Integrating Simulations, 360 Degree Video, and Virtual Reality into the Classroom Environment

60 Minute Concurrent Session:
Saturday, February 29, 2020
11:30 a.m. to 12:30 p.m.
Great Room One
Double Tree San Diego Mission Valley

Dr. David L. Anderson
Associate Professor
Associate Dean
Robert A Briner Jr. School of Business
Greenville University
Greenville, Illinois

Virtual Reality, Interactive 360 Degree Simulations

Museum Based Simulations:

https://www.afmuseum.com/attractions/23-attractions/simulators/8-interactive-360-degree-flight-simulator

360 Simulations for Interactive Learning:

https://learningsolutionsmag.com/articles/360-degree-video-for-immersive-and-interactive-elearning

360 Simulations by Brands

https://blog.hootsuite.com/creative-uses-of-360-video-by-brands/

360 Simulations and VR on Youtube

https://www.wareable.com/vr/the-best-360-degree-vr-videos-on-youtube

Virtual Reality, Interactive 360 Degree Simulations

Learning Simulations:

https://www.missiontolearn.com/learning-games-for-change/

360 Simulations for Millennium Roller Coaster Ride

https:// https://www.youtube.com/watch?v=sTY02tVyC7g

360 Simulations for Roller Coaster Seoul Grand Park

https://www.youtube.com/watch?v=8IsB-P8nGSM

360 Simulations and Flight Simulation

https://airandspace.si.edu/visit/museum-dc/things-do/flight-simulators

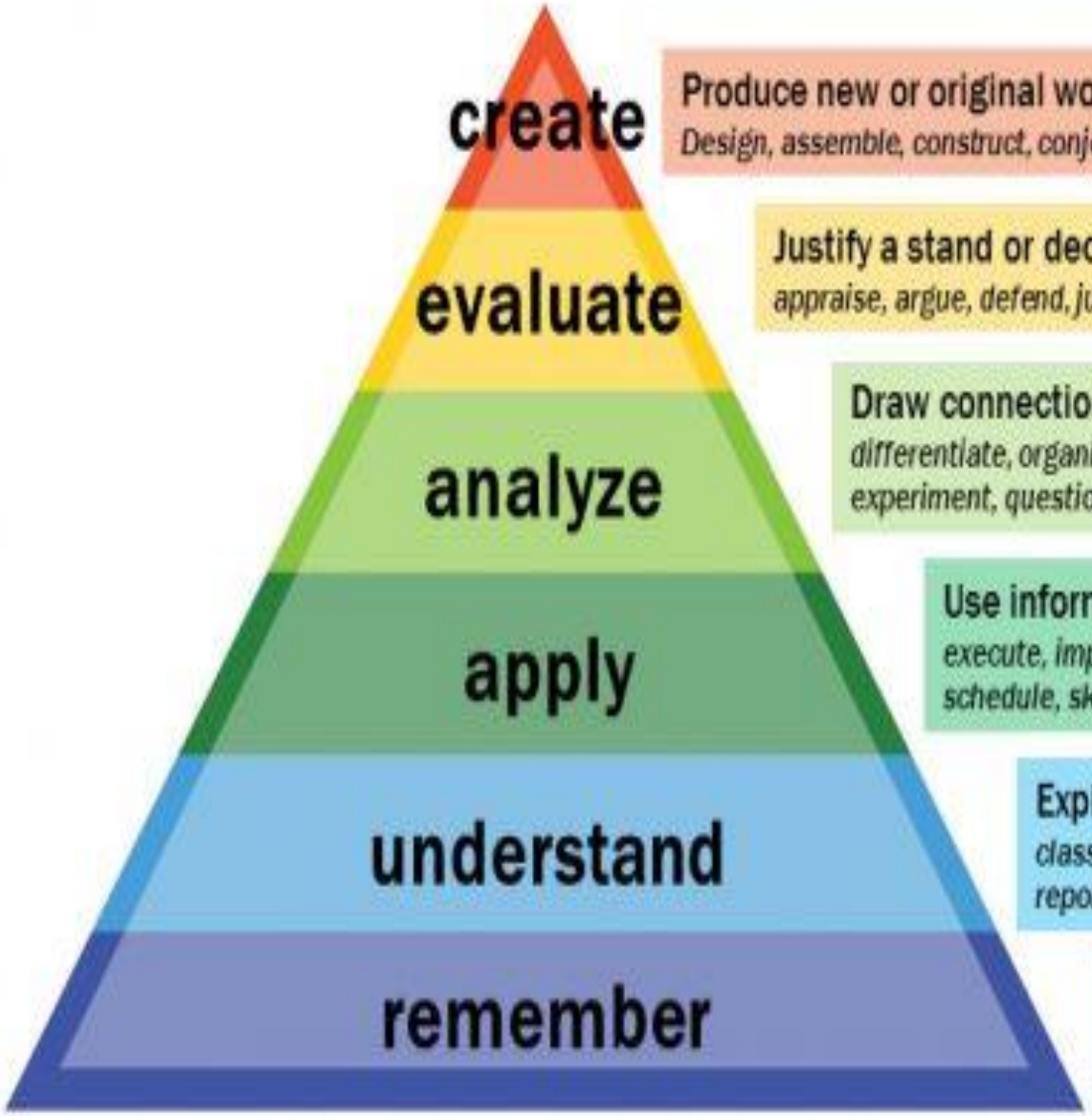
Three Learner-Centered Objectives For Educational Simulation and Virtual Reality Applications

