

Accelerating On-The-Job-Learning

A White Paper from The Group for Organizational Effectiveness (gOE), Inc.

“You can’t just ‘hope’ people learn on the job. You have to help them change their mindset. Some people “get it”; others need preparation and training to learn on the job effectively.”

- Learning Expert, Global Pharmaceutical Company

Across industries, the complexity and dynamic nature of workplace operations, as well as the constant and rapid influx of information, requires employees to continuously acquire new skills and expertise. Formal training is undoubtedly an effective and common method for developing the capabilities of individuals¹ and teams² in military³ and corporate settings; across a variety of program types⁴; and for young and older learners⁵. Nonetheless, conventional training alone cannot prepare people for the full and often shifting scope of workplace demands⁶. Formal training is not designed to provide employees with the “on-demand” learning they need to maintain current knowledge and proficiency⁷. **Informal, on-the-job learning (OJL) experiences are needed to maintain proficiency and develop new skills⁸.** However, as you might have observed over the course of your own career, not everyone is naturally effective at learning on the job and as suggested in the following quote from an industry-wide ASTD study, not all workplaces are conducive to it.

“...while many organizations recognize the potential of both informal learning and social technologies for enhancing formal learning, most have yet to take steps to invest in or fully adopt either as components of learning and development.” – ASTD (2012)

In this paper we discuss the importance of OJL for employees and organizations, describe how individuals can accelerate their own OJL (see the text box on the Eight Habits of Fast On-the-job Learners), and suggest ways leaders and learning professionals can enhance that type of learning. These recommendations are based on our 25 years of experience working with organizations and compelling evidence from the organizational learning literature. Importantly, our guidance is grounded by

insights gathered during structured interviews with over 20 learning experts and fast on-the-job learners.

Eight Habits of Fast On-the-Job Learners

To accelerate learning on-the-job they...

1. Proactively **seek** OJL opportunities
2. **Admit** when they do not know something or could do something better
3. Take **calculated risks**, including taking on tasks that are a “stretch”
4. Find opportunities to watch, shadow, and talk with **experts**
5. Ask for **feedback** and “pointers”
6. Consciously make an effort to see the **big picture** and “connect the dots”
7. **Mentally rehearse** how to handle a situation
8. Take the time to **reflect** on their experiences

What is On-the-Job Learning?

Definition: On-the-Job Learning

We define **on-the-job learning (OJL)** as the outcome of intentional behaviors aimed at learning new, work-oriented, and organizationally valued content in a work setting. OJL results from behaviors such as watching or talking with an expert, taking on a new assignment, trying out a new idea, seeking advice/feedback, or being stretched or challenged in a way that requires new learning and expertise.

OJL is **not**:

- Learning that takes place in a classroom or formal training environment
- Simply applying, extending, or transferring skills learned in formal training
- Incidental or coincidental learning on the job (i.e., it is intentional).

Similar to some depictions of continuous learning⁹, OJL is primarily **active** (e.g., taking risks, seeking feedback, opting to try a new procedure, debriefing experiences), but could involve some **passive** or vicarious learning (e.g., observing others in action). While it is possible to isolate unique or specific OJL experiences, OJL is on-going and builds as **a product of a variety of different experiences**. For example, OJL can occur vicariously by observing others perform work or deal with challenges followed by trying out new ideas on the job. OJL is an **iterative process** whereby individuals gain feedback and learn from mistakes.

Why Does OJL Matter?

“Every job requires OJL to some degree, and it is important in almost all of them.”

– Learning Expert, Global Corporation

“OJL is extraordinarily valuable. OJL is where real learning occurs; capability, theory, and beginning competence occurs in school settings, but advanced competence and expanded capability (critical thinking, capacity to be advanced practitioner) comes through OJL.”

