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## Evolving Preferences For LINKS Industry Setup

*Zach Zacharia is Associate Professor of Supply Chain Management at Lehigh University.*

### *Which courses are you teaching?*

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I use the Standard Supply Chain Management simulation for my semester long undergraduate class and Supply Chain Fundamentals for a 2 day Supply Chain Strategy MBA class. Over time I have made several changes to the way I teach the undergraduate class.

### *How do you set up your LINKS Industries?*

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I used to go with team sizes of four or five students for the Standard Edition. However, at five you start to get students who are coasting a bit and are not as involved in the simulation so I have changed the team size. I also do not give the students all the input decisions at the beginning.

Instead I start round one with three input decisions and then I add two decision choices for rounds two and three so by round three they have seven input decisions. Randy calls them switches. So it gives the students more capabilities when they do each run.

Another change I have done is to incorporate a practice round at the beginning of the simulation. The advantage of the practice round is that it gets students thinking of the process more than what they need to do correctly. They make their decision, they find out how they have to submit the decisions, where and when they should meet, and then they get the feedback. After the practice round, everything is reset, so if they make some blunders everything goes back to the start.

About three years ago, I had a team that did a serious mistake at the very beginning and then they never recovered so practice round helps avoid this scenario.

### *How do you set up your teams?*

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This year, I went with teams of three students. With teams of three it's really impossible for one of them to hide, because there's too much work to do. I find team sizes of three and potentially four, is perfectly fine.

I was a little worried about the workload but after discussing with Randy, I decided to try teams of 3 students for the first time. I am satisfied the students were able to keep up with teams of 3 and I would do this again for the standard supply chain simulation.

If I have more students I increase the number of industries. Even though you have an option to have up to 6 teams in an industry, my personal preference is to have two industries with a smaller number of teams in each.

Having a smaller number of teams keeps the teams in last place in each round feel they have a chance to win, as they are never that far out of first place.

This past semester I had two industries, 24 students in total, with 4 teams of 3 students in each industry. I also had an inert firm so there are five firms all together. The inert firm makes no changes and decisions, but serves as a baseline.

### *How did the students react to the inert firm?*

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It is also good for the students to see a firm that they can compare themselves to—one that is not making any changes. There are cases where the inert firm can be ahead of a working firm, proving that no decisions might be better than making some wrong decisions. One team made a really dumb decision in round six and they barely beat the inert firm by the last round. I tell the students “remember, the inert firm isn't investing in anything, so there is no cost.”

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### ***What kind of mistake did they make and how did you rectify it?***

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I had the switch for allowing them to build warehouses in region two and region three turned on. One of the three students misunderstood the screen and x-ed it out, and turned off that switch. They looked at the screen that said whether they were going to manufacture and sell products and they thought that meant that they didn't want warehouses, but actually they closed those regions.

This feature is always in there—you can choose not to sell anything— but that's crazy because that's where the market share is. Sure enough, they got no sales! This screwed everybody else up because all of a sudden all of the other three firms got access to the market share that was theirs. But the other firms were not expecting this and everyone went into emergency production because they sold a lot more than they expected.

It was one of those students who did not read the manual or even just understanding the basics tenants of the game.

This was round six and I was very disappointed. I talked to Randy and let them re-introduce their products back in because they would have never recovered if I were to have let them introduce only three products at a time. As it was, they still came in last place, but they did barely beat the inert firm. It was a truly monumental error of misunderstanding an input screen.

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### ***Do the students know beforehand what switches you are turning on?***

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In the first round, they cannot change parameters. Then, I tell them they are only going to worry about two things— forecasting and purchasing. Next round, I allow them to select the kind of transportation provider which they are going to use and then the next round, I let them change prices and generate demand. Each time I'm adding a new and another set of decisions that they need to consider. Then they get four rounds where all the capabilities are available.

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### ***Do you feel that with a three-person team, the workload may be higher, but you're getting much better participation?***

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Yes, there was no indication from their peer evaluations that anyone was slacking off. The previous year when I had teams of five, the peer evaluations definitely indicated that they were not all pulling their weight. And, it might be harder to do with five — because they all get together in a meeting and some people are quieter and could be perceived as not pulling their weight.