1. Realize the Importance of the Integration of Simulations and Virtual Reality into the Educational Process
2. Understand the Available Breadth of Educational Simulations and Virtual Reality
3. Identify Ways to Meaningfully Implement Simulations and Virtual Reality into the Classroom Curriculum

Four Experience-Based, Learner-Centered Approaches to Simulation Based Integrative Education

1. Measure the Importance of the Integration of Teaching/Learning Tools:
   Problem-Oriented Exercises
2. Reinforce Classroom Objectives through Specific Classroom Simulations and Experiences
   Cases with Issue Identification
3. Implement Selected Course Experiences to reinforce
   Educational Simulations
4. Identify Synergies Achieved through a Combination of Approaches
   Community-Based Consulting and Interaction

Bloom's Taxonomy



Produce new or original work
Design, assemble, construct, conjecture, develop, formulate, author, investigate

Justify a stand or decision
appraise, argue, defend, judge, select, support, value, critique, weigh

Draw connections among ideas
differentiate, organize, relate, compare, contrast, distinguish, examine, experiment, question, test

Use information in new situations
execute, implement, solve, use, demonstrate, interpret, operate, schedule, sketch

Explain ideas or concepts
classify, describe, discuss, explain, identify, locate, recognize, report, select, translate

Recall facts and basic concepts
define, duplicate, list, memorize, repeat, state

Historical Context
For Simulation Applications

1. Army and Navy War College War Games, Simnet
2. Architecture: SimCity, Electronic Arts
3. Project Management, MSProject, ZohoProjects, Teamwork Projects
4. Finance: SimulationFinance, Quantrix, StockTrak

Future Context
For Educational Simulation Applications

1. Sharing Economy
2. Disruptive Innovation
3. Interactive Development Platform

Building upon advances in:

360 Degree Presentations
Artificial Intelligence
Machine Learning and Expert Systems
Nanotechnology
Virtual Reality
DNA Focused Pharmaceutical Research (Go Boldly)

Contextual Consideration:

Mode of Conduct:
- Inclass
- Online
- Blended

Content:
- Functional
- Total
- Topical

Participation:
- Team-based: Compete against Teams
- Individual: Compete against the Application

Interaction:
- High Interaction
- High Influence
- Responsive
- Low Interaction

Decisional Interface:
- Numerical
- Qualitative
- Specific
- Complexity

Leaders in Interactive, Team-Based Business Simulations

1. **Capsim, capsim.com,**
    1. **Core, Foundation, Global**
    2. **Manufacturing, Inventory, Product Development**
    3. **Emphasis upon Assessment and Evaluation**
    4. **Kitchen, including Escape Room**

1. **Markstrat, StratxSimulations.com,**
    1. **Marketing, Product Identification and Distribution**
    2. **MediaPro, BrandPro**
    3. **Blue Ocean Strategy (BOSS)**

Interactive, Team-Based Business Simulations
Advantages and Disadvantages

1. Computer Competitive
    1. Interact with Competitive Teams, not the Computer
    2. Dynamic, Results change based upon team inputs
    3. Somewhat Realistic in terms of
        1. Inventory and New Product Development
        2. Marketing and New Product Development