– Learning Expert, Medical

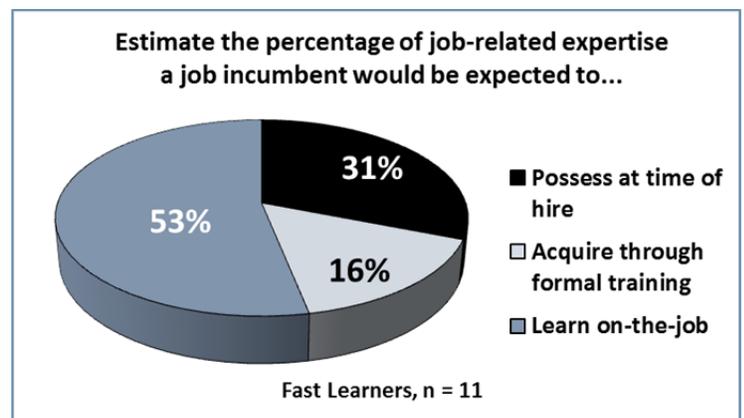
“In most of our positions learning happens on the job, not in the classroom, regardless of whether you are new or a transfer.”

– Learning Expert, Bank

Despite the critical role of formal training, in most organizations it is not enough. Traditional training cannot adequately prepare people for all possible scenarios, and is typically not designed to equip individuals for on-going learning. Employees gain new knowledge and capabilities on a continual basis through informal, non-curricular, means. In fact, empirical research shows that the majority of learning and development during one’s career occurs outside of formal training settings¹⁰ and via more informal ways and as a result of experience¹¹, with estimates of informal learning ranging from 70%¹² to over 90%¹³. For instance, in a study of seven different US organizations, individuals consistently attributed less than 10% of their personal development to formal training¹⁴. This finding

was replicated in samples in Japan, Korea, and China¹⁵.

Our interviews with 21 Learning Experts and Fast Learners confirmed the critical role of OJL. We asked the Fast Learners (identified by their organization as individuals who learn new job-related knowledge and skills quickly and effectively) to estimate the percentage of job-related expertise a person new to their role would be expected to: possess at the time they were hired, acquire via formal training, and learn on-the job. As shown in the figure below, the average responses suggest that the majority of skills and expertise are learned on-the-job while the least amount is learned through formal training.



Our interviews suggest that individuals who are better at learning on the job are likely to find their work more engaging and be viewed more positively in their organization. And research has shown that informal learning practices are associated with increased individual, organizational, and market performance¹⁶.

What Do Fast Learners Do Differently?

Research and our SME interviews suggest that Fast Learners take several actions that accelerate their on-the-job learning (see page 1, “Eight Habits of Fast On-the-Job Learners”). Yet, we know that not everyone is inherently good at maximizing learning from their on-the-job experiences¹⁷ and simply having an experience does not mean that a person will learn from it^{18, 19}. Therefore, given the criticality and benefits of OJL, there is a vital need to

better understand how individuals effectively learn on the job and the environmental conditions that facilitate OJL so we can **“promote and accelerate” OJL and help people get the most out of their on-the-job experiences.**

“One of the key challenges of OJL is that people don’t know what they don’t know. We need to find a way to show our employees the ‘table of contents.’ They need to be pointed in the right direction and then shown how to explore what interests them.”

– Learning Expert,
Senior Organizational Development Consultant

How Can We Promote OJL?

“There are so many barriers to OJL. It would be good to identify and overcome barriers and work on those accelerators in training.”

– MD, Orthopedic Surgeon, Retired Navy Captain

Despite research that has enhanced our understanding about related concepts such as continuous learning, OJL-related research to date has offered little guidance in terms of **how** organizations can ensure their members have the capabilities needed to maximize learning from work experiences. Also, in practice, although many organizations provide at least some opportunity for OJL, they seem to differ in terms of the extent to which they **prepare** their employees to recognize those opportunities, make the most of those experiences, and create their own OJL opportunities.

“We introduce OJL concepts early in training...we talk about why it is important, how to do it, and who to learn from.”

–Learning Expert, Bank

Most Learning Experts we talked with shared that even though their organization supports or offers on-the-job learning opportunities, they do not prepare people to make the most out of existing opportunities or to create their own learning experiences.

