EDCI 67200 Case Analysis-Abby Carlin

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Key Stakeholders and Primary Concerns: Abby Carlin, **instructional designer**, obtained her first job with Learning Together Through Training (LT3), after graduating. LT3 is an instructional design firm that assigned Abby to design training for her first client, Fritz David Manufacturing (FDM), a steel stamping plant that manufactures large steel car parts. Abby needs to develop training for new employees who have never operated the machinery. With no prior knowledge of manufacturing, Abby has concerns of documenting the steps of operating the machinery with logistical constraints such as high noise levels, poor lighting, and no communication with the current veteran workers. No prior written training materials exist, and the rushed timeline of implementing training with three shifts of new employees within the next 90 days without losing production, adds to her concerns.

Dr. Joyce Abbot, instructional designer and coach to Abby, is a former instructor of Abby's graduate class and is currently the Vice-President of LT3. Dr. Abbot hired Abby because of her outside thinking of design and delivery methods. Dr. Abbot advised Abby to list all the needs and constraints of FDM when designing training. She's concerned with the transfer of her knowledge to Abby, the reputation of the company, future business, positive recommendations, and increased revenue for LT3.

Andrew Thomas or **client representative**, is the plant manager of FDM, was transferred to the company from another plant as a foreman and therefore doesn't know how to completely operate a blanker machine. Andrew's concerns include decreased productivity on the line, the three shifts of veteran employees that will be retiring, and the inexperienced employees that will be replacing the veterans. He needs training to be successful to: keep production up, increase revenues, have positive recognition for his management skills.

Big John and the three shifts of veteran employees are the **Subject Matter Experts (SME)** for the 60 year old steel stamping machines for car parts. The employees are not interested in sharing procedures and processes for operating the machines. They have worked on the machines for 30 years and learned on the job and from each other. They are concerned about retirement from FDM.

Fritz David Manufacturing (FDM), client, and its employees manufacture large steel car parts. FDM is concerned with maintaining or increasing production to increase revenue, and creating a product

that is produced without damage for the consumer. Likewise the president and/or the CEO of FDM is concerned with their Return on Investment of the car produced parts and its reputation to the consumer.

New Employees of FDM, target audience, are concerned with doing a good job on the stamping machines at their plant, as the job market is tight for manufacturing positions. So they don't want to be replaced as they want to continue to work in this great manufacturing plant.

Consumers, end users, of FDM products are concerned about the safety, reliability of the car parts as they use vehicles for the main mode of transportation.

Key Design Challenges

Issue 1: Abby needs to perform a task analysis on the current employees completing the Analysis stage of ADDIE (Analyze, Design, Develop, Implement, and Evaluate) that would allow her to gather data, analyze and synthesize the descriptions of what the current employees are doing on the stamp machines (Dick, Carey, & Carey, 2009). Abby doesn't know the knowledge, skills, or attitudes that employees need to be successful in training. A lack of motivation and cooperation in sharing knowledge from SME's is keeping Abby from getting the data she needs through questioning, interviews, and observations from the current employees. She needs to distribute the task analysis in the form of a survey with directions to be pilot tested with the current employees to design training for the new employees. Performing a task analysis is intensive, time-consuming, and complex for critical training and manufacturing (Dick, Carey, & Carey, 2009).

Issue 2: Abby is against a tight timeline in developing, delivering, and implementing the new training for the new employees and she has no prior information on how to operate the stamping machines. No prior training manuals or documentation exist on how to operate the machines. Training has to be completed in 90 days for three shifts of new employees without stopping or losing production and her SME's are not cooperating. Her biggest challenge is implementing the training to new employees.

Case Specific Issues: Abby is trying to observe Big Jon and document the operation of the machines to design the training. The lighting in the plant is poor and is impaired with the safety goggles, hearing is decreased due to the noise levels of the machines, and Big Jon moves too fast for her to capture the steps on the machine. Communication is poor among employees due to noise levels and thus is limited to the

break room, or by notes on the bulletin board that employees check before the start of each shift. The veteran employees are the only ones that know how to operate the machines.