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### ***Why not use more firms and fewer industries?***

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I feel that when a team is in fifth or sixth place, they feel they are never able to recover. When there's only three or four teams in an industry, no team is that far away from first place.

### ***Do you follow the same guidelines for your graduate class?***

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In the graduate class (Supply Chain Strategy), I run it as a two-day class. I now teach it with a week in between each game run day and I put a game run in the middle of the week so that students have more time to assimilate. When I put that extra day in, it's a little more work for me, because I have to be aware of it for the week as opposed to just one Friday and one Saturday. It's a better learning experience because students are so stressed when they're making decisions. This gives them a little bit more time.

When I had students that were doing it over two days, they were overwhelmed. I didn't mind them being overwhelmed, because they were making some decisions under pressure but the quality of the reports and quality of the competition improved when I added an extra round in the middle of the week. We met on a Friday and ran three rounds, then ran a fourth round on Wednesday, then two more rounds Saturday and then a report. I think overall it turns out to be a better experience for the students.

### ***When you have teams of three, how do you pick the teammates?***

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In the undergraduate class this year for the first time, I let them pick their own teams, and I'm bit disappointed because my super strong students hung out together. The teams that have the highest marks finished in a high position and the teams that had an aggregate lower grade came in at the bottom. Those teams were not doing the kind of depth of analysis as the higher ranking teams. I am now going back to my old method of picking teams .

I use a baseball team's collective where I name captains of the teams who come and see me. We have everybody's resumes and then each person gets one pick all the way down the line. Then at the end of the first pass, that person gets two more picks. So the last to pick actually gets three choices of whoever is left and it goes backwards up the line for everyone.

It forces people to get only one friend, and good people get spread around more evenly.

For my MBA class, the students walk into the class and pick a slip out of a container which has their team number on it and that's where they belong. So it's totally random because the MBA students don't know each other all that well while undergraduates in the capstone course have had four years together.

# LINKS Global SCM Competition

The 2013 LINKS Global Services Competition is scheduled for October-November 2013.

The LINKS Supply Chain Management Simulation is used in the LINKS Global SCM Competition.

Highlights of the LINKS Global SCM Competition:

- Cross-Institution 8-Round Supply Chain Management Simulation Competition
- Your Student Teams Compete Against Student Teams From Other Institutions
- Challenges Students in an Intense Team-Based Cross-Institution Competition
- For Students in Academic Degree-Granting Programs Worldwide
- Undergraduates Compete Against Undergraduates; MBAs Compete Against MBAs
- Targeted at Upper-Level Undergraduates and Advanced (2<sup>nd</sup>-Year) MBAs



Further details about the October-November 2013 LINKS Global SCM Competition (scheduling, student eligibility, costs, and registration procedure) are accessible via the LINKS Global Competition link on the LINKS website.

Registration signup and payment deadline for the 2013 LINKS Global SCM Competition is September 27, 2013.

Participating in a LINKS Global SCM Competition is an alternative instructional/learning opportunity to the traditional usage of LINKS within a single instructor's course (i.e., an event with students from a single course conducted according to the course instructor's preferred scheduling).

Faculty members with questions about the LINKS Global SCM Competition are invited to contact Randy Chapman, the LINKS author (Chapman@LINKS-simulations.com).

# New LINKS



**A** new white paper has joined the evolving LINKS White Papers collection: *“Inert-Firm Performance in LINKS Simulations Events”*

Summary conclusions drawn from the results reported in this White Paper include:

- Inert-firm performance declines steadily through time, to about 50% of an average actively-managed firm’s performance in 9-10 round LINKS supply chain management simulation events.
- An inert firm’s performance doesn’t turn negative in typical event lengths used by LINKS instructors with LINKS supply chain management simulation events.
- There is variation in inert-firm performance across LINKS industries due to differential competitive activity and inherent randomness.