2. Well-Used and Well-Evaluated
    1. Internet Recommendations on way to start and way to win
    2. Capsim winning strategies
    3. Markstrat winning strategies
        1. Work from a backward integrated excel spreadsheet
        2. “Historical” issues such as an interest rate of 11%
3. Extensive and Involved
4. Not Easy to Address online or from more than one location

Harvard Business School Simulations
https://hbsp.harvard.edu/educator/

Advantages and Disadvantages

1. **Very focused, directed simulation.**
2. **Clear business issue to examine.**
3. **Targeted question to resolve, often with data.**
4. **Often linked to excel spreadsheet or quantitative analysis from market.**
5. **Seek a clear result or answer.**
6. **Follow the Harvard Business School model of identifying the issue.**

MIT Sloan Business School Simulations
https://mitsloan.mit.edu/LearningEdge/simulations/Pages/Overview.aspx

Advantages and Disadvantages

1. **Very focused, directed simulations.**
2. **Clear business issues to examine.**
3. **Targeted question to resolve, often with data.**
4. **Often linked to excel spreadsheet or quantitative analysis from market.**
5. **Seek a clear result or answer.**
6. **Growing series of simulations to implement.**

Mid-Tier Business Simulations

1. Interpretive Simulations, www.Interpretive.com
2. Marketplace Simulations, www.marketplace-simulation.com/simulations
3. Industry Masters, www.industrymasters.com/

Advantages and Disadvantages

1. Industry Focused
2. Individuals or Individual Teams interact with the computer, not with each other.
3. Focused number of variables, determined by the industry

Textbook Publishers Enhance their adoption services by including student opportunities to implement individual learning styles.

Pearson MyMarketingLab:
https://www.pearsonmylabandmastering.com/northamerica/mymanagementlab/

- **WarmUp Exercises**
- **Video Exercises**
- **Short Simulation Exercises**
- **Textbook Quizzes**
- **Automatic Graded Writing Assignments**
- **888-433-8435**

Textbook Publishers Enhance their adoption services by including student opportunities to implement individual learning styles.

McGraw-Hill Connect:
https://www.mheducation.com/highered/home-guest.html

- **WarmUp Exercises**
- **Video Exercises**
- **Short Simulation Exercises**
- **Textbook Quizzes**
- **Automatic Graded Writing Assignments**
- **800-331-5094**

Textbook Publishers Enhance their adoption services by including student opportunities to implement individual learning styles.

Cengage MindTap:
https://www.cengage.com/dashboard/#/login?app=cmp&targeturl=https:%2F%2Fwww.cengage.com%2F

- **WarmUp Exercises**
- **Video Exercises**
- **Short Simulation Exercises**
- **Textbook Quizzes**
- **Automatic Graded Writing Assignments**

617-289-7700
518-348-2300

Free Business Simulations

1. Business Simulations, https://businesssimulations.com/Articles/free-business-strategy-game
2. MBA Crystal Ball, Bizmap, https://www.mbacrystalball.com/business-strategy-game

Advantages and Disadvantages

1. Often are developed by a trade group
2. Advocate a particular point of view
3. More simplistic in terms of points to be made.

Learning Management Systems Enhance their adoption services by including student opportunities to implement individual learning styles.

Blackboard:
Moodle:
D2L:
Sakai:

- **Video Exercises**
- **Short Simulation Exercises**
- **Textbook Quizzes**
- **Automatic Graded Writing Assignments**
- **617-289-7700**
- **518-348-2300**
- **Discussion Boards and Chat Rooms**

Four Experience-Based, Learner-Centered Approaches to Integrative Education

1. Measure the Importance of the Integration of Teaching/Learning Tools:
   Problem-Oriented Exercises
2. Reinforce Classroom Objectives through Specific Classroom Interactions:
   Cases with Issue Identification
3. Implement Selected Course Simulation to reinforce interactive concepts beyond the classroom:
   Educational Simulations
4. Identify Synergies Achieved through a Combination of Approaches:
   Community-Based Consulting

