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Tips for Providing Effective and Budget-Friendly SAS®
Development in a Remote Environment

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ABSTRACT

Did you know that less than one-third of employees report being engaged in their work and their organization? Did you know that appropriate professional development activities can keep employees engaged and motivated, improving both performance and retention? This presentation, suitable for all levels of SAS® users, will explore ways to identify and utilize budget friendly development opportunities. Learn how to develop SAS skills while strengthening teamwork. Take away tips, links, and ideas to maximize employee engagement and learning, and make the most of your department's contributions to organizational excellence.

INTRODUCTION

Prior to the 2020 COVID-19 pandemic, employers were already facing challenging times. Less than one-third of employees report being engaged in their work and nearly 20% report a sense of being actively disengaged (Gallup, 2017; Gallup, 2020). Another indication of low employee engagement and retention can be seen in an ongoing median employee tenure of less than 5 years (U.S. Department of Labor, 2020). Unengaged employees with short tenure can be a recipe for low productivity and diminished business success (Cloutier, Felusiak, Hill, & Pemberton-Jones, 2015).

The Covid-19 pandemic response only added to the difficulties faced by organizations and individuals (Kniffin et al., 2020). Some organizations quickly shifted to a remote workforce environment while other organizations lost significant amounts of revenue or simply went out of business. Many individual employees telecommuted for the first time in their professional careers while also dealing with increased job uncertainty. In addition to professional pressures and economic concerns, individuals may also have faced increased familial pressures due to virtual K-12 or postsecondary schooling, quarantines following COVID-19 exposure, or caring for sick family members. At both the individual and organizational level, COVID-19 has made an already challenging business environment more difficult.

PROFESSIONAL DEVELOPMENT

Organizations can use professional development to address many of the challenges they are currently facing. Professional development provides an opportunity to meet not only organizational goals but also to meet an employee's personal learning goals. Professional development thereby provides the means to increase employee engagement and retention, which positively impacts business success. More specifically, professional development can help employees enhance interpersonal soft skills such as teamwork and communication in addition to hard technical skills such as SAS coding, data analytics, and visualization. The 2018 LinkedIn Learning Report, based on a survey of approximately 4,000 executives, employees, managers, and talent development professionals, described the relationship

between professional development and employee retention succinctly: "94% of employees would stay at a company longer if it invested in their career development" (LinkedIn Learning, 2018, p. 8). The key to longer employee tenure is providing employees with high quality professional development.

APPLYING THE SDPDC©

Based on Knowles' theory of andragogy (adult learning) and Hase and Kenyon's work on heutagogy (self-determined learning), the Self-Determined Professional Development Cycle framework (SDPDC©, Figure 1) was crafted to help individual professionals plan their own development in a thoughtful and productive manner (Smith, 2019a). Individuals work through the five stages of the SDPDC to select learning opportunities that reflect not only their current skills and future goals but also their preferred learning styles:

1. Examine current skills
2. Set learning goal(s)
3. Research learning options
4. Assess outcome of learning
5. Reflect on learning process

