

INDUSTRIAL DISTRIBUTION SIMULATION LABORATORY: TEACHING WHOLESALE DISTRIBUTION SKILLS THROUGH EXPERIENTIAL LEARNING

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Abstract

Teaching wholesale industrial distribution applications can be very challenging and it is difficult for students to understand the business world they are preparing for if real-world examples are not used. The Industrial Distribution program at the University of Nebraska at Kearney has designed and built an Industrial Distribution Simulation Laboratory to teach students the concepts involved in technical sales and industrial distribution wholesale branch operations utilizing role playing to simulate real-world experiences. This paper provides detailed examples of experiential learning practices used within the Industrial Distribution program.

Introduction

In recent years there has been an increasing interest in employing active experiential learning techniques, such as role playing, in the college classroom. Faculty recognize that student learners gain more knowledge and insight through action than they do in lecture settings. Faculty are also increasingly more aware of differences in learning styles and the importance of using a variety of instructional techniques to address as many of these learning styles as possible. For example, David A. Kolb [1], who defined learning as the process whereby knowledge is created through transformation of experience, proposed four learning styles in 1984. According to Kolb's model, the ideal learning process engages four learning styles, Converger, Diverger, Assimilator and Accommodator, in response to situational demands. The resulting learning styles are combinations of an individual's preferred approaches.

Convergers are characterized by abstract conceptualization and active experimentation. They are good at making practical applications of ideas and using deductive reasoning to solve problems. One of the main roles of the technical sales representative is to identify appropriate applications to solve a customer's particular problem. Divergers, on the other hand, tend toward concrete experience and reflective observation. They are imaginative and good at coming up with ideas and seeing things from a different perspective. This skill set is especially important for students entering

the field of wholesale distribution where the value they bring to the table in the sales process is problem solving. Being imaginative and creative can be very difficult for a new graduate just entering the field. This is reflected in the program's annual assessment surveys of employers.

Assimilators are characterized by abstract conceptualization and reflective observation. They are capable of creating theoretical models by means of inductive reasoning. Accommodators use concrete experience and active experimentation. They are good at actively engaging with the world and actually doing things instead of merely reading about and studying them. Technical sales representatives in the wholesale distribution industry get paid not for what they read about, but for what they produce.

These learning styles are also referred to in the literature with names such as role play, social drama or social theater. Students in technical areas often find it easier to learn and retain information with hands-on activities. Role-play techniques allow students to apply concepts and problems that have been introduced through lectures and readings to a situation that reflects reality. As students are more directly active in the role playing it is more effective in embedding concepts into their long-term memory [2]. Role playing also introduces concepts that are important in professional sales positions such as understanding how knowledge is developed and produced, in particular the use of language and how language constructs knowledge, logic and prominence of voice. Students learn to communicate knowledge in a meaningful and persuasive manner; this is very important during technical sales calls where language skills, leading to effective communication and negotiation skills, are of paramount importance [3].

Role playing also illuminates the divisions and differences between individuals in the sales process. Role playing in the classroom effectively demonstrates that the salesperson and the customer use different information sources and often hold distinct, if not conflicting, views but that resolutions can be reached. Students learn to work with different personalities, beliefs, value systems, abilities and background experiences. They develop a greater appreciation for the range of perspectives held on a particular issue and come to recognize the complexity of the sales and negotia-

tion process and their own role in the process. Simulations are widely used for learning how to negotiate, and professional negotiators have been shown to benefit from role-play simulations [4]. Students need to realize that they may not have all the answers, and there may be no easy answer, but see the critical issues necessary to solve the customer's problems through the sales process [5].

In one of his last books, Jean Piaget, the great developmental psychologist, described knowledge development as a process of equilibration between assimilation and accommodation learning styles. In assimilation, people figuratively fill in their mental map of their world, while in accommodation, they figuratively change that mental map span or alter it to fit their new perceptions [6]. Rote memorization tends to emphasize assimilation. In contrast, learning to climb a tree, swim, or riding a bicycle emphasizes accommodation and involves gaining a "knack" and tends to be the kind of learning that is almost impossible to fully forget. Assimilation learning, as has been well documented, is remarkably easy to forget.

