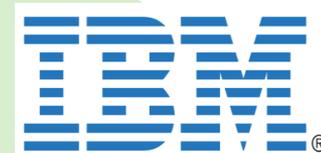
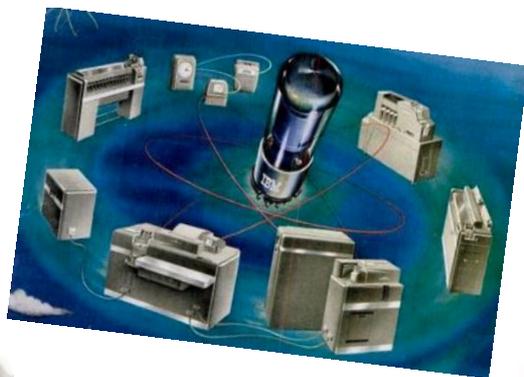
International Business Machines

“More than a century of making the world a smarter place”

- An American **multinational technology** and **consulting corporation**, with headquarters in Armonk, New York, United States.
- The company was founded in 1911 as the Computing Tabulating Recording Company (CTR) through a merger of three companies: the Tabulating Machine Company, the International Time Recording Company, and the Computing Scale Company. CTR adopted the name International Business Machines in 1924
- IBM manufactures and markets computer hardware and software, and offers infrastructure, cloud hosting and consulting services in areas ranging from mainframe computers to nanotechnology.
- 2013 year-end worldwide operations:
 - ❖ Revenue: \$99.7 billion
 - ❖ Net income: \$16.4 billion
 - ❖ Total assets: \$126.2 billion
 - ❖ Number of employees: **431,212** working in **170** countries



100 years of IBM transformation and evolution



IBM Notables



- In 2012, *Fortune Magazine* ranked IBM the **No. 2 largest U.S. firm** in terms of number of employees (435,000 worldwide), the No. 4 largest in terms of market capitalization, the No. 9 most profitable, and the No. 19 largest firm in terms of revenue.
- IBM has 12 research laboratories worldwide and, as of 2013, has held the record for **most patents** generated by a company for 20 consecutive years.
- Its employees have garnered 5 **Nobel Prizes**, 6 Turing Awards, 10 National Medals of Technology, and 5 National Medals of Science.
- Notable inventions by IBM include the automated teller machine (**ATM**), the floppy disk, the hard disk drive, the magnetic stripe card, the relational database, the Universal Product Code (**UPC**), **Fortran** programming language and structured query language (**SQL**), **SABRE** airline reservation system, Dynamic Random Access Memory (**DRAM**), and **Watson** artificial intelligence.

IBM is known as a leader in **technology** and **innovation**.
About 10 years ago, IBM began a concerted effort at achieving
'Process Excellence'

IBM Process Excellence History



The quality philosophy was part of IBM from early days.

- IBM Rochester, AS/400 Division won **Malcolm Baldrige** National Quality Award in 1990.
- In 1992 IBM was invited to participate in the **Six Sigma Institute** by Motorola to further develop the Six Sigma approach to problem solving
 - ❖ IBM launched Six Sigma as a **Market Driven Quality** Initiative with the key theme, “The customer is the final arbiter”.
- In October of 2002, IBM acquired PwC Consulting that included the largest **Lean Six Sigma Consultancy** group and obtained significant capability to offer DMAIC, DFSS and Lean Six Sigma consulting through our Global Business Services.
- IBM also launched a product-focused **Design for Six Sigma** effort for new product development in Systems Technology Group (STG) in 2003.
- IBM adopted **Lean Development** techniques through application of AGILE to software development.
- More recent effort on **Lean Six Sigma** (LSS) initiated as part of our overall Business Transformation effort from the CIO office with the establishment of a centralized Program Management Office (PMO) in 2006.