For LINKS instructors, the empirical results reported in this LINKS White Paper provide support for the inclusion of an inert (unstaffed/unmanaged) firm in a LINKS industry, particularly for mid-length LINKS Simulations events.

## Minimum Class Size For LINKS Billing Purposes

**L**INKS Simulations standard per-student pricing is based on a minimum of 15 paid students per LINKS industry. We support LINKS instructors teaching new courses with LINKS regardless of their class sizes for “a while.” We’ll normally support instructors through the first two LINKS usage occasions, regardless of class size. The expectation is that LINKS instructors’ class sizes will grow “steadily” through time toward and, hopefully, well beyond the minimum size of 15.

Eventually, if enrollments don’t grow to at least 15, an alternative to standard per-student pricing is required. For example, someone (the instructor’s college/university?) purchases/guarantees at least 15 “seats” in LINKS-based courses.



## Advice To My LINKS Successor

*Neil Krikorian was a student in Greg Kivencor's course at Rivier University which included the team-based LINKS Enterprise Management Simulation [Enriched Edition]. As part of this course, each student crafted a short "Advice To My LINKS Successor Memo." This exemplary memorandum follows, for the reading enjoyment and benefit of all future LINKS participants. Thanks to Greg for sharing this memorandum with the LINKS community and thanks to Neil for his fine work and his willingness to share this memorandum with the LINKS community.*



**W**elcome to LINKS! LINKS is extremely demanding, time-compressed, and intense. But, if you apply yourself and spend the time needed, you will understand it far more than you do now and have a strong chance to succeed. This commitment absolutely gives you a great return on investment. You will learn more practical lessons to apply to your life in just several weeks of LINKS than you did during many other courses combined.

My most important piece of advice is learn the rules of the game as much and as early as possible. Knowledge is power in LINKS. There is no such thing as being completely prepared for LINKS, but it is possible to be well prepared.

- Read the manual, every item on every page (all items are important in LINKS), more than once. It is impossible to memorize all details for all LINKS variables as each decision or parameter is tied to others, and every move has second and third order effects.
- Become familiar with all areas covered by LINKS, LINKS terminology (e.g., is price point a 'generate demand' or 'product' decision, etc.), and the LINKS manual structure so you can quickly reference information. I recommend downloading the e-version of the manual to leverage search functionality.
- Familiarize yourself with the LINKS system (e.g., the web site and how to input decision changes) preferably prior to the start of the game, as this will make it far less stressful to initially navigate the system during already tight turnaround times.
- Use all guidance documents and exercises on the LINKS site (e.g., the Forecaster Simulation) to fine-tune skills when it doesn't count. There are many good free instructional videos - many on YouTube, which walk step by step through the LINKS functionality. There are several variants of LINKS beyond the Enterprise Management version (e.g., LINKS Supply Chain Management

Simulation), but all have similar if not identical functionality so you can still gain lots of relevant knowledge.

Team structure and process is critical in LINKS. I recommend the divide and conquer method where each team member is generally familiar with all areas of the game, but becomes specifically expert in and responsible for all decisions or actions in a specific area of the game. Get your team together and formally delineate who is responsible for what. A team process “rhythm” should be established early around meeting frequency, method, timing, and topics – so that each team member clearly understands the preparation needed and their expected deliverables for these meetings. My team found this very helpful.

Have the same single individual assigned to take notes at every team meeting so that decisions and their rationale are captured for later reference and recall. I also recommend that your team identify a single individual to do the actual decision inputs (or at least do a final check to ensure all decisions are as desired) and a hard cutoff time agreed for when this person will execute this task and when no further updates can be made.

Your team must define a strategy early, trust your instincts and do not deviate (there is room for flexibility in your tactical decisions). No half measures – look for other opportunities and seize them. If you believe a course of action is sound, then commit to it early, heavily and without wavering based on initial simulation feedback.