The first four stages culminate in the goal of competency, or the development of new knowledge, skills and abilities (KSAs). The final stage of reflection creates the cyclical path and allows the learner to reach the second goal of capability. Capability is the application of new competencies to unfamiliar or unexpected situations. Capability is enhanced when a learner reflects on what they learned, how they learned, and the learning's impact on their goals or future plans. By incorporating capability on top of competency, the SDPDC enables individuals to effectively navigate quickly changing environments.
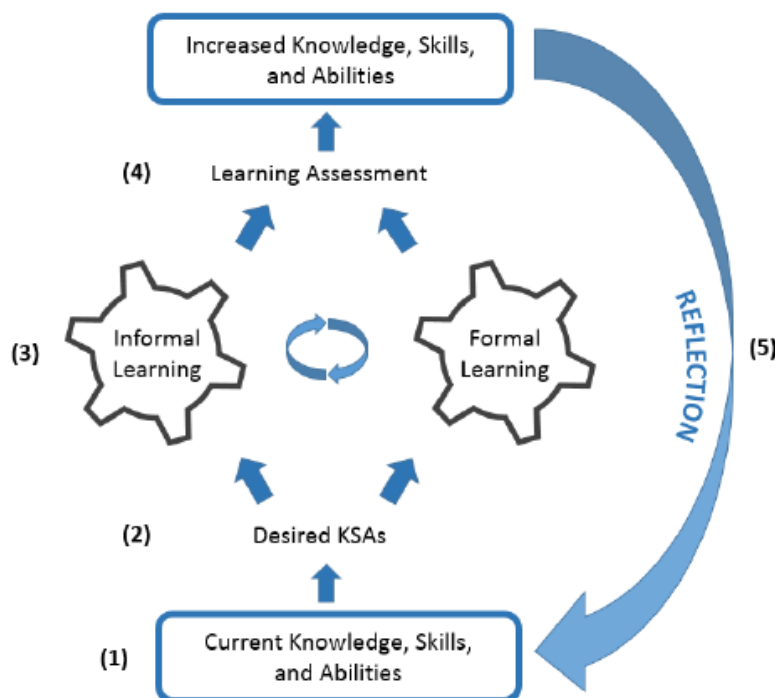

Figure 1. SDPDC© framework (Smith, 2019a, Figure 1, p. 4).

The utility of the SDPDC has expanded since its initial creation (Smith, 2019b). By adapting the framework to create individualized learning plans for employees, managers can use the SDPDC to enhance employee engagement and improve retention. According to Bramblett and Broderick (2018, p. 147), the use of individualized learning plans tells employees "that their continuing education is important enough to invest in." The 2020 LinkedIn Learning workplace report found that a majority of employees in any generation (Boomer, Gen X, Gen Z, Millennial) want learning that is "social and collaborative" and "personalized" (LinkedIn Learning, 2020, p. 26). An investment in employee development is an investment in continued organizational success.

The SDPDC can also be used to meet the challenges of the COVID-19 pandemic response by assisting managers in determining professional development needs of work teams or departments. The primary adaptions take place in stages 1 and 2, where current KSAs are evaluated and desired KSAs are selected.

In the first part of Stage One, the manager should focus on the roles and responsibilities of a work team or department. Questions to consider include:

- How does the group fit in the overall structure of the organization?

- How does the group's function fit in with organizational needs / goals?

- What are some potential challenges or opportunities for the organization that the group can impact in a positive manner?

- What type of development would be beneficial for the group as a whole?

Once the manager has a firm understanding of the group roles and responsibilities, the next step is to look at individual group members and their roles and responsibilities within the group structure (example group = Amy, Bob, Juan, Yasmin):

- What is Amy's role within the group? What are her responsibilities?

- What KSAs would help Bob with his current role? Is he interested in refining and/or expanding those skills? Which ones?

- Juan has asked to expand his work within the group. What type of KSA development does he need to take on additional responsibilities or roles?

- Yasmin is an experienced group member. Would she be interested in a lateral or vertical promotion, or is she satisfied with her current situation? What type of development is appropriate for her goals?

The manager should use all the information gathered from their Stage One conversations to draft a development plan for the group that meets both organizational and individual needs. To maximize impact and minimize expense, the manager should search for development options that are both effective and budget-friendly. The manager should also work to create an environment conducive to learning.

CREATING A CULTURE OF LEARNING

The Association of Talent Development defines a culture of learning as

> ... one in which employees continuously seek, share, and apply new knowledge and skills to improve individual and organizational performance. The importance of the pursuit and application of learning is expressed in organizational values and permeates all aspects of organizational life (ATD, 2016, p. 6)

An organization with a robust culture of learning is likely to have better business results than an organization which views professional development only in terms of compliance with local, state, or federal guidelines (ATD, 2016). An organization that values learning and sets learning as an organizational goal is well on the way to developing a culture of learning. However, leaders and managers must both set the standard and exemplify the value of learning to the organization (Dumesnil, 2019; Feffer, 2017). The use of individualized learning plans and the active pursuit of both individual and group learning options are beneficial aspects of a learning culture. Survey results support the importance of learning to employees: "68% of employees prefer to learn at work," and 56% "would spend more time learning if their manager suggested a course" (LinkedIn Learning, 2018, p. 7 and p. 9).