In the words of T. J. Watson, Sr., IBM Founder, *“I want to thank the factory workers for the constant improvement in the **quality of our products**. That means much to the salesmen. It saves them time for our service force. When our machines work perfectly at all times our **customers are always satisfied**, and a satisfied customer is our most valuable advertisement.”*



IBM Business Challenges early 2000's

- Business Units are using a **variety of approaches** to process and quality improvement
- Business Units are using a variety of **learning programs**
- The **level of engagement** in process and quality improvement efforts vary across Business Units
- Shifting to a process focus requires a **cultural shift** for a technology company
- Need to make **process improvement** part of the IBM culture (DNA)...
- Education is **not always available** when needed and needs to be specialized by job role

*For IBM to remain **competitive in the marketplace**, the learning we provide our employees must be targeted to skill sets that identify **operational efficiencies and drive quality improvement.***



The Value of Process Excellence to IBM

The strategic intent of IBM's Process Excellence program is to:

- Enable IBM to become an **efficient and effective** globally integrated enterprise by identifying and improving core business processes
- Provide IBM with proven methodologies to take out **waste**, improve the **effectiveness** of core processes, and intelligently **design** new processes where there are none
- Provide a full-time **corporate program staff** to support Lean Six Sigma deployment across the global IBM enterprise
- Transfer Lean Six Sigma skills to IBM's business areas **around the world**

*A global **LSS skills enablement** effort provided significant challenges to the IBM Talent organization to design a **learning program** that is **effective, affordable and broadly available** to all IBMers*

Lean Six Sigma evolution to new course structure

IBM's Lean Six Sigma education was originally delivered as 'traditional' face-to-face classroom: Green Belt (one week) and Black Belt (four weeks over 4 months) that transitioned to a blended learning approach

Driving Forces for changing the face-to-face model

- Education not always available when needed
 - ❖ Training was U.S. centric
 - ❖ Growing global demand
 - ❖ Insufficient classes being scheduled
 - ❖ Lack of BB/MBB facilitators to meet classroom demand

- Classroom training provided a good foundation, but...
 - ❖ Too much time away from work
 - ❖ Increased travel expense to meet global demand
 - ❖ Limited ability to practice & apply the skills learned



Growing demand



The Lean Six Sigma Education Program follows the Bloom Taxonomy... cognitive, affective, and psychomotor

➤ Master Black Belt (Thought Leader)

- ❖ Expert resource supporting executives
- ❖ Drive major strategic projects
- ❖ Coaches Black Belts and provides guidance to executives
- ❖ Typically a Full-time role

➤ Black Belt (Expert)

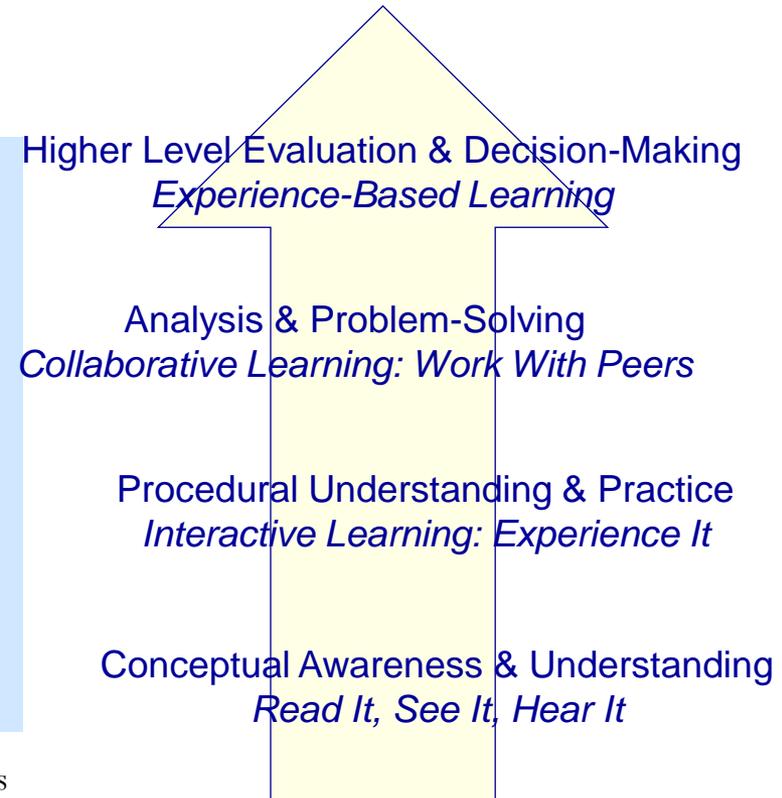
- ❖ Focused on 1 to 2 cross-functional projects
- ❖ Responsible for project success and sustainability of improvements
- ❖ Expertise in statistics and change management
- ❖ Typically a Full-time role

➤ Green Belt (Experienced)