Like the real world, many LINKS decisions may not immediately deliver the desired result. The analogy of a flower needing regular and sustained watering and other support before it blooms is an apt one here. Do not make your strategy in a vacuum based solely on your results as your competitors’ decisions impacts your world and markets as well. While you certainly cannot read the mind of your competition or control their actions, you can anticipate logical movers of your competition and contingency plan around it. Remember, the best decisions can sometimes be the ones not made and often may need to be changed on short notice due to decisions made by the competition.

Timing is everything in LINKS. For example, a decision to leave a market region or channel due to poor sales and/or market share may seem sound when evaluating your data, but if you then realize many other teams are abandoning this market and a demand still exists there, this may suddenly become an unexpected opportunity.

LINKS is based on real world information and circumstances. For example, consider researching industries and companies “similar” in size and scope to the set-top box industry and benchmark what resources they allocate (as a percentage of revenue) to areas such as marketing, R&D, and customer service in similar situations. Additionally, don’t be intimidated by the size and scope of the fictitious company you are dealing with or by large dollar amounts being discussed. Consider all numbers and

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# Printed LINKS Manuals

**L**INKS participant's manuals are freely accessible (downloadable pdf files) from the LINKS website. Some instructors prefer to provide their students with printed/bound hardcopy versions of the LINKS participant's manual, rather than relying on website downloading and local printing. We're happy to provide this service for domestic LINKS users (i.e., instructors teaching courses in the continental United States).



We do need at least **three weeks advance notice** to arrange for printing and shipping of manuals from our on-demand printer.

Manuals are shipped directly to the LINKS instructor by our on-demand printer. The LINKS instructor then distributes the manuals to LINKS students after verifying that a LINKS student has paid for LINKS usage (i.e., the student shows the instructor a LINKS registration/payment receipt).

The LINKS manual price is added to the LINKS usage fee to determine the total student price for a LINKS event. The prices for LINKS manuals vary from \$16/manual for the smallest (4-round) LINKS variants, to \$20/manual for mid-sized (6-round) LINKS variants, to \$25/manual for larger (9-round) LINKS variants, to \$30/manual for "extreme" (12-round) LINKS variants.

Contact Randy Chapman ([Chapman@LINKS-simulations.com](mailto:Chapman@LINKS-simulations.com)) with any questions about LINKS manuals or to order LINKS manuals for your students in a forthcoming LINKS event.

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data in the proper context relative to other data such as the revenue, sales, expenses and net income of your firm.

There is a plethora of research available to you in LINKS. In fact, there may be too much. The trick is to only purchase the research studies that you need and when it is needed. You do not need to purchase every available report every LINKS simulation round.

Lastly, have fun and remember LINKS is just a game to help you learn. You aren't expected to be right in every decision, and through mistakes we often learn. If proper effort is given, everyone wins - the journey itself will produce the desired increase in knowledge. Good luck!

May 17 at the



*Randy Chapman, LINKS author, recently spent a day in Minneapolis at the invitation of Dean Chris Puto, Opus College of Business, University of St. Thomas, a long-time LINKS user and member of the LINKS Hall of Fame.*

**T**he University of St. Thomas full-time MBA graduating class assembled on-time at 830am, Friday, May 17 for an all-day marathon of LINKS final presentations. I was there too, at Chris Puto's invitation, as an interested observer and questioner in post-presentation Q&A time.

University of St. Thomas full-time MBAs encounter the LINKS Marketing Strategy Simulation in their 1<sup>st</sup>-semester marketing course. They re-engage with LINKS in the late-fall of the 2<sup>nd</sup>-year with at-large elections of CEOs who then recruit classmates to staff their respective teams for their 4<sup>th</sup>-semester LINKS-based business strategy course. The initial team activity is the creation of bids for available xLINKS Marketing Strategy Simulation [Extreme Edition] firms from a pre-existing xLINKS industry that these new teams manage throughout their 4<sup>th</sup>-semester business strategy class, co-taught by Mike DeVaughn and Chris Puto.



**Mike DeVaughn**

The presentation format for these xLINKS teams was:

1. Bid Rationale
2. Situation Analysis
3. Initial Strategy
4. Early Results
5. Strategic Revisions
6. Future Plans
7. Lessons Learned



**Chris Puto**

Each 25-minute team presentation was followed by a 5-minute audience Q&A. There were six presentations in the morning and four more in the afternoon after a lunch break.

