MODEL OF ACCELERATED PROFICIENCY IN THE WORKPLACE: SIX CORE CONCEPTS TO SHORTEN TIME-TO-