- ❖ Focused on 1 project within their organization or expertise
- ❖ Contributes to project success and sustainability of improvements
- ❖ Department champions
- ❖ Normally work on Lean Six Sigma projects part-time

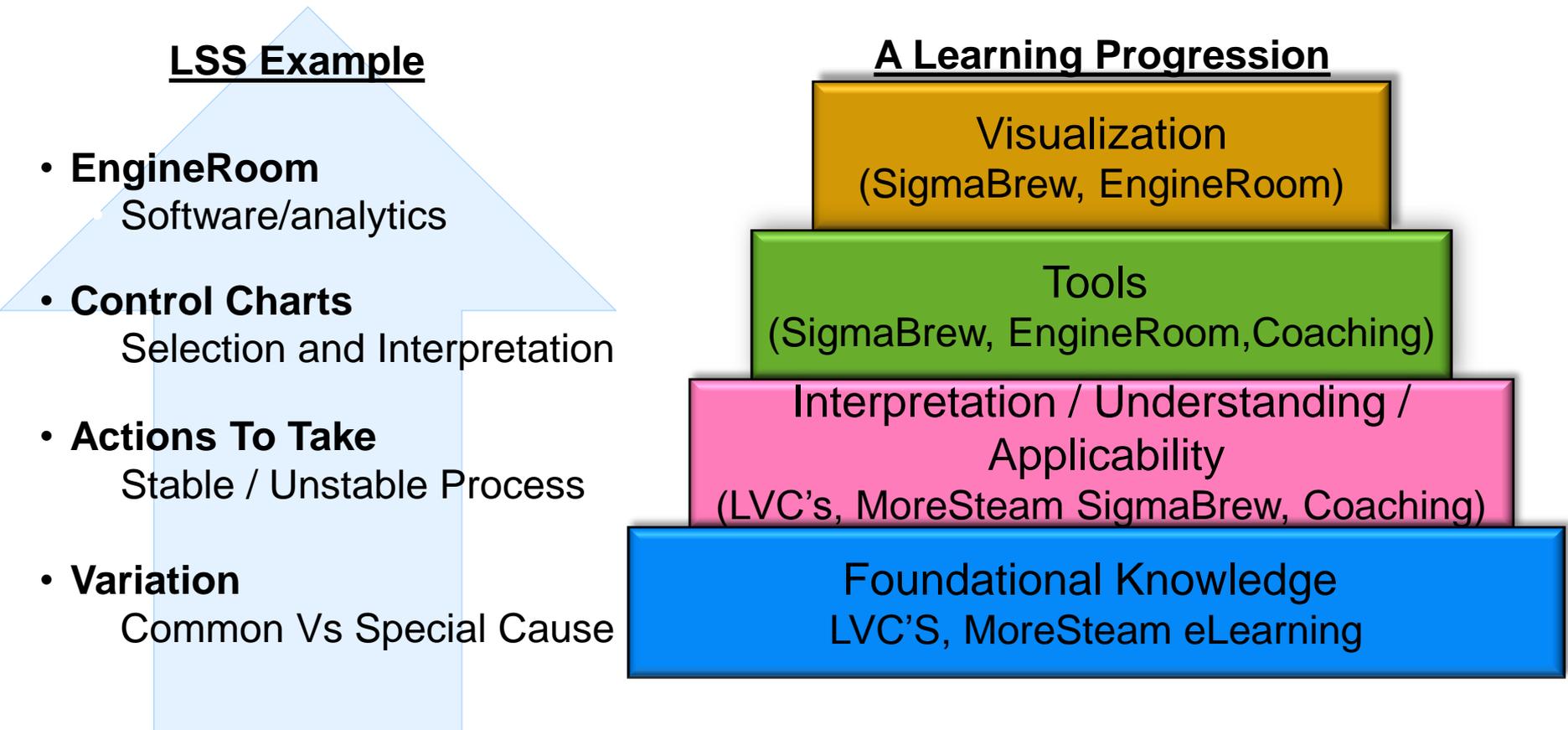
➤ Yellow Belt (Foundational)

- ❖ Support the project team with specific assignments
- ❖ Understands the basic LSS principles and a few fundamental techniques
- ❖ Normally work on projects part time