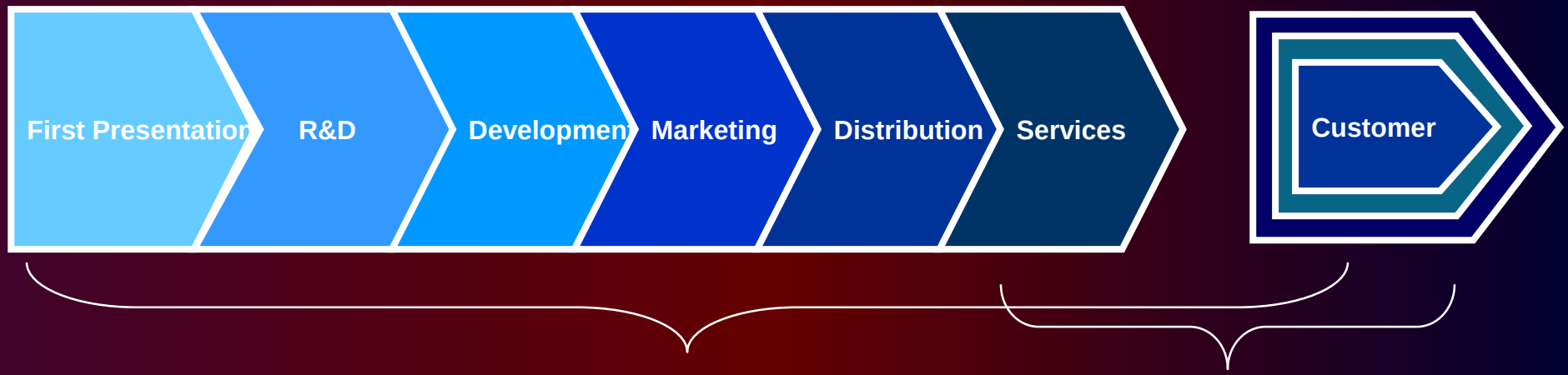
Concentrated Effort to Implement Simulations and Cases as a first step in a more interactive, experiential-based approach to learning:

Coordinate Introductory, Case-Based, Simulation, and Experiential Case Studies:

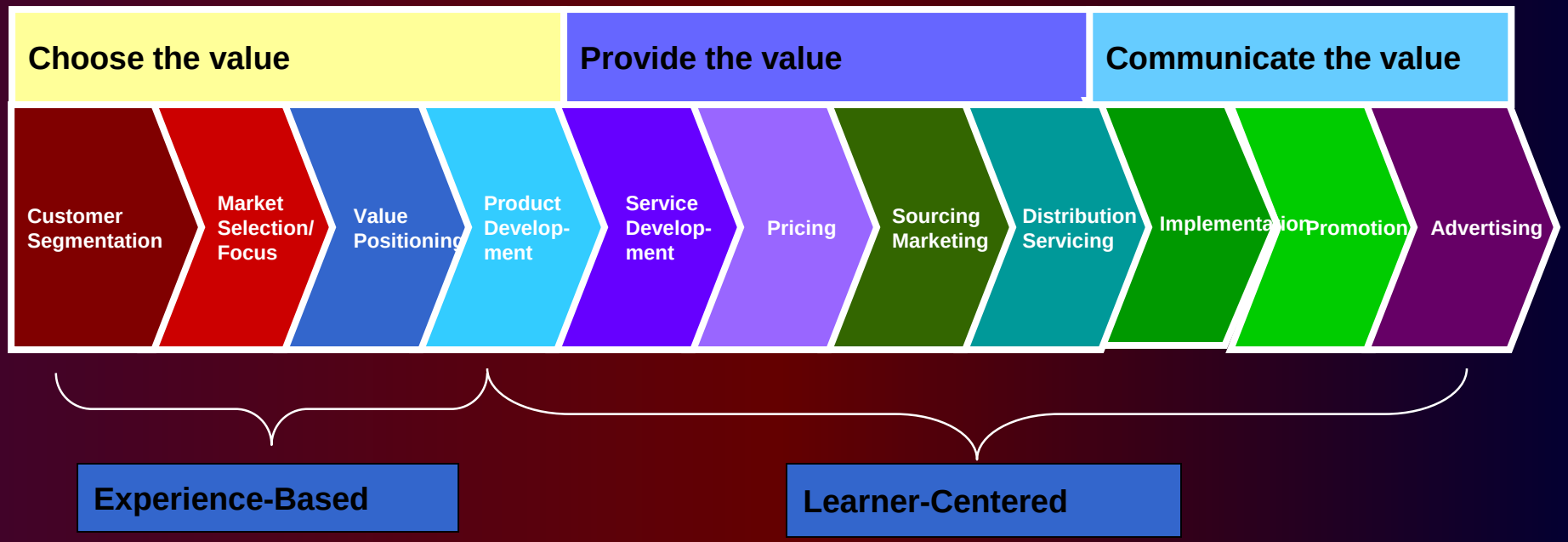
1. **Begin every class with a short case example. Finish the class with "the answer," how this particular case "turned out."**
2. **Assign a textbook case in addition to the textbook chapter for review and discussion.**
3. **Distribute short, easily answered, focused problems to be completed and easily discussed in the next class.**
4. **Use shorter cases to enhance the classroom experience and increase the number of examples presented to the students.**