There are several benefits to ensuring that students receive real-world experience in business processes, current technology and supervision while pursuing a degree in their chosen field of study. One benefit of gaining real-world experience is that students become more prepared to handle business problems and opportunities [7]. Another benefit realized from real-world experience is that students get the opportunity to experience their future work environment before graduation. As Fedorowicz et al. [8] point out, it is especially difficult for a newly minted graduate to grasp more complex inter-organizational technical sales concepts and information flow if the graduate was not exposed to actual business processes and experiences in their education.

Given the apparent success of utilizing role-play pedagogy in the classroom, one may ask the question, "Why wouldn't everyone use role playing as an instructional strategy if it is such an effective method of teaching?" There are several reasons for this. Many college professors, although they are well versed in the theoretical information, may not have had opportunities to work in the real world. This can make it very difficult for some to create real-world role-play activities. If professors have real-world work experience, they can more easily and effectively create these role-play activities. To overcome this problem, one could involve people from industrial advisory boards, or just local people, in that particular business to assist in the creation of realistic role-play activities.

Evaluation is a problem facing many professors utilizing role playing in their courses. The evaluation process is very subjective. As students observe the role play of others, they naturally improve. The first students almost always perform much worse than the students who perform their role-play activities at the end of the exercise. The real goals of having students observe other students' role playing are to have them learn from the mistakes of others. This results in a much higher level of learning for all students. Another problem is trying to create real-world environments in an academic setting. This is why the Industrial Distribution Simulation Laboratory was created. The laboratory provides the real-world setting that assists in making the role-play activities realistic.

The Industrial Distribution Simulation Laboratory

The main reason the University of Nebraska at Kearney created the Industrial Distribution Simulation Laboratory for its undergraduate degree program in Industrial Distribution was to ensure that students are gaining real-world experience in technical sales, current warehouse operations technology and supervision techniques. The laboratory environment replicates an actual industrial distribution branch having a city counter along with a completely stocked showroom (410 sq.ft.), sales simulation offices with inside and outside sales desks (170 sq.ft.) and a branch manager's office (145 sq.ft.). The laboratory has its own internal phone system enabling students to practice their phone and customer service skills. The laboratory also has a completely stocked warehouse (2,100 sq.ft.) complete with various types of racking systems including a mezzanine and conveyor system. Also included in the design are a secure storage area (80 sq.ft.) and an adjacent training room (2,160 sq.ft.) that is also used for industry training.

Students utilize a variety of material handling equipment, bar code readers, and a work-assisted vehicle and forklift to manipulate stock. They perform structured and detailed role-play simulations in picking, packing, shipping, receiving and inventory control. Once an item is shipped from the warehouse, the item is purchased back by the Purchasing for Wholesale Distribution class. Activant's Prophet 21 is the Enterprise Resource Planning (ERP) system used to manage the sales and operations functions within the laboratory. The simulation laboratory is used throughout the industrial distribution core courses for preparing students to enter the workforce as technical sales representatives in the wholesale distribution industry.

Laboratory Simulations: Student Role-Play Activities

One of the most difficult tasks in preparing students for future employment is helping them understand the environment they will be working in upon graduation. Students do not get exposed to the actual wholesale distribution environment until they begin their internship, typically between their junior and senior years. The ID faculty and staff wanted students to experience the work environment early for two reasons. First, to help them better understand the work environment they would be spending the rest of their working life in and, second, to enhance their internship experience.

The Industrial Distribution Simulation Laboratory allows students to simulate real-world tasks in the operation of an industrial wholesale distribution branch. Each assignment includes a discussion of the concepts, required deliverables, objectives, safety procedures, and step-by-step procedures to complete. In order to ensure success of each laboratory activity, students are divided into groups and assigned different roles for laboratory activities. These activities, created by the faculty and staff of the ID program, require students to rotate through the following roles in the laboratory, thereby exposing them to all facets of an industrial distributorship and the tasks involved in each role. For example:

- Outside Sales
- Inside Sales
- City Counter Sales
- Warehouse Manager
- Warehouse Supervisor
- Order Picker
- Shipping and Receiving

One of the best compliments the ID program receives is when companies come into the laboratory and comment, “This is exactly what we do” or “If I had this training, I would have been years ahead in my career.”