Priority of the Design Challenges: The first thing Abby should do is solve the environmental barriers in the plant: poor lighting, loud noise, and lack of communication with the current employees. This will help her gather the data for a task analysis to design the training. Once the environmental and communication barriers are "out of the way", she can move to implementing the training against the 90 day timeline for the new employees.

Understanding the Case Problem: The paper from Erven (n.d.) iterated that trainers need to see the job from the perspective of the employees. This confirms that Abby needs to be on the floor to view and communicate with the veteran employees to perform her task analysis so she can move the design stage of the training. Sisson stated (as cited by E. Smith, A. Smith, and C. Smith, 2010) mature workers or workers with high experience on the job can be utilized by their companies to implement training strategies and be trainers for the company. Veteran workers of FDM should be utilized to train and be the trainers for the new employees. The article explains how companies should make the workplaces more adequate for learning via training but companies have limitations on their learning workspaces as stated by Harris and Volet (as cited by E. Smith, A. Smith, and C. Smith, 2010). FDM does not have a place within the company for training except the break room and learning on the job on the plant floor. Abby will have to utilize the resources she currently has such as the break room and plant floor and make it adequate for training processes and procedures.

The preference to read the white paper from Motorola explained how using 2-way communication devices increased plant production and efficiency as well as decreasing capital costs, increasing employee productivity, better decision making, and improved employee safety (Motorola Solutions, 2013, p.3). Andrew can approach the president of FDM to show him data mentioned above to invest in two-way radios because of the increased ROI for the company.

Solution and Recommendation 1: Abby needs to overcome the environmental barriers in the plant to collect data for the task analysis. Abby can bring in industrial lights for better visibility for her

observations. Once she has better lighting, she can add video cameras on tripods to record what steps the veteran employees are taking when operating the machines. In order to counteract the noise, she can post a note on the bulletin boards announcing to having a short meeting in the break room where Abby can impress upon current employees about the importance of understanding specific steps on the machines, and how she plans on incorporating two way radios with headsets and texting capabilities to communicate with them on the floor as she video tapes and observes them. Using video cameras will allow her to record their actions so she can review the recording to document the steps. The headsets will allow Abby to use verbal interviews of the workers to gain the data for the task analysis, interviews, and pilot testing the employees on the training content and documents. She will interview the veteran workers after their shift and provide overtime pay as an incentive to increase motivation and facilitate communication.

Pros: Industrial lights would allow workers to see better and for Abby to document the steps of the operating the machines. Temporary lights using existing outlets would be less expensive and quicker to implement than having electricians permanently install new light fixtures. Video cameras would allow her to observe the workers and the radios to communicate with them while they are on the job. Plus Abby could review the videos at any time. The two way headset radios and texting could be a permanent fixture on the plant floor with long term benefits by allowing plant managers to communicate with their employees as well as communication between employees while operating the machines. Studies from Motorola show that communication increases plant production and efficiency as well as decreasing capital costs, increasing employee productivity, better decision making, and improved employee safety (Motorola Solutions, 2013, p.3).

Cons: Costs to purchase and install industrial lights, video cameras, and two way radios with headsets with texting capabilities could be prohibitive for the company.

Solution and Recommendation 2: In order for Abby to obtain more content for her training, she can contact the manufacturer for the manuals of the 60 year old machines. The manufacturer should have a training representative, another SME of their own, that could help Abby collect information on the machines, or who would help her facilitate training. A sales representative would recognize this as an

opportunity to upsell FDM new machines and would not have an issue in providing help at no cost. Abby can contact other plants across the country who utilizes that particular model of machine with Andrew's help. In addition, Abby can create memory aids for the new employees from the information she received from the manufacturer, and other plant members. In order to deliver and implement the training, Abby has to take into account 3 shifts of employees. So FDM should offer overtime for the veteran employees in order to help train the new employees on the job. This would be integrated with the training developed by Abby. It's suggested that the new employees train on the job first with the veteran employees to develop their psychomotor skills. For example, shift 1 veteran employees would work their shift with the new employees watching and after the shift was over, the veteran employees would talk in the break room and discuss any further questions. Or, FDM could provide training on the weekends during 2nd shift so the veterans can train the novice employees in a decreased production time. FDM would offer overtime training for the veteran and new employees since the new employees are transferring from another plant. The new employees are already excited and motivated to be working at this plan so they won't mind the needed training. To keep facilitation of the training sessions ongoing, FDM could offer pay to veteran employees to facilitate training sessions for the new employees after their retirement for 2 weeks.