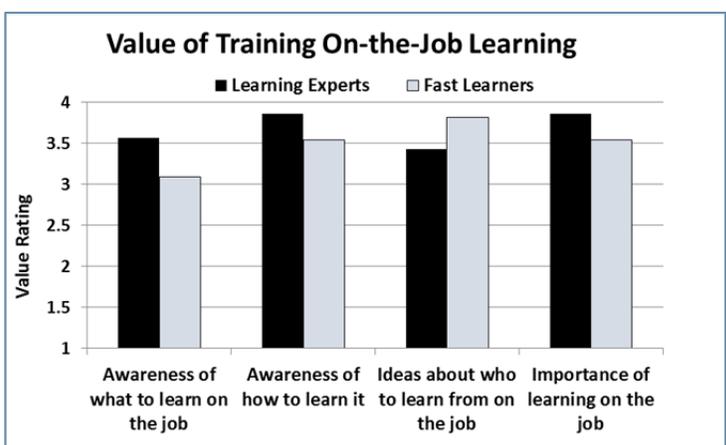
“We provide on the job learning opportunities, but we don’t train people to be effective at learning from them.”

– Learning Expert, Insurance

Given the lack of guidance for accelerating OJL from the literature and the apparent inconsistency and uncertainty for doing so in practice, we have been working to crack the code on how to effectively promote on-the-job-learning and specifically, **how training can be used as a catalyst** for doing so.

Training for Accelerating OJL

Overall, using training to accelerate OJL seems to be a different way of thinking. Trainers tend to be more familiar with traditional concepts such as transfer of trained skills to the job or formal on-the-job training. Yet the people we interviewed quickly grasped the potential of training to accelerate subsequent on-the-job learning. For instance, during our SME interviews we asked how valuable (1 = no value, 4 = very valuable) it would be to incorporate specific kinds of information into training to help new job incumbents accelerate their on-the-job learning. On average, Learning Experts and Fast Learners indicated that it would be quite valuable to train people about the **overall importance** of learning on the job, **what** to learn on the job, **how** to learn it, and **who** to learn from on-the-job. Not only do these ratings reveal the perceived value of training for enhancing OJL, but they also begin to confirm the kinds of topics training for OJL should address. Collectively, we refer to this awareness of why, what, and how to learn on the job as “learning attunement.”



How else can we effectively use training to accelerate OJL capabilities? Like the SMEs we interviewed, it is likely you have observed that some people are naturally more proactive and effective at learning on the job than others

and some workplaces and situations support and facilitate on-the-job learning better than others. This is because both personal and situational characteristics, and combinations of both types of characteristics, influence on-the-job learning. When properly developed to consider both personal and situational factors, formal training should be a powerful tool for promoting OJL behaviors and outcomes.

Ideas for Enhancing OJL

Although some people are inherently more driven to engage in OJL, with some guidance, support, and practice, most employees can become better, faster on-the-job learners. Below we provide tips for:

- **Employees** – to help them become faster on-the-job learners
- **Leaders** – to provide strategies for promoting and supporting OJL for employees
- **Learning and Development Professionals** – to share training and development techniques that can be implemented to help employees accelerate their OJL

Tips for Employees

Across a variety of job types and industries, almost everyone can become better, faster on-the-job learners. Based on what we know about fast on-the-job learners, here are several tips to help employees accelerate their learning on the job.

1. **Actively seek opportunities for OJL.** Rather than waiting for new learning opportunities to surface, actively **look for and create opportunities to engage in new experiences.** For example, volunteer to work on tasks and take on roles or assignments that are different from what you normally do or ask to sit in on meetings that cover unfamiliar topics. Consider what you could learn from each opportunity. If you are unable to create your own learning opportunities, talk with your supervisor and ask for suggestions or guidance.
2. **Take calculated risks.** Some of the Fast Learners we interviewed explained that they often take calculated

risks and try work activities that put them out of their comfort zone or stretched their capabilities. Examples include challenging assignments that require increased autonomy or require learning new skills.

3. **Be honest with yourself about your strengths and areas that could be improved.** OJL can be accelerated when you recognize and are willing to admit when you do not know something or cannot do something. Find a trusted partner (e.g., supervisor, colleague) to talk with about your developmental needs. Describe the areas you would like to develop and ask for guidance or feedback.

"I figured out that I needed to be willing to put my shields down to admit when I don't know."