GROUP LEARNING OPTIONS

The initial release of the SDPDC (Smith, 2019a) included a comparison of informal and formal learning. Because formal learning often culminates in a certificate of completion or some other official indication of success, formal learning may be preferred for technical topics such as SAS coding, data analysis, or data visualization. That is not to say technical training cannot be successfully done with informal learning, but the highly structured nature of formal training lends itself well to technical skills development.

Informal learning can be particularly beneficial for interpersonal skills such as communication and teamwork since informal learning typically has a more flexible format and can be more easily adapted to different circumstances. When informal learning occurs, learners and managers should take extra steps to assess learning outcomes because there tend to be fewer formal assessments within the informal learning structure..

Since the initial focus of the SDPDC was the individual learner, this discussion focuses primarily on group learning options. The COVID-19 pandemic response displaced many workers into a remote environment, disrupting normal operations and social interactions among work teams or department members. The most recent LinkedIn Learning workplace report (2021) described survey results which indicate approximately one-third of employees now feel less connected to leaders or teammates. Group learning is particularly useful in a remote environment because group learning helps build connections, and even increases the amount of time spent learning.

Group learning is common at all educational levels, from K12 to higher education to community based learning experiences. A quick Internet search identifies multiple resources for group learning experiences (Center for Teaching Innovation, 2021; Symonds, 2021). Table 1 contains some common, simple options for group based learning. A short explanation is included for each option.

Pair Share	Problem Solve
Report Back	Mini Challenge
Discussion Group	Escape Room
Invited Speaker	Case Study
Book Study	

Table 1. Common Group Learning Options

Pair Share

Pair share is a way to spark multiple ideas in a small group setting. Split a larger group into pairs (or use a trio if there's an odd number) and ask each pairing to discuss a particular question. Depending on the topic, each pairing may have the same question or one of a series of related questions. Provide 5 – 10 minutes for pair discussion, and then bring the entire group back together. Each pairing reports back their thoughts to the whole group.

Report Back

Reporting back is frequently used during lean budget times. In this situation, a small number of employees attend a conference or other learning opportunity. The attendees are expected to bring back learning materials for the larger group, and may be asked to deliver a formal presentation for the larger group.

Discussion Group

Discussion groups can be useful for a variety of topics. To get the most benefit, there should be discussion norms (i.e.; respect, not interrupting, everyone can contribute) specified before beginning a session (see Novicki, 2018, for examples). If a topic may spark controversy an external moderator can help keep the discussion on track.

Invited Speaker

Speakers can be internal or external. Take advantage of expertise in other work groups, or use connections in a local professional group. Think outside the box for topics and guests. Encourage interaction with the speaker and try to step away from the typical lunch time lecture.

Book Study

Book studies do not have to be intensive. Select a short book, pull an article from a professional publication, or even pull news articles on topics related to your work. Another option is a short video on a relevant topic. The idea is to have in-depth analysis and discussion based on evidence. Encourage learners to think outside their box.

Problem Solve

Problem solving can be a way to tackle future opportunities or current challenges. This is very similar to brainstorming in that you're looking for many possible paths forward. Draw pictures, pull in code snippets, draft new visualizations that haven't been done before.

Mini Challenge

Mini challenges are a great way to take advantage of the many coding options offered by SAS. Provide a data set, ask a question, and see how many different PROCs can be used to come up with the answer!

Escape Room

An escape room is a series of mini challenges that must be solved as a team within a set time limit (often 60 minutes). Escape rooms have become very popular and have even been featured at previous SAS Global Forums. A great way to build teamwork, critical thinking, and problem solving skills.