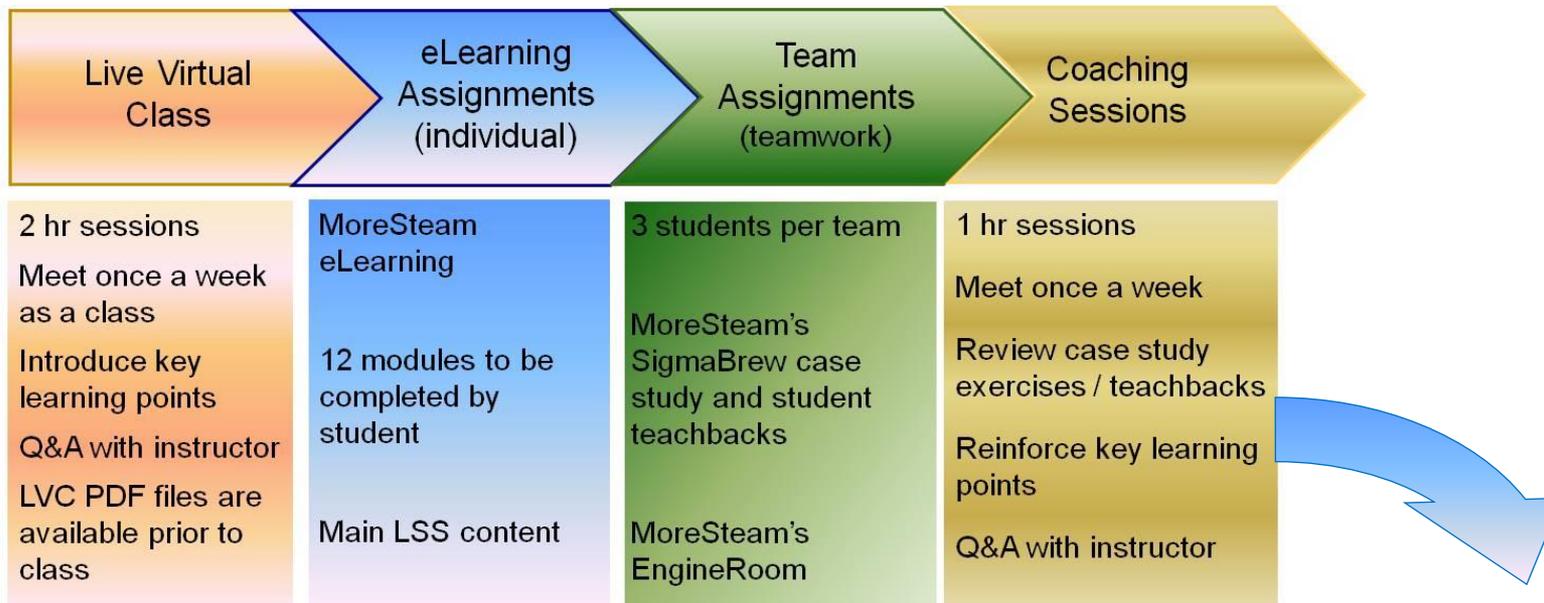


LSS Learning Model

The Lean Six Sigma Black Belt course builds upon foundational knowledge



Current course structure: A Global Blended Learning Approach



Lean Six Sigma Black Belt Class & Assignment Schedule

Week of	LVC	Topic	MoreSteam Reading (due)	Coaching Starts (due)
4-Aug	1	Course Introduction	N/A	Approach to coaching and address questions on course
11-Aug	2	Fundamentals of SS and Lean	Session 1: Introduction I-Starting a Project and Leading Teams (4)	Meeting on the "Introduction", Team governance.
18-Aug	3	Basic Statistics / Probability	Session 2: Introduction II- Lean Six Sigma Background (8.3)	Team Charter / Teachbacks
25-Aug	4	Introduction to Engine Room / Sigmaprew	No eLearning Due	Discuss Fundamentals / Teachbacks
1-Sep	Break			
8-Sep	5	Define I	Session 3: Introduction III- Measurement and Basic Statistics (5.75)	Homework Basic stats, Teachbacks
15-Sep	6	Define II	Session 4: Define I- Voice of Customer (6.55)	Homework Engine Room / SigmaBrew - Discussion
22-Sep	7	Measure I	Session 5: Define II- Mapping the Process (5.25)	Define Concepts and Teachbacks

The virtual class component is delivered via Blackboard Collaborate

The Blackboard environment allows for a synchronous environment where all students are logged on at the same time and use Voice over IP (VoIP) to simplify class recordings and requiring only one connection to the virtual classroom.