- (Fast Learner) LTC, U.S. Army

4. **Identify, talk with, and observe experts.**
 - **Find and talk** with individuals with experience and expertise in the area you would like to learn. Also, talk to people who represent a variety of perspectives and range of experiences. For example, if you are interested in learning about a new/different role, talk with people currently in the role, those who were in the role, and even those who interact with or are affected by people in that role. When talking with experts, ask questions about **what** they do, **why**, and **how** they do it. It can also be helpful to ask experts to share best practices or "lessons learned."
 - **Observe and shadow experts.** Seek opportunities to watch experts "in action." For example, ask to attend meetings as an observer. Use tools such as journals to capture your reflections, questions, and ideas about what you observed.

"I did a great deal of "right seat" driving where I spent hours observing the operators using the systems and controlling the airspace."

- (Fast Learner) Colonel, U.S. Army

5. Do mental rehearsals.

- While observing someone else perform **imagine how you would handle the situation**. For example, ask yourself:
 - “How would I do that?”
 - “How does that compare to what they did?”
 - “How did/would that work?”
- Before you engage in a new activity or situation, visualize how you will execute or handle it. Research shows that mental practice can boost performance²⁰.
- Try to imagine different challenging scenarios you might face in your current role or in another role you are interested in learning. Ask yourself how you would handle those challenges.

- ## 6. Reflect on experience.
- Take the time to **reflect on situations after they take place** to consider what went well and what did not go well. Pause and take time to ask yourself, “what happened, what went well, what could have gone better, and what can I learn from that experience and how could I use what I learned in the future?”

“When I am in a new role I constantly try to think about new scenarios. I often try to think about what can go wrong and how I would handle it.”

– (Fast Learner) Bank Branch Manager

- ## 7. Ask for feedback
- from others such as supervisors or coworkers, to discuss your strengths, weaknesses, lessons learned, and plans for future improvement.

Tips for Leaders

Supervisors and other leaders play a key role in encouraging employee OJL. As a leader you can use a number of strategies to help employees be fast on-the-job learners.

1. Encourage employees to engage in OJL.

- Promote OJL activities and efforts. Emphasize the value of OJL for individual employees (e.g., professional growth, career benefits) and for the team (they become more effective and valuable).

- Make OJL the “norm” and valued. Acknowledge when someone was proactive and took initiative to learn something new on the job.
- Help employees discover where the OJL opportunities might be. Help them identify areas they want or need to develop and guide them to recognize situations where they can develop these areas. Also, provide guidance in terms of **what** they can do to learn or **how** they can learn in these situations.
- **Suggest sources of information** employees can access for effective OJL over time.

- #### 2. Model OJL.
- Talk with employees about your own OJL experiences. Share what **you** learned on the job and how you learned it. Also, share any strategies you regularly use to learn new knowledge and skills on the job.

3. Help create OJL opportunities

- Make your workplace a “richer” learning environment by connecting employees with “experts” or by putting them in a stretch assignment that is likely to offer OJL opportunities.
- Provide employees with opportunities to try new things in situations where there is at least some tolerance for mistakes while learning.
- Give them chance to watch and sit in – job shadowing or participating in a meeting where they don’t have an active role but could learn vicariously.

- #### 4. Seek to remove OJL obstacles.
- To the extent possible, minimize resource and time restrictions that interfere with employees’ abilities to engage in OJL. For example, employees with an incessantly demanding workload might have little time or flexibility to engage in OJL. Also, employees who do not have access to experts may have fewer opportunities to learn on the job.

- #### 5. Prepare employees to get the most out of OJL opportunities.
- Advise individuals on the kinds of

things to look for when observing experts or the kinds of questions to ask. Coach employees to use effective OJL techniques, such as conducting mental rehearsals, reflecting on experiences, and asking for feedback.