Experience-Based, Learner-Centered

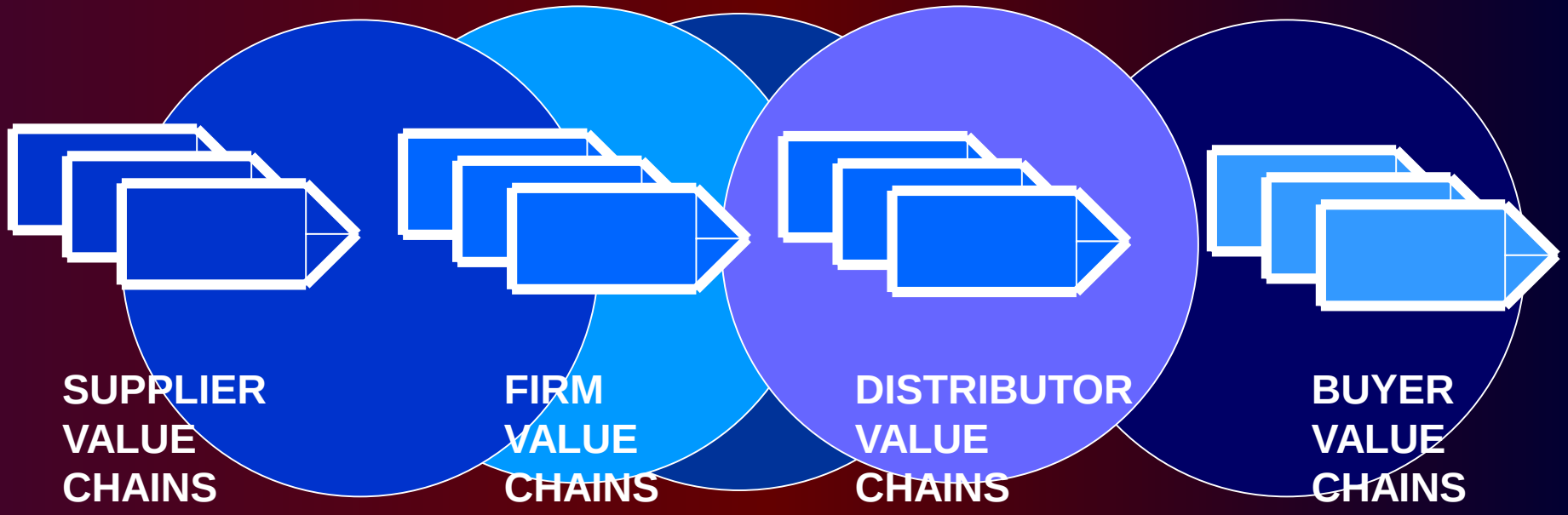
- A linked set of activities from first presentation to end user implementation for the customer.



Building the Program



Experience-Based, Learner-Centered



In the "value system," the supplier, firm, distributor, and buyer value chains interrelate.

The supplier's outbound logistics form the firm's inbound logistics.
The firm's outbound logistics form the distributor's inbound logistics.
The distributor's outbound logistics form the buyer's inbound logistics.

Four Learner-Centered Approaches to Experiential Education

1. Measure the Importance of the Integration of Teaching/Learning with a Series of Problem-Based Exercises

Problem-Oriented Exercises

a. Employ standard assessment tools to evaluate the most effective teaching techniques to accomplish experience and simulation-based education. These examples reinforce the primary concepts of the course and strengthen the conveyance of the substantive materials.