Sales Simulations

Sales simulation role-play activities begin with counter sales and showroom management, the typical entry-level position in the industrial wholesale distribution industry. Students need to learn how to use the ERP system to look up products and problem-solve customer needs as well as create customer orders. First-hand experience operating an ERP system places students well ahead of their competition upon graduation [9]. The counter sales person has to be able to operate in a fast-paced environment and handle custom-

ers both on the phone and in person, as shown in Figures 1 and 2. The role-play activities are designed so that students get experiences in both of these areas including the use of the ERP system to create an accurate purchase order for the customer. Such role playing will help them understand how difficult this process is in a pressure-induced wholesale environment when many normal, although sometimes hectic, daily activities may be competing for their attention [10].



Figure 1. City Counter Phone Role-plays



Figure 2. City Counter Customer Service

Almost every industrial distributor branch has a showroom. The showroom is generally managed by the counter sales people and the branch manager. The showroom management role-play activities are designed to identify items that would be useful in a showroom environment. Students are required to set up the showroom, Figure 3, so that most-purchased items are displayed first. They also need to do research on items that customers most often just come in and pick up. Another role-play activity is designed with security in mind to make sure that the items in the showroom are secure.



Figure 3. Showroom Management

The next progression in an industrial distribution student's career is to, more often than not, move into inside sales. This role has several functions: taking phone orders, assisting outside salespeople, doing takeoffs (see Figure 4) and assisting with counter sales when needed. The inside sales role-play activities (see Figure 5) are designed so that the inside sales person learns how to take extended phone orders, complete limited takeoffs and can problem-solve as they assist the outside salespeople in handling customer problems. Most of their work is completed over the phone and, as such, do not actually work face-to-face with the customer. These role-play activities help the students gain confidence in taking orders over the phone and giving them opportunities to practice organizational skills that are needed to complete accurate orders.



Figure 4. Take-offs

After students have completed several years in inside sales, they often move into outside sales. As outside sales people, they are responsible for the direct servicing and problem solving for the customer. The role-play activities,

for an outside salesman, include scheduling appointments (see Figure 6), preparing quotes, responding to requests for proposals (RFPs), and are responsible for 75% of the sales in a typical branch. The sales role-play activities are very important in showing how salespeople interact with the customer.



Figure 5. Inside Sales Role-plays



Figure 6. Scheduling Sales Calls

The first sales role-play activity is designed so that students learn how to set up appointments for sales calls. It is very important that the students and outside sales people feel very comfortable in phone situations. The simulation laboratory has an internal phone system that allows for extensive practice in phone skills. Telephone techniques are one of the assessment areas surveyed each year for graduates of the program. And, it is one of the areas employers continue to state as a weakness on the part of new graduates. The second role-play activity is an actual sales call in the sales simulation office (see Figure 7). The students will use their questioning skills to determine the customers' actual needs and set up a follow-up appointment. The third

role-play activity is the presentation of a proposal and learning how to ask for the sale. It is an excellent opportunity for the students to experience several sales situations as they observe other students' responses in the same role-play situations. It is very important that the students learn to think on their feet and listen to what the customers are really saying.

Figure 7. Making Sales Calls



Operations Simulations

In addition to sales, another fundamental purpose of the laboratory is to expose ID students to various branch operational scenarios and Key Performance Indicators (KPIs). This provides a basis for understanding branch operational parameters in a simulated real-world environment. The more that students understand how a branch operates and how it makes money, the more prepared they will be when they go on their required internship and as they start their careers. Students with this knowledge will become much more valuable to their companies earlier in their careers. The following operations simulations take place in the lab:

- Vendor Selection
- Item Entry
- Purchasing
- Picking
- Packing
- Shipment Scheduling
- Receiving
- Put Away
- Cycle Counts
- Forklift Operations, OSHA Training
- Asset-management

Each of these simulations in a branch environment is important to the overall success of the branch. The students

must understand the flow of material and how it gets to the customers.