6. **Close the loop.** Meet with individuals to hear about their experiences, answer their questions, and provide them with feedback. Help them “connect the dots,” for example, explain how what they learned from one experience could be applied in other situations.
7. **Create psychological safety or at least clarity about appropriate OJL.**
 - Individuals are typically more willing to try new things in “psychologically safe” environments where the consequences of making mistakes are minimized. It is important to send the message to employees that they will not get in trouble for trying something new **when they are in “learning mode.”** Explain that you recognize the difference between making mistakes while learning and making the same mistakes repeatedly.
 - Be clear about those situations where it is **not** safe to try and learn new things. Also, clarify situations/settings where there will **not** be a safety net, but learning is still possible. For instance, you could use a “stoplight” color coded scheme to help illustrate examples of this:
 - Green = safe place to try new things
 - Yellow = less safe, but a learning opportunity
 - Red = seek help, don’t try on your own
 - Be mindful that it can be highly demotivating when almost all situations are designated as “red.”
8. **Provide ample decision discretion.** While providing clarity on the kinds of situations that are fit for OJL helps, be sure you don’t create such a dependency that employees have to check with you for everything. Of course, the degree of discretion appropriate will vary by employee and work environment, but the amount of discretion allotted should be “ample” for the given person/situation. As

appropriate, allow leeway for how an employee accomplishes work objectives.

“The most important condition for OJL is for leadership to give a significant amount of freedom to make mistakes. Leaders need to trust you to execute operations and put operations together. This is what allows you to take the leap to learn and apply new things.”

– (Fast Learner) LTC, U.S. Army

“The managers that facilitate on the job learning most are those who are willing to let go of the bike and let you skin your knees.”

– Manager of Clinical Systems, Hospital

9. **Conduct regular debriefs to discuss and learn from experience.** Provide individuals or teams with the opportunity to discuss what they learned from their work experiences. Structured debriefs, often lead by leaders, can be conducted periodically or after specific events and research shows they are quite effective²¹. Debriefs provide feedback, encourage reflection, identify lessons learned, and clarify how activities should be carried out or can be improved. Setting aside time to debrief work experiences also signals that OJL is valued by you and your organization.

Tips for Learning and Development Professionals

Learning and Development Professionals can play a key role towards promoting and accelerating OJL for employees.

1. **Be alert for opportunities to promote and accelerate OJL.** There are likely to be more opportunities than you might think to help employees become better and faster on-the-job learners. These opportunities fall both inside and outside of formal training and can be appropriate for employees of any experience level. For example, employees participating in a “high potential” program or those about to embark on a temporary assignment could benefit from tools and techniques to help them learn new skills quickly. It is

easy to assume that employees in these kinds of programs are smart or experienced enough to succeed on their own and that simply dropping them into the new or stretch assignment is sufficient. Rather than taking this “hands off” approach with these employees, who often know little about the work environment they are entering, you could provide them with tools, advice, and knowledge to increase their “learning attunement.” The more they know about what, where, who, when and how they can learn on the job, the more they are likely to absorb from the experience.

2. In the same way, experienced hires are often expected to independently “hit the ground running” when they join their new employer, but could benefit from assistance to help them accelerate their OJL. An ideal place to share OJL tools and techniques with new hires is during their on-boarding process.

“During our onboarding process we give people tips for learning and experiencing new things on their own. For some positions we provide checklists about the kinds of things they need to learn once back on the job.”

– VP of Employee Experience, Bank

3. **Provide formal training for accelerating OJL.** Formal learning (e.g., training) and informal learning (e.g., OJL) do not need to be entirely separate and can be used to promote one another. In fact, to enhance workers’ abilities to learn on-the-job, training can be designed to take into account the trainees’ personal characteristics and the characteristics of the settings in which they will work after training.

Rather than attempting to teach employees everything they will need to know (which is often impossible), you could allocate some training time to preparing individuals to learn on the job. **In essence, rather than designing training to only teach “this is what you need to know at the end of training” it can also cover “this is what you will need to learn on-the-job and this is how to learn it.”** This kind of

training could be offered as a module within an existing training program or designed as a standalone OJL training session.

4. **Conduct FBLAs, not just TNAs.** How can you identify what to train to accelerate OJL? OJL needs and opportunities can be uncovered by conducting a **Field-Based Learning Analysis (FBLA)**. A FBLA is a new type of training needs analysis (TNA) that can be used to supplement the more traditional TNA approach. While a TNA identifies what trainees should know or be able to do at the end of training, a Field-Based Learning Analysis focuses on identifying what can be learned on-the-job and how it can be learned. It enables the translation of aspirational advice (“You should be a continuous learner”) into clearer job- and work place-relevant learning specifications (“When X happens, this is the chance to learn Y” or “Seek out this type of person and ask these questions”).