Four Learner-Centered Approaches to Business Education

2. Reinforce Classroom Objectives through Specific Classroom Interactions/Business Cases

Cases with Issue Identification

a. Once the program objectives have been identified, they can be reinforced though a combination of classroom approaches in a series of classes. The focus is upon accomplishing objectives through the proper combination of the classroom experiences and simulations focused upon a series of progressive classes.

Four Learner-Centered Approaches to Business Education

3. Develop Experiences through online simulations and response mechanisms

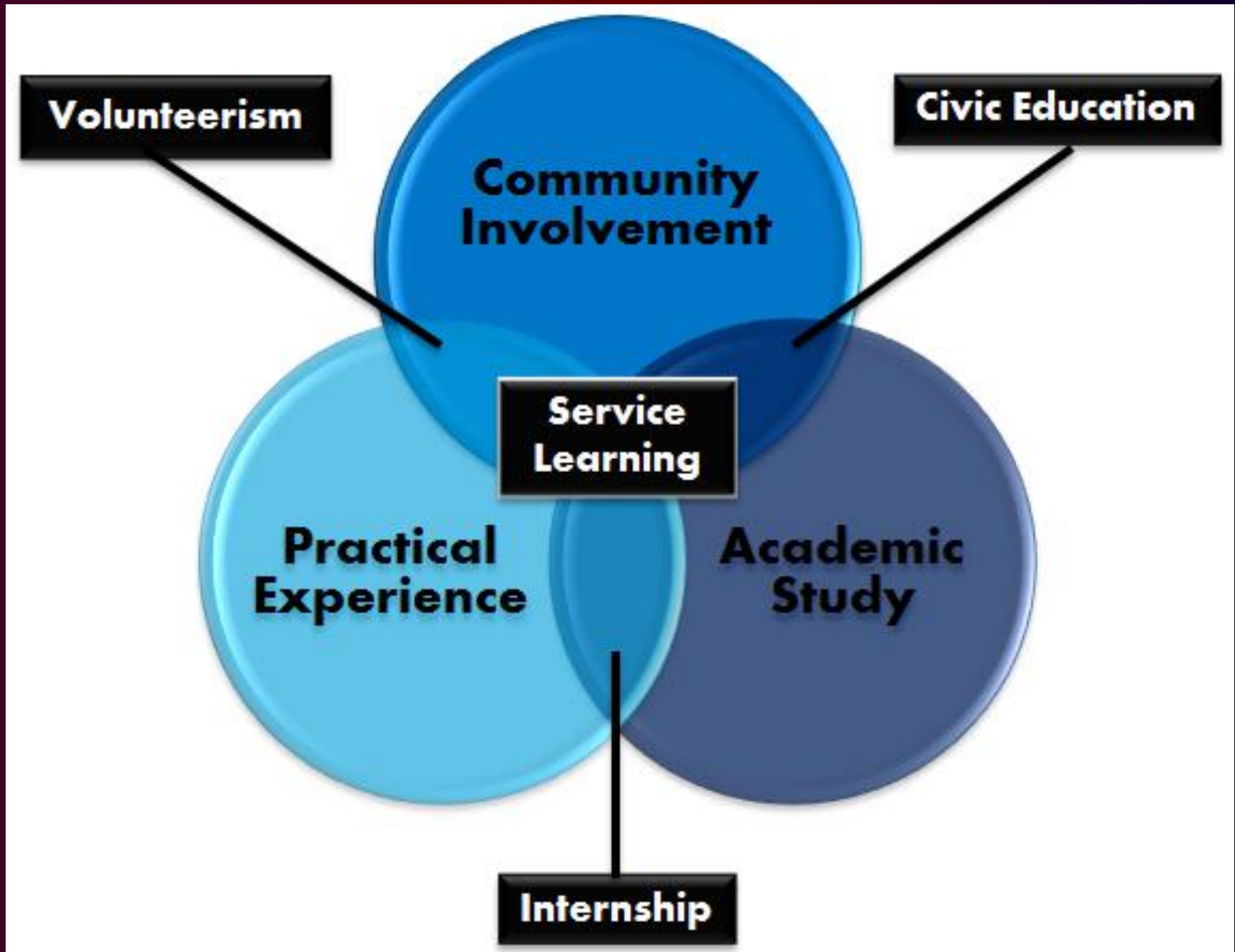
Business Simulations

a. Once the substantive outline has been completed, enhance the main concepts with activities and approaches that include a series of progressively challenging simulations and exercises.