Purchasing, and all its associated activities, is an essential part of the profitability of a branch. The vendor-selection role-play activity is designed to demonstrate how extremely important it is for the students to understand the process needed in selecting the best vendor (see Figure 8). This exercise provides students opportunities to conduct vendor research and to determine the best choice based not only on price but other factors that make quality vendors. In the purchasing process, one has to be certain that the product meets all specifications required by the customer.



Figure 8. Vendor Selection

Once products are selected they must be entered into the ERP system so they can be entered into purchase orders. This item entry must be done in an accurate fashion taking into account the need to be able to identify the item in a search function. Picking exercises are designed so that students will be able to understand picking flow, picking accuracy, the use of bar code readers and assisting pickers in this process. After the items are picked, it is very important that they are packed properly for shipment so the customer receives the product undamaged (see Figure 9).

As a branch management function, the scheduling of shipping is extremely important. The operation needs to be accomplished in a cost-saving manner and still get the product to the customer when it is needed. Students must be able to set up deliveries using a variety of shipping methods, including parcel services and in-house shipping; and they must be able to determine the most profitable method of shipping. Once the product is purchased, it must be received and entered into the ERP system so that the computer recognizes that the product is in the warehouse. Next it must be put away in the proper location so that it can be reached, read and easily picked.



Figure 9. A Conveyor System Is Used in Picking and Put Away

Cycle counts are extremely important in the inventory process at every branch. The students must gain an understanding of the process and the importance of accuracy of inventory. Cycle counts are used to ensure that accuracy is up-to-date so the branch manager does not have to wait until year-end inventory (see Figure 10). It is much easier to correct inventory levels and discover the reasons for gains and losses if it is done on a quarterly basis rather than annually.



Figure 10. Cycle Counting

The movement of materials is done by either forklifts or work-assisted vehicles called WAVS (see Figure 11). The students must not only learn how to operate these vehicles but also how to deliver an OSHA-approved training program. Each student must also understand a profit-loss statement. It is important for each student to understand the financial implications of how the branch is making money (see Figure 12). Each month the branch manager is responsible for determining how to make the branch ever more profitable.



Figure 11. Forklift and WAVE Operations



Figure 12. Branch Financials Role-play

The Activant Profit 21 ERP software being used in the simulation laboratory provides students with the data for the operations that are simulated in the warehouse. This software was chosen because it is one of the most widely used ERP software packages for small- to medium-size industrial distributors. The introduction of Profit 21 into the simulation laboratory was intended to integrate the “Sales and Distribution” and “Materials Management” modules into the lab. In addition to learning Profit 21, students go beyond the physical movement of products. The laboratory simulations incorporate supervisory skill development, decision making and data analysis. These learning components are not only encouraged, they are required in nearly every laboratory exercise. This hands-on learning approach is critical since studies have shown that associative learning, where students perform actual tasks they can apply in a business environment, results in effective learning and future application of knowledge [1].

Conclusion

The Industrial Distribution Simulation Laboratory at the University of Nebraska at Kearney is an integral part of the learning process in the Industrial Distribution degree program. Through extensive role playing and incorporating hands-on application laboratory exercises, students graduating from the ID degree program gain real-world knowledge and experience and are better prepared to immediately begin work upon graduation. This approach benefits future employers as well as students, since graduates require less initial training on the job. Furthermore, employers expect graduates from the ID program to have an understanding of the integration of technology within the industrial distribution field.

The integration of emerging technology, software applications, management and supervisory training, and technical sales and distribution practices into a degree program is an ongoing endeavor. Although significant changes have been made to the ID curriculum, many as a result of input from the ID Industrial Advisory Council, many more changes are planned. To ensure effectiveness throughout these changes, student learning will be tracked and evaluated with a capstone course that will allow students to demonstrate their mastery of technical sales and distribution functions, leadership skills and, most of all, their readiness for a rewarding career in the industrial wholesale distribution field.

Overall, role play is seen to be a beneficial teaching tool as it develops practical professional sales and operational skills as well as academic knowledge. Students generally enjoy this hands-on approach to learning which broadens their understanding of the technical sales process through experiential learning. Although this hands-on comprehensive approach to technical sales and wholesale distribution training is expected to produce effective graduates, continued research is needed to determine the long-term effects of this approach. Future research will help determine if graduates of this approach are more successful than previous students having graduated before the implementation of the simulation laboratory.

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