Dr. Roger Kaufman defines a need as “a gap in results” (Song, 2012, 7:00). With this case study, three issues need immediate attention. First, the business is losing revenue due to inadequate new hire training for the software program. Second, new hire training could be more effective. Third, there is a business case for immediately retraining existing new hires, outlining the process for requesting material samples. After careful consideration and analysis, the current training program for the material management software has proven ineffective and needs updating to current standards of instruction. The recommendations proposed will address the gap in results resulting from the current training plan.

We review a case study involving a group of new hires who received training on a specific software application they use daily. After receiving the training, the new hires made costly mistakes in the system by ordering incomplete samples from the factory or not following the process correctly. After conducting a needs analysis of the training, several issues with the training approach were identified. First, new hires could not remember how to complete the task due to the overwhelming amount of information, and many new hires did not work in specific areas within the software application. Hence, parts of the training were irrelevant to them. There was also the issue of the system undergoing frequent updates where user interface elements would change. We will propose strategies to improve the software training program for future new hires. We will also recommend improving communication and documentation of updates to assist employees when there is a need for process review and retraining all existing new hires to close learning gaps resulting from the previous training experience. These proposed training solutions are both asynchronous and synchronous, utilizing the company intranet, learning management system, and virtual instructor-led training opportunities, thus eliminating the costly and unnecessary expense of employee travel for in-person training to use a web tool. These recommendations will address the gap in results resulting from the current training plan.

The current approach requires all new hires to attend a week-long, all-day instructor-led training (ILT) course and receive a binder of the hard copy quick reference guides for each task. This approach

overwhelms the trainees' cognitive load and costs the organization valuable time, money, and resources. Our first recommendation is that new hires receive pretraining before starting the training. Pretraining is when "learners receive more instruction concerning the components in the to-be-learned system" (Mayer & Moreno, 2003). The redesign of new hire training shall include asynchronous learning modules identifying the tool's key terminology and user basics. It will be provided through the Learning Management System and include terms, basics of the software, and the location of help documents. This interactive module will have users click to identify aspects of the tool that all users need. For instance, account and profile information, location of help documents, and menus for navigation. Working within a virtual representation of the tool uses imagery to reinforce learning (khanacademymedicine, 2013, 3:47) and engages the user's working memory by modeling the user experience (TED, 2013).

Where pretraining addresses the user interface and fundamental aspects of the tool used by everyone, the next set of recommended training modules are related to asynchronous Process Training and should be targeted to the user's role. With the current approach, all new hires receive the same training, although some parts of the software application are irrelevant to their role. Using anchored instruction "focuses learners on developing knowledge and skills through collaborative problem-solving experiences" (Polly et al., 2018). Also provided through LMS rollout, process training is assigned to curriculum groups based on their role within the company and consists of a knowledge check, demonstration, and practice. The knowledge check serves two purposes. First, introduce new hires to the process and require information with a pretraining exercise asking them to determine how to use the tool logically. The second purpose targets existing new hires who will need retraining and helps to identify if they know the steps necessary to request material samples and what information is required. The learning team will be able to analyze responses and determine whether new hires do not know the steps or are simply not following them by using an ordering exercise and multiple-choice questions to

assess user knowledge. The next process module will provide a video demo and an explanation of the tool using a dual-coding approach to show the application in use and explain the importance of each step in the process (Oyarzun & Conklin, 2021). It is possible to use branching and allow users to skip the demonstration of the process if they are successful with the knowledge check questions. Finally, the last aspect of process training modules is interactive. Simulating the software tool, users must accurately click through the steps on the screen image and complete the process from beginning to end.

The objectives for the process set of learning modules are to review the steps required to complete a sample material request for existing new hires and to introduce the process for future new hires. Communicating the impact and importance of each aspect of the process is a secondary goal. Realizing that failure to follow the process and complete all required information negatively impacts others and costs revenue will help users understand why this software tool has required steps. According to Vygotsky's Zone of Proximal Development (ZPD), it is just as crucial for learners to understand the importance of each step as it is to know how to achieve the desired result and these "productive interactions align instruction toward ZPD (Polly et al., 2018)." While an asynchronous, self-directed module does not partner the user with other learners as described in *Sociocultural Perspectives of Learning*, the design intent is to foster comprehension of the broader impact individual action may have on others, thereby incorporating ZPD strategy (Polly et al., 2018). In addition, employees must be cognizant of how their role in the system affects the system overall. These recommended changes allow new hires to focus on the part of the system most relevant and valuable to them and their use of time.

Based on the information provided in the case study, it is safe to assume that this software does more than allow ordering material samples. After completing asynchronous training modules for the basic functionality of the software tool, users will need training on advanced functionality. In addition, quarterly virtual instructor-led training (VILT) is recommended. This training will use a scaffolding approach, anchored instruction, and ZPD. “Scaffolding takes many forms, ranging from computerized

tools that support tasks to activity structures to larger social structures that support learning" (Hoadley & Van Haneghan, 2018). Redesigning the current training approach through scaffolding will include demonstrating the software application's advanced use and allowing participants to practice, experiment, and recommend best practices. This use of scaffolding will allow "both the learner and the one providing the scaffold to influence each other and adjust their behavior as they collaborate" (Polly et al.,2018). The training session will begin with the facilitator demonstrating a predetermined advanced topic. Users will then be given a scenario and asked to practice the recommended steps to complete the scenario request. Given that most applications have more than one way to complete all required steps, users will be asked to explore the tool to discover the shortcut for accessing and completing the scenario request, thus using a scaffolding approach to build learning and confidence using the application (Polly et al., 2018).

To extend learning and confidence, users will be sent to virtual groups and given another task to explore together, to reinforce what has been learned. Using this anchored instruction technique, learners will be given a problem-based scenario to complete. This scenario will require users to understand the tool's primary function, use the advanced functions of the application, and problem-solve to resolve to complete the scenario task. Learning takes place through interaction and collaboration within the software tool, providing a situated learning opportunity relevant to their role and responsibilities (Polly et al., 2018). The trainees will work in different groups based on which part of the software application they regularly interact with. Even with the anchored instruction using the tool with like groups, debriefing after the task will still be essential to reinforce how their role impacts others.

A significant issue with the original plan relates to the frequent updates of the software application. The final aspect of this recommended training plan is to create an application playbook that is digital, searchable, and easily updated. It creates documentation as IT developers design new tools

and make updates. Using this documentation, the learning team can create and implement a communication plan for significant system updates. Partnering with the IT development team, the learning team will assist with communicating major application updates by posting on the company intranet, sending an email communication, and providing a link to updated documentation. If necessary, learning and IT may collaborate and host a webinar demonstrating the change, with updates to existing training being made as required. Where users were comfortable with the tool, changes enhanced the difficulty of the application, even for a short time. Using ZPD strategies and having an expert review of the improvements for users to practice before everything is live enables users to grow confidence and perform the steps without assistance when necessary.

Implementing multiple sociocultural perspectives on learning, this new training plan alleviates concerns for cognitive load exacerbated by week-long in-person training sessions where users are expected to learn a new tool and gain proficiency. The modules and training sessions are also designed to target user groups, promoting content relevancy for the user. Frequent updates to the software can be managed with the improved communication plan and digital help documents accessible to all users without having to sort through a binder and determine if the document has been updated with the replacement. These synchronous and asynchronous training solutions, which will use the company intranet, learning management system, and virtual instructor-led training opportunities, will eliminate the costly and unnecessary expense of employee travel for in-person training and increase the effective use of the application. Improving both employee performance and reducing loss of revenue for the organization.

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