Option to Recommendation 2: Another option to training the employees is comparing the money FDM would spend on overtime for the veteran and new employees for training and comparing it to the monies lost in production by shutting down one machine. If fewer monies are lost in production by shutting down one machine on the line, compared to total monies spent on payroll, then it would be suggested to utilize this scenario.

Pros: Contacting the manufacturer of the machines and plants across the country who utilizes the same make and model of FDM's machines would provide Abby with documentation on operating the machines. A training representative from the manufacturer could help her with the content she needs to develop and train employees. Veteran employees training the new employees on the job would give the new employees experience to learn how to operate the machines and ask questions. The new employees

are motivated about their position and being involved in the plant. The plant shutting would be down just one machine and not all on the production line in order to train the new employees on the machines.

Cons: The manufacturer might not have documentation on the make and model of the 60 year old machines, nor anyone that could help Abby with the data she needs for the content of the training. Or the manufacturer might invoice FDM for the time of their representatives to help them. It would take time to call the plants to verify the make and model of their machines. Plus the other plants need to keep their production going so they will not want to spare their people to help another plant. It would costs money for overtime for employees from another plant to help Andrew's plant. Again it would cost FDM additional payroll monies to provide to the veteran and new employees. Monies lost in production might total more than monies used in paying overtime to help the veterans train the new employees on the job with all of the machines running for production.

Final Recommendations: Abby needs to work with Andrew is getting video cameras and 2-way radios into the plant to increase communications between her and the veteran employees so she can get the steps needed to operate the machines for her training. Contacting the manufacturer of the machines for any documentation, video clips, or a trainer would give her additional content on how to operate the machines. Once she obtains the equipment she needs to perform a task analysis, she will communicate with the employees via notes on the bulletin and discussion in the break room of her plan and the objectives she needs to accomplish for the training with the SME's help. Next, she will work with Andrew and company management to offer monetary incentives, overtime, for any veteran employees to help her with the content, interviews, surveys, pilot testing and implementation of the training. As stated by Motorola 30 to 40 percent of profits can be lost annually due to downtime in the company so it was determined to offer monetary incentives to veteran SME's rather than "shutting down a machine" and losing production (2013, p. 1). Abby will create job aids and short video clips for new employees to view prior to stepping foot on the plant floor. These job aids will help the new employees at any time during while operating the machines. Further monetary incentives will be created with Andrew's help to obtain 3 or more veteran employees, after their official retirement, to work with the new employees for one week,

on the job training. When the new employees start, they will have an orientation in the break room on safety, view the visual materials created about the operating the machines, and be provided with their job aids and how to utilize the machines. The new employees will also have access to the 2-way radios to always contact Andrew or other employees on the plant floor for any issues that arise when they start operating the machines. The veteran employees that have agreed to extend their work one week after retirement will work on the job with the new employees going through the needed steps to operate the stamp machines. This final recommendation will allow Abby to finish her task analysis and create the content needed to implement the training and at the same time keep all the machines up and running for production while utilizing Dr. Abbott as coach throughout the whole project.

References:

Dick, W., Carey, L., & J. O. Carey (2009). *The Systematic Design of Instruction*. Upper Saddle River, New Jersey: Pearson.

Erven, B. L. (n.d.). Training New Employees: Department of Agricultural, Environmental and Development Economics, Ohio State University. Retrieved from https://mycourses.purdue.edu/webapps/portal/frameset.jsp?tab_tab_group_id=_2_1&url=%2Fwebapps%2Fblackboard%2Fexecute%2Flauncher%3Ftype%3DCourse%26id%3D_84212_1%26url%3D

Motorola Solutions (2013). *Leveraging Plant Communication to Slash Downtime and Speed Response Time [white paper]*. Retrieved from http://www.motorolasolutions.com/web/Business/Solutions/Manufacturing/_Documents/Plant_Communications_White_Paper.pdf

Smith, E., Smith, A, & Smith, C.S. (2010). Old dogs, new tricks: training mature-aged manufacturing workers. Journal of Workplace Learning, 22(5), 277-291.