It was an intense capstone MBA experience for everyone in the room ... graduating MBA class members, course faculty, and observers. Turnarounds, strategy selection and revision, innovation strategy|tactics|timing, balancing short- and long-term strategy and performance, operations and marketing excellence, and growth strategies and tactics were among the topics arising throughout these final xLINKS presentations.

Bravo and thanks to the 2013 University of St. Thomas full-time MBA graduating class for a thoroughly enjoyable day!



## LINKS Train-The-Trainer Seminar

August 12-16, 2013

LINKS Simulations Immersion Experience

Five Teleconferences and Four-Round LINKS Simulation Events

**R**egistration is available for the next five-day, intensive-mode Train-The-Trainer distance-learning seminar for the LINKS simulations. Randy Chapman, the LINKS author, leads this distance-learning event for academic faculty interested in learning more about teaching with LINKS. This intensive-mode seminar format includes 2-3 hours of work per day during each of the five days of the distance-learning seminar.

LINKS Train-The-Trainer Seminars are offered for the enterprise management, marketing, services, and supply chain management LINKS variants.

Current LINKS instructors are invited to pass along this announcement to faculty colleagues and

advanced doctoral students who might be interested in learning more about teaching with LINKS.

Experienced LINKS instructors sometimes participate in a LINKS Train-The-Trainer Seminar to refresh their memories of LINKS details just prior to teaching with LINKS or to explore another LINKS simulation variant for a future teaching activity. Such experienced LINKS instructors may elect just to participate in the TTT's four-round simulation event, ignoring the public teleconferences included in the LINKS TTT program. (PowerPoint decks are e-mailed to all LINKS TTT participants before each teleconference, so such experienced LINKS instructors may freely choose to participate in all, some, or none of the teleconferences as per their availability and interest.)

Details about this LINKS Train-The-Trainer seminar may be accessed via this URL:

<http://www.LINKS-simulations.com/TTT/TTT.pdf>

# Reminders

**LINKS Passcode Retrieval:** LINKS passcode retrieval for a LINKS participant (student or instructor) is possible via the “Retrieve LINKS Passcode” link on the main LINKS webpage (<http://www.LINKS-simulations.com>). Executing the “Retrieve LINKS Passcode” operation e-mails the firm’s passcode to the participant’s official e-mail address as recorded in the LINKS Simulation Database.

**Student Payment Timing:** Student payment with a personal credit card is via the “Pay For LINKS” link on the LINKS webpage.

The published LINKS price (the discounted price) is in effect until the first round of LINKS is complete. Then, the price is increased 25%. This means that we can initialize a LINKS event (and advance LINKS through to its normal starting point) and students can continue to pay at the discounted price until the first scheduled round.

It is not necessary for your students to pay before LINKS begins to have access to the discounted LINKS price. Students must only pay before the first official game run on your game-run schedule to receive the discounted price. Thus, student payments can occur simultaneously with the beginning of a LINKS simulation event. As a practical matter, a final warning/reminder is e-mailed to those students who haven’t paid by the first game run, before implementing the non-discounted price.

**E-Mail Address Management:** Using their LINKS firm’s passcode, LINKS students may change their official LINKS e-mail address via the “E-Mail Address Management” button in the LINKS Simulation Database. Confirmations of e-mail address changes are e-mailed to the old and new e-mail addresses.

**LINKS Instructor Resources:** Instructors access LINKS Instructor Resources via the LINKS webpage. Contact Randy Chapman ([Chapman@LINKS-simulations.com](mailto:Chapman@LINKS-simulations.com)), the LINKS author, to obtain the username and passcode.



The LINKS Newsletter is a bi-monthly newsletter for current and prospective LINKS instructors and for LINKS friends. Please e-mail comments, suggestions, and other contributions (e.g., LINKS teaching tips) to [Winkler@LINKS-simulations.com](mailto:Winkler@LINKS-simulations.com).



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