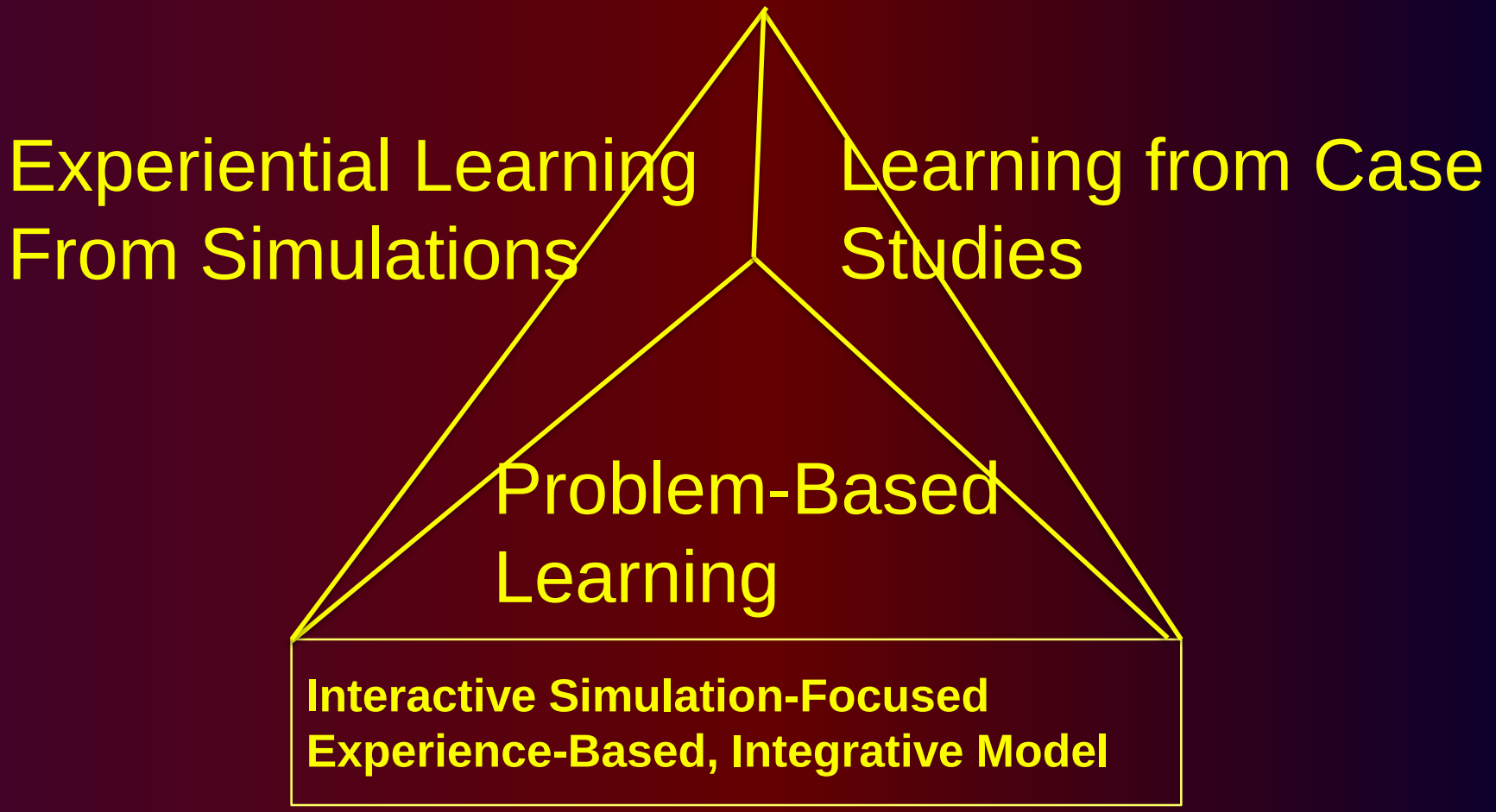
Four Learner-Centered Approaches to Business Education

4. Identify Synergies Achieved through Consolidated and Tracked Experiences
Experience-Based Learning
Community-Based Consulting

a. Combine activities and approaches through a series of courses. Define and target the specific learning styles of individual students. Encourage the students to enhance and develop their learning process to best achieve their educational needs.