An FBLA can also gather information about trainees and the work context to determine the best strategy for training OJL. Two such types of information include the **degree of familiarity with the work context** and the **situational malleability and richness**.

Degree of familiarity with the work context. As shown in the figure that follows, trainers’ and trainees’ degree of familiarity with the work context should influence FBL training strategy. When the trainer or training designer is familiar with the work context the trainees will work in after training, but the trainees are not, then the training should provide specific advice to boost the trainees learning attunement. This might include information about the five most important things they will need to learn over the next two months, the types of people the trainees should observe or talk with, specific questions they should ask experts, and specific learning opportunities for which they should be alert. When both the trainer and the trainees are familiar with the work context (e.g., trainees will be returning to their prior work assignment after training), the trainer can provide specific OJL advice supplemented

by trainees’ local knowledge of their work environment.

When the trainer is unfamiliar with the trainees’ work settings, but the trainees are familiar (e.g., a class of trainees who will be returning to their prior work setting, but across a wide range of work settings) then the training should employ techniques that help trainees self-discover their OJL needs and opportunities. For example, the trainer might suggest a set of common questions to ask any expert and the trainee can convert those into specific questions to ask an expert he expects to interact with in the work place.

		Trainer Familiarity with Work Context	
		Low	High
Trainee Familiarity with Work Context	High	Use trainee self-discovery during training to uncover OJL opportunities	Provide specific OJL advice supplemented with trainee input
	Low	Fully generic OJL-competencies trained	Provide specific OJL advice taught by the trainer

© 2014 The Group for Organizational Effectiveness, Inc.

Finally, when neither the trainees or the trainer are familiar with the work setting (e.g., when work assignments haven’t been made yet), then the trainer can only teach more generic OJL-related competencies that trainees can use in any work setting – such as how to be a good observer, seek feedback, or ask useful questions.

Situational malleability and richness. Characteristics of the work context can also influence appropriate OJL training strategy²². For example, some work environments can be described as “learning rich,” containing many of the characteristics that tend to enable OJL learning. In contrast, “learning poor” environments contain few naturally occurring

learning opportunities²³. Work situations can also vary by whether they are, from the trainee’s point of view, malleable or fixed. Malleable situations are those where the trainee has discretion to intentionally encounter or even create certain learning opportunities (e.g., choosing assignments that require the use of certain equipment). In contrast, in fixed situations learners do not have the autonomy or ability to modify their learning opportunities²⁴.

As shown in below figure, situational malleability and richness influence the potential strategies that learners should employ on the job, and therefore should drive what is taught during training.

		Situational Malleability	
		Fixed	Malleable
Situational Richness	Learning Rich	Capitalize	Capitalize and Create
	Learning Poor	FBL at Risk	Create

© 2014 The Group for Organizational Effectiveness, Inc.

In a fixed situation characterized by richness of learning opportunities, the learner will need to capitalize on learning opportunities as they are encountered. If a situation is learning rich and malleable, the learner can capitalize on naturally occurring opportunities and can also create such opportunities. If the situation is learning poor but malleable, it may still be possible for the learner, by taking discretionary action, to create OJL opportunities. Trainees can be advised about the optimal strategies to take given the nature of their work environment. It is important for trainers to recognize that when the situation is both fixed and learning poor then the ability to engage in OJL is at risk and training should not place too much emphasis on learning on the job.

5. **Where appropriate, allocate some time during training to promote subsequent OJL.** For a particular training program, a FBLA can be used to determine the right balance between the time dedicated to

building task/job-related skills versus time spent enhancing readiness for OJL (e.g., one program might be only 5% OJL focused, while another might be 60%) and help establish the right instructional design elements to meet those needs. In many cases, the majority of training time should focus on developing mastery of knowledge and skills to complete some core set of tasks on the job. But, to the extent that an organization needs its members to be able to engage in specific and effective OJL behaviors, some portion of training can be devoted to training of and preparation for OJL. A FBLA would make an explicit assessment of the need for, opportunities to enable, and ways to design training as a catalyst of FBL.