Audio

Student Emoticons

Participant window and permissions

Student & Instructor Chat

Markup Tools

Whiteboard (Presentation area)

Q&A and Quizzes help reinforce key learning points

Blackboard Collaborate – SIX SIGMA CLASSROOM - D

File Edit View Tools Window Help

AUDIO & VIDEO

Talk Video

PARTICIPANTS

Six Sigma ... Moderator

MAIN ROOM (1)

Six Sigma Instructor Moderator (You)

Teleconference

Alex Chu

Bonnie Butler

Georgios Chaloulos

JR

Kevin Telford

Lenny 1

CHAT

Alex Chu joined the Main Room. (11:19 PM) -

Lenny 1 joined the Main Room. (11:19 PM) -

Alex Chu 7:10 PM
OK, that's my questions

LVC 1-7 7:10 PM

Quick Quiz ?

In the control chart shown here, we are monitoring the check-in times at a kiosk at an airport. Which of the following **could be** examples of the 2 special causes of variation highlighted?

A. 1 → No Identification Card, 2 → Self Check In Kiosk user

B. 1 → Baggage over 50 lbs, 2 → Internet check-in/bag drop only

C. Both A&B could be the reasons for special cause variation

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The virtual class is still a very collaborative environment where ideas, knowledge, and work are shared

MoreSteam's eLearning

- Main Lean Six Sigma Black Belt course content
- 12 online eLearning Sessions to be completed independently by each student



IBM Lean Six Sigma Black Belt - EngineRoom Course Map

Click on any topic to move from point to point within the course. You can move forward or backward at any time. The right "Time" column of the map will tell you estimated time to complete in hours.

You can return to your current page by clicking on the link, or by double-clicking on the "Back" button of your browser.

IBM Lean Six Sigma Black Belt - EngineRoom

Course Map

EngineRoom

Glossary

Grapevine

Instructor

My Account

Notes

Quiz Results

SigmaPedia

StatMaster

Templates

Toolbox

What's New

Workbook

Current course content: IBM Lean Six Sigma Black Belt - EngineRoom

Lesson	Topic	Status	Time (Hrs)
Session 1: Introduction I - Starting a Project and Leading Teams			
1	Introduction	Viewed	0.25
2	Note on IBM Course Curriculum		0.10
3	Getting Started - Project Initiation		0.10
4	Balanced Scorecard Toolset		1.10
5	Project Selection Toolset		0.70
6	Project Charter Toolset		0.50
7	Project Planning & Tracking Toolset		0.65
8	Leadership Thinking		0.10
9	Robot Leadership		0.20
10	Fueling The Improvement Engine		0.30
11	Leadership Characteristics		0.40
12	Practice, Study and Reflection - Learning by Modeling		0.35
13	Leading Teams		0.45
14	Developing an Effective Team		0.30
15	Improving Team Development		0.40

Case Study Teams use MoreSteam's SigmaBrew Case Study



This SigmaSim[®] simulated project experience introduces students to a company called SigmaBrew - a large national chain of specialty coffee shops. SigmaBrew has experienced explosive expansion over the previous decade, and is starting to encounter increasingly troublesome growing pains, including operational problems that impact customer satisfaction. Meanwhile, the competitive environment has also become increasingly difficult, with new and sophisticated competitors on all fronts.

Teams of 3 students (meet with 2 case study teams = 1 coaching team)

- Ability to practice what you learned online and in class.
- Work in teams like an actual project.
- Build deliverables like those of an actual project between the virtual classes.

Coaching Teams

Coaching Teams

- Attendance to the coaching sessions is mandatory
- Case study assignments and student teach backs
- Each team shares / discusses their case study assignment deliverables with the instructor during their assigned weekly 1 hour coaching session.
- Through rotation during the course of weekly coaching sessions, each team member to lead case study discussion with instructor at least once.



Teach backs are a practice where the instructor asks the students to explain a concept or topic from the session. It allows the instructor to gauge the student's understanding of that material.



LSS BB Teach back example:

- ❖ Graphical vs statistical techniques
- ❖ Type 1 and Type 2 errors
- ❖ Practical vs statistical significance
- ❖ Confidence intervals
- ❖ Cause & Effect diagram
- ❖ Linear Regression

Students who are able to Teach Back are more likely to retain information because they must truly understand the material in order to teach it to someone else.