Volunteerism
Civic Education
Community Involvement
Service Learning
Practical Experience
Academic Study
Internship

Interactive Simulation-Focused Experience-Based, Integrative Model




Social Bookmarks
Comment & Reputation
Crowdsourced Content
Pictures
Blog Platforms
LiveCasting - Video and Audio
Wiki
Blogs/Conversations
Music
Blog Communities
Events
Micromedia
Lifestreams
Documents
Specific to Twitter
Video Aggregation
SMS/Voice
Video
Social Networks
Location
Niche Networks
Customers Service Networks
The Conversation
The Art of Listening, Learning, and Sharing
Brought to you by
Brian Solis and JESS3


PLACE
Retail
Wholesale
Mail order
Internet
Direct Sales
Peer to Peer
Multi-Channel
PRODUCT
Design
Technology
Usefulness
Convenience
Value
Quality
Packaging
Branding
Accessories
Warranties
PRICE
Strategies:
Skimming
Penetration
Psychological
Cost-Plus
Loss leader, etc.
TARGET MARKET
Physical Environment
Smart
Run-down
Interface
Comfort
Facilities
PROMOTION
Special Offers
Advertising
Endorsements
User trials
Direct mailing
Leaflets/posters
Free gifts
Competitions
Joint ventures
Process
Especially relevant to service industries
How are services consumed?
People
Employees
Management
Culture
Customer Service

Instrument to "measure" student involvement in experimental and simulation learning:

Student Survey to Determine Recommended Study Skill Distribution

Likert Scale

1-Never 5- No Difference 10-Always

Do you prefer a published/paper-based textbook?
Do you work on your exercises by hand: Paper and Pencil or Computer-Based
Do you spend more than 10 hours per week on games?
Do you sit quietly in class taking notes without saying anything?
Do you learn by interacting with the professor and other students in class?
Do you learn best by studying on your own in a quiet place?
Do you learn best by studying in a group?
Do you learn best by completing interactive questions?
Do you like problem solving classes better than reading classes?
Do you ask thought questions in class rather than those related to the fulfillment of the assignment?
Do you look for additional articles on the internet to explore your classroom topics?
Do you look for additional problems and approaches on the internet to enhance your study?
Do you like to read the cases at the beginning and end of chapters?
Do you look for the cases at the end of the textbook to learn more about a particular company?
Do you ever research a company name or website to find bring a case up to date?
Do you order and study your textbooks on your ipad or laptop?
Do you seek additional exercises or problems to solve?
Do you seek classes where you write cases for the assignment?
Do you often work in groups to solve your problems for class assignments?
Do you "click on" the enhanced word definition in your online textbooks?
Do you play simulations and business games in your spare time?
Do you look for simulations and business games to enhance your classroom exercises?

Example Case Distribution Services:

1. Harvard Business Case Publishing
    1. https://cb.hbsp.harvard.edu
2. Ivey Business Case Publishing
    1. http://iveycase.com
    2. https://www.iveycases.com/PublishCases.aspx
3. Darden Business Case Publishing
    1. http://store.darden.virginia.edu/
4. Stanford Business Case Publishing
    1. https://www.gsb.stanford.edu/faculty-research/case-studies
5. Case Center
    1. http://www.thecasecentre.org/

Final Business Assignment:

1. Written Business Case
    1. 8 pages
    2. Meet Ivey Publishing Requirements
        1. https://www.iveycases.com/PublishCases.aspx
2. Teaching Note
    1. 8 pages
    2. Meet Ivey Publishing Requirements
        1. https://www.iveycases.com/PublishCases.aspx
3. Completion of Problem Set
4. Group Simulation Exercise

Four Simulation and Experience-Based, Learner-Centered Approaches to Integrative Education

1. Measure the Importance of the Integration of Teaching/Learning Tools:
   Problem-Oriented Exercises
2. Reinforce Classroom Objectives through Specific Classroom Interactions
   Cases with Issue Identification
3. Implement Selected Course Simulation to reinforce interactive concepts beyond the classroom
   Educational Simulations
4. Identify Synergies Achieved through a Combination of Approaches
   Community-Based Consulting

Three Learner-Centered Objectives For Business Simulation Applications

1. Realize the Importance of the Integration of Simulations into the Business Curriculum.
2. Understand the Available Breadth of Business Simulations.
3. Implement Simulations Meaningfully into the Curriculum.