

case study

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pci global inc.



Technology Enabled Business Simulation Games

Critical Thinking

SOLVING LEADERSHIP DEVELOPMENT CHALLENGESWe've been asked for years to present examples of how we have used simulations to solve difficult leadership developmental challenges..
..... Finally we have compiled a variety of case studies and a platform to present them.....

CASE STUDY:

A Fortune 500 company providing medicines and health care products in 144 countries around the world had an elite Leadership Development Program with an interesting problem.

AUDIENCE:

Every year the Company brings in 120 entry level leaders from around the world to their US headquarters to orient, train and prepare them for a 2 year rotation in various business units.

The Company has a well tested series of evaluations every 4-6 months that provides a growingly accurate picture of each future leader as months go by on the job.

THE PROBLEM:

Increasingly Middle Managers from the hosting business organizations were complaining about one thing - these newcomers lacked CRITICAL THINKING skills. They were well educated, highly motivated, but too many lacked the ability to analyze business reports and judge what is significant to a business and what is not; as well as what should be a priority and what is a tangent; what is a fact and what is an assumption.

CRITICAL THINKING - LOGIC FAILURE:

Furthermore they seemed to be lacking a logic process to take bits of data from reports and organize them in consistent patterns of information from which one can extract meaning.

DEVELOPMENT SOLUTION:

The Chief Learning Officer for this entry level Leadership Development Program asked PCI if we had a way to identify and measure critical thinking. They knew we had 22 years of experience developing and teaching complex business processes with simulations that clearly illuminate the dependent and independent variables that shape and define logic.

THE CHALLENGE:

PCI agreed with the CLO on four goals for this simulation based experience:

- 1. Learn or re-learn the core subject - Finance
- 2. Apply that learning knowledge to a simulation of a business where they had to make decisions based on reports and other information from the simulation
- 3. Demonstrate critical thinking in a visible manner
- 4. Measure each candidate's critical thinking ability

Choosing the right simulation:

For 22 years PCI has trained leaders in Project Management, Business Acumen, Operations Management, Leadership and in Leadership Development Programs at up to 5 levels in all industries predominantly with a simulation and team based learning model. Accordingly we have a large library of Global 500-tested simulations to choose from.

For this particular population all candidates had either majored in or had taken Finance courses in a Business Management curriculum. For this entry level pool we chose a basic one-day Finance course but customized the simulation and reports to resemble the client's.

Simulation-based learning model:

PCI's learning model assembles candidates in a team of 3-4 peers who learn and work together. They take over a computer simulation of a business with 3 key financial reports. What is critical for this experiment is that the simulations have no pre-determined right or wrong answers. They simply model a business decisions, outcomes, reports and results.

Students learn what data is on each report and the decisions they can make. They also learn which key metrics the company values most. In teams they are oriented to read the reports, diagnose the simulated business situations and then apply critical thinking to make the right decisions to advance the business and raise their team scores on the key company metrics.

Each team agrees internally what decision to make within strict time limits then inputs them. The simulation analyzes their decisions and provide immediate results in the form of updated reports and news bulletins that tell them exactly how they are doing; advancing the business and improving readings on key metrics.

Assessment:

The resulting data shows CRITICAL THINKING each team has achieved. But this team based learning does NOT tell us anything about each individual's critical thinking ability. The purpose is to teach each candidate how the simulation works so they can then run the simulation all by themselves generating a clear picture of each individual's capabilities.

So how did we do it? A combination of measures was used: 1. Assessment test scores and 2. Individual simulation re-runs.

1. PRE TEST/POST TEST:

Before each participant joins a team and completes the one day simulation based learning event they must individually complete a 20 question multiple choice Pre-Test. At the conclusion of the class students complete a hard copy Post Test. PCI then compiles the Pre & Post test scores to produce:

- The learning for each participant (post test vs. pre-test)
- Average scores for entire group
- Placement of each individual on a class wide continuum at 5 levels.

This test data is the first step in measuring critical thinking. Ironically a multiple choice test forces critical thinking. You have to choose the right answer from among slightly wrong to very wrong answers.

2. INDIVIDUAL SIMULATION RUN:

The second part was that PCI put the exact same simulation that was used in the class, on the internet and assigned 120 user names and passwords. Each participant had 2 weeks to run the simulation all by themselves.

NOW PARTICIPANTS WERE FORCED TO SHOW THEIR CRITICAL THINKING ABILITIES BY ACHIEVING THE HIGHEST POSSIBLE SCORES ON THE 4 KEY BUSINESS METRICS - ALL BY THEMSELVES!

3. RESULTS DATABASE

After each candidate completed the post-test and the individual simulation re-run we compiled each individual's score on the client's four key business metrics. Those results were plugged into a vast database which compiled an average score for each individual. This exclusive PCI database then ranked each individual's scores on each of the four key metrics from one (high) to 120 (low). Then we ranked their average simulation scores in the same order.

Each set of scores was then grouped into five cohorts. The pre and post test scores are similarly grouped into five cohorts but are separated from the simulation scores.

RESULTS/IMPACT:

Suddenly, judging critical thinking turned out to be not so difficult. The candidates with best critical thinking appeared in the top cohorts most often; those with the least ability consistently appeared in the last cohort. The middle 68% who excelled in only one key metric wound up in Cohorts 2, 3 and 4.

Here is a simple scoring system;

Appears in Cohort #1	Rating
4 out of 4 metrics	Exceptional
3 out of 4 metrics	Very Good
2 out of 4 metrics	Good
1 out of 4 metrics	Fair
Never	Failure

Research Results:

The results were surprising. A few of the participants did very well getting into the top cohort 3 or more times out of 4 and a few did poorly; never getting into the top cohorts. Most participants appeared in the top cohort for just one metric and another time in the second cohort.

Participants had to make the decisions individually so we could easily track their thinking. Additionally, they had to remember the goals and decide which data was driving them in the right direction to maximize the 4 metrics and which was not.

Impact of Test and Simulation Re-run Scores:

Test scores by themselves provide some meaningful data on critical thinking but even more information on their ability to learn. Tests do permit guessing which makes them a less reliable than the simulation. The individualized re-run forced critical thinking in making participants look at ALL the information - not one question at a time - and decide what was relevant and what was not. There was little or no way to guess the right answer. If participants guessed what decisions to make they likely got even worse results on the simulation. Combining test scores and Individual simulation re-runs provided the most complete picture of each participants' critical thinking and business judgment

Additional Findings:

Last year 10 out of 120 participants did not complete the individual simulation re-run. 4 of those 10 were terminated or resigned within 6 months of the start date. 4 more were on a watch list.

A few individuals appeared in Cohort One and/or Two. Several of them are viewed as star prospects. There was only one exception. One of the candidates had a brilliant mind, a storehouse of knowledge around Finance but, as a result, had poor social and team working skills so their future is less certain.

Longitudinal Study:

The Client is now studying the first two years of database results to determine which factors carry the most weight in predicting successful future performance on the job.