6. **Teach fundamental OJL skills.** Many important OJL skills are applicable to just about any job and work setting and can be developed with little to no knowledge of a specific work context. Some of these skills include observation, question asking, reflection, feedback seeking, honest self-appraisal, recognizing what OJL opportunities look like in general, managing appropriate risk taking, and conducting a debrief. Improvements in any of these areas carry over to most work contexts and jobs. Therefore, whether it is during an existing formal training program or during less formal learning experiences, find the right time to teach and reinforce these general skills.
7. **Develop and provide OJL tools.** Provide employees with **techniques and tools** to help them understand **how to learn** on the job, **who to learn from**, and key **opportunities** for OJL. Examples of these tools include:
 - A listing of different types of **learning opportunities**.
 - A worksheet of tips for how to **observe others** in order to learn from them.
 - A **“ride-along” guide** with *specific* advice on what to look/listen for when accompanying a job incumbent while they are doing their job.
 - A list of **good questions** to ask experts to help understand what they do.
 - How to use a **journal/diary** to capture reflections and ideas about the job

- A *job specific debriefing guide* – to help reflect on past experiences and capture lessons learned and plans for a specific job/situation
- A **“learning from mistakes”** tipsheet
- A **“how to get feedback”** tipsheet
- A **“how to find an expert”** tipsheet
- An **overcoming obstacles** to on-the-job learning tipsheet



Interested in Learning More?

Given the criticality and benefits of OJL, there is a vital need to understand better how individuals learn on-the-job as well as the environmental conditions and mechanisms that facilitate OJL. We must identify how we can **“promote and accelerate”** OJL to help people get the most out of their on-the-job experiences. The smarter we get about OJL and helping people become more effective and efficient at OJL, the better.

If you are interested in learning more, collaborating in future research, or seeking support to accelerate informal learning in your organization, contact us at info@groupoe.com.

This work was supported by a grant from the U.S. Army Research Institute (ARI). All opinions expressed herein however, are strictly those of gOE, Inc. and not necessarily ARI.

We would also thank the learning experts and fast learners who generously gave their time and shared their experiences with us.

About gOE, Inc.

Since 1987, the **Group for Organizational Effectiveness, Inc. (gOE)** has provided consulting and research services to many well-known Fortune 1000 companies, mid-sized corporations, and government organizations including J&J, GE, BP, The Hartford, Credit Suisse, Crayola, St. Paul Travelers, Roche, Wells Fargo, HP, Carnival, Sears, Merck, McGraw-Hill, UBS, MetLife, Covidien, UnitedHealth Group, Medtronic, CNA, Tiffany & Co., Progressive Insurance, Honeywell, United Airlines, T-Mobile, the U.S Armed Services, the Swedish and Royal Air Forces, and NASA.

We have been studying and providing advice about learning and training for over 25 years. We collaborate with scholars and researchers from various universities to couple thought leadership with practical applications. Our team has published extensively and has received numerous awards for both our research and applied work.

We've provided tools and advice to approximately one-third of the Fortune 100, working with and studying leader and employee development in all major functions, including finance, customer service, manufacturing, R&D, sales, and IT. We've examined learning-related issues in such diverse settings as boardrooms, hospitals, cruise ships, oil rigs, and military environments.