Benefits of Blended Virtual Learning Approach



- Delivers cost efficient and replicable education to a global diversified audience.
- Leverages collaboration technologies (e.g. Blackboard Collaborate) that bring people together virtually with experts and peers for effective learning.
- Maximizes the reach of coaches and experts (MBBs/BBs) without the expense and loss of productivity associated with travel.
- Maximizes the effectiveness of facilitator-led when the objectives are aimed at developing higher level knowledge and decision-making skills that typically involve case studies, role playing, and mentoring and coaching with experts.
- Encourages collaboration among participants to share lessons learned, promote enthusiasm and provide a network for the future.

IBM Lessons Learned

➤ Technology is required to make blended learning effective

- ❖ Virtual Classroom (BlackBoard)
- ❖ Class and Team Repository (Activities)
- ❖ Web screen/documents sharing (Coaching sessions)
- ❖ Analytical Software (Engine Room)
- ❖ Reliable internet connectivity

➤ Scheduling challenges with global audience

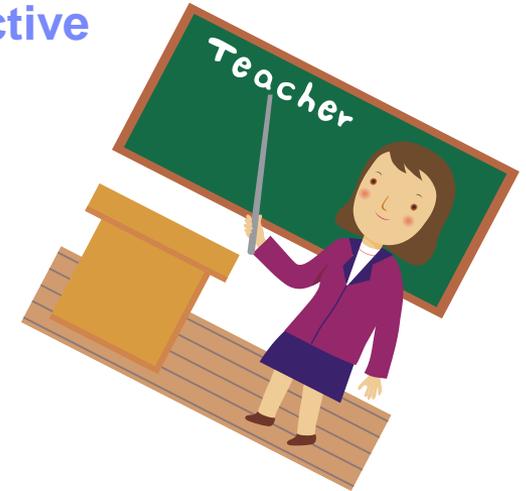
- ❖ Multiple LVC offered to accommodate as WW audience /time zones
- ❖ Case Study teams assign by 'similar' time

➤ Always be mindful of class logistics (integrating all components of the class)

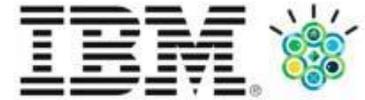
- ❖ Combining synchronous and asynchronous activities (teams, classes and eLearning)

➤ Factors critical for our blended learning success

- ❖ Active learning and participation is key to a student's success
- ❖ Guidelines for successful course completion (multi-dimensional)
- ❖ Instructor with deep LSS subject matter expertise and virtual learning facilitation
- ❖ Coaching & Office hours available for one-on-one mentoring and guidance is key



Questions



Don Sobeski



Michael Testani

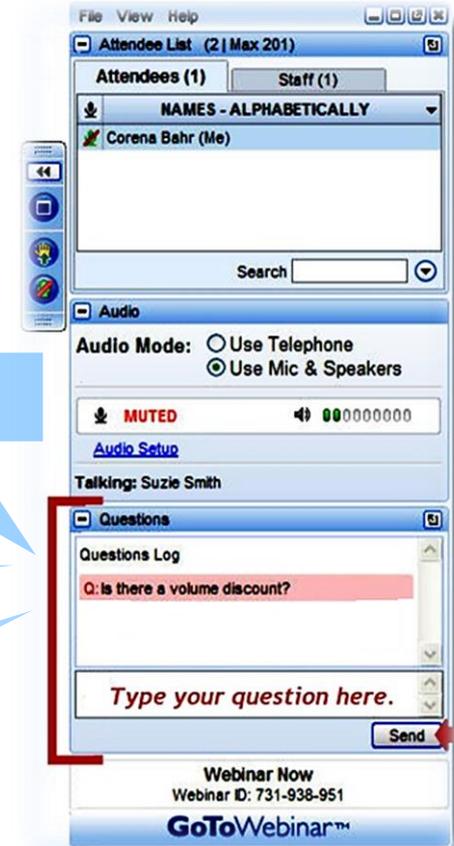


Luca Bencini

How have you handled

Have you ever encountered

Would you explain more how you've approached



Master Black Belt Program

- Offered in partnership with Fisher College of Business at The Ohio State University
- Employs a **Blended Learning model** with world-class instruction delivered in both the classroom and online
- Covers the **MBB Body of Knowledge**, topics ranging from advanced *DOE* to *Leading Change* to *Finance for MBBs*



Thank you for joining us

Questions? Comments about today's program?

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