Case Study

A case study can be a role-play of a fictional situation or it can be a review of a previous project. In a fictional case study, the focus is on determining what should be done and why, and potential outcomes of the choices made. In a completed project review, the focus is on what worked, what didn't work, and how the project might be handled differently if it was undertaken in the current environment.

PLANNING FOR SUCCESS

The most important resource a manager has is the group of learning professionals within the organization. These professionals may be located in Human Resources, Talent Development, Training, or the Professional Development unit. Take advantage of their expertise and connections.

Preplan learning experiences. If employees need to read an article or watch a video as preparation, establish the expectation that prework will be completed in a timely manner beforehand. Start and end the learning experience as scheduled, and provide employees with sufficient notice to block out the time on their calendars. As much as possible, establish a pattern of learning opportunities as this will make it easier for employees to get in the habit of regular learning.

Encourage employees to find accountability partners and model this behavior as a manager. Remember to look past current roles and responsibilities; provide opportunities to develop new skills and explore new options. Create a resource library. Most importantly, focus on competency and capability. Encourage all learners to reflect on their learning experience and how it may have impacted future choices.

LEARNING RESOURCES

The following resources were selected on the basis of expense and utility. There are many other learning options available. Reach out to the organization's learning professionals, especially when looking for soft skill development.

HARD / TECHNICAL SKILLS

SAS offers a wide variety of free resources as well as corporate training options and the SAS Academy for Data Science. In addition to the searchable collection of SAS conference papers available at https://www.lexjansen.com/, free resources include over 400 webinars, 8 free eCourses, 16 free eBooks, and over 550 tutorials (Figure 2, related links in Table 2):

- **Webinars**
  - Live or On-Demand
  - Searchable by Topic or Industry
- **eLearning**
  - Statistical Thinking
  - Foundational Programming
- **eBooks**
  - Variety of Topics
  - Variety of Platforms
- **Video Tutorials**
  - How To
  - SAS Global 2020
- **Communities**
  - Peer Support
  - SUGs Access
- **Analytics Explorer**
  - Programming Challenges
  - Discussion Boards

Figure 2. Free SAS Resources

Webinars	https://www.sas.com/en_us/webinars.html#live
eLearning	https://support.sas.com/edu/elearning.html?productType=library&ctry=us
eBooks	https://support.sas.com/en/books/free-books.html
Tutorials	https://video.sas.com/category/videos/how-to-tutorials
Communities	https://communities.sas.com/
Explorers	https://www.sas.com/en_au/offers/analytics-explorers.html

Table 2. Weblinks for free SAS resources

Other free or economical resources for developing data science, analytics, or big data skills include:

- Formal courseware at https://ocw.mit.edu/ or www.edx.org

- Free data sets for mini challenges or escape rooms at https://blog.journeyofanalytics.com/50-free-datasets-for-data-science-projects/

- Short videos for discussion at https://www.ted.com/talks

Another potential but slightly more expensive resource are local institutions of higher education. Check out course offerings at community colleges or four year colleges.

SOFT / INTERPERSONAL

The first resource for soft skill development should be the organization's learning professionals. Other options include:

- Short videos for discussion at https://www.ted.com/talks

- Team building activities at https://wheniwork.com/blog/team-building-games

- Communication activities at https://positivepsychology.com/communication-games-and-activities/

Another potential but slightly more expensive resource are local institutions of higher education. Check out course offerings at community colleges or four year colleges. Community colleges may have free personal development courses as part of their continuing education series.

CONCLUSION

Organizations, managers, and employees continue to face numerous workplace challenges. Professional development provides a means to improve employee engagement and retention, both of which have a positive impact on business success. By following the SDPDC framework and utilizing free or low cost resources, managers can plan and implement professional development activities for their work teams or departments.

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RECOMMENDED READING

- *New to SAS®? Helpful hints for developing your own professional development plan*. (Smith, K.D.)

- *Need to develop your employees' SAS® Skills? A step by step framework*. (Smith, K.D.)

- *Presentation handouts available, contact author at kelly.smith@cpcc.edu for a digital copy*

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