Endnotes

- ¹ Colquitt, J. A., LePine, J. A., & Noe, R. A. (2000). Toward an integrative theory of training motivation: A meta-analytic path analysis of 20 years of research. *Journal of Applied Psychology, 85*, 678-707.
- ² Salas, E., DiazGranados, D., Klein, C., Burke, C. S., Stagl, K. C., Goodwin, G. F., et al. (2008). Does team training improve team performance? A meta-analysis. *Human Factors: The Journal of the Human Factors and Ergonomics Society, 50*, 903-933.
- ³ Blascovich, J., & Hartel, C. R. (2008). *Human behavior in military contexts*. Washington, DC: National Academies Press.
- ⁴ Arthur Jr, W., Bennett Jr, W., Edens, P. S., & Bell, S. T. (2003). Effectiveness of training in organizations: A meta-analysis of design and evaluation features. *Journal of Applied Psychology, 88*, 234-245.
- ⁵ Callahan, J. S., Kiker, D. S., & Cross, T. (2003). Does method matter? A meta-analysis of the effects of training method on older learner training performance. *Journal of Management, 29*, 663-680.
- ⁶ Blume, B. D., Ford, J. K., Baldwin, T. T., & Huang, J. L. (2010). Transfer of training: A meta-analytic review. *Journal of Management, 36*, 1065-1105.
- ⁷ Bear, D. J., Tompson, H. B., Morrison, C. L., Vickers, M., Paradise, A., Czarnowsky, M., King, K. (2008). *Tapping the potential of informal learning: An ASTD research study*. Alexandria, VA: ASTD.
- ⁸ Tannenbaum, S. I., Beard, R. L., McNall, L. A., & Salas, E. (2010). Informal learning and development in organizations. *Learning, training, and development in organizations*, 303-332.
- ⁹ Molloy, J. C., & Noe, R. A. (2010). "Learning" a living: Continuous Learning for Survival in Today's Talent Market. In S. W. J. Kozlowski & E. Salas (Eds.), *Learning, Training, and Development in Organizations* (pp. 333-362). New York, NY: Taylor & Francis Group, LLC.
- ¹⁰ Chao, G. T. (1997). Mentoring phases and outcomes. *Journal of Vocational Behavior, 51*, 15-28.
- ¹¹ Center-for-Workforce-Development. (1998). *The teaching firm: Where productive work and learning converge: Report on research findings and implications*. Newton, MA: Education Development Center, Inc.
- ¹² Lombardo, M. M., & Eichinger, R.W. (1996). *Career architect development planner*. Minneapolis, MN: Lominger.
- ¹³ Flynn, D., Eddy, E., & Tannenbaum, S. I. (2005). The impact of national culture on the continuous learning environment: Exploratory findings from multiple countries. *Journal of East-West Business, 12*, 85-107.
- ¹⁴ Tannenbaum, S. I. (1997). Enhancing continuous learning: Diagnostic findings from multiple companies. *Human Resource Management, 36*, 437-452.
- ¹⁵ Flynn, Eddy, & Tannenbaum. The impact of national culture, 85-107.
- ¹⁶ American Society for Training and Development (2013). *Informal learning: The Social Evolution*. Alexandria, VA: ASTD.
- ¹⁷ Maurer, T. J., & Weiss, E. M. (2010). Continuous learning skill demands: Associations with managerial job content, age, and experience. *Journal of Business and Psychology, 25*, 1-13.
- ¹⁸ Quinones, M. A., Ford, J. K., & Teachout, M. S. (1995). The relationship between work experience and job performance: A conceptual and meta-analytic review. *Personnel Psychology, 48*, 887-910.
- ¹⁹ Tesluk, P., & Jacobs, R. (1998). Toward an integrated model of work experience. *Personnel Psychology, 51*, 321-355.
- ²⁰ Driskell, J. E., Copper, C., & Moran, A. (1994). Does mental practice enhance performance? *Journal of Applied Psychology, 79*, 481-492.
- ²¹ Tannenbaum, S.I. & Cerasoli, C.P. (2013). Do team and individual debriefs enhance performance? A meta-analysis. *Human Factors: The Journal of Human Factors and Ergonomics Society, 55*, 231-245.

- ²² Ellinger, A. (2005). Contextual factors influencing informal learning in a workplace setting: The case of "reinventing itself company". *Human Resource Development Quarterly*, 16, 389-415.
- ²³ Gully, S., & Chen, G. (2010). Individual differences, attribute-treatment interactions, and training outcomes. In S. W. J. Kozlowski & E. Salas (Eds.), *Learning, Training, and Development in Organizations*. (pp. 3-64). New York, NY: Taylor & Francis Group.
- ²⁴ Mathieu, J. E., & Tesluk, P. E. (2010). A multi-level perspective on training & development effectiveness. In S. W. J. Kozlowski & E. Salas (Eds.), *Learning, Training, and Development in Organizations*. New York, NY: Taylor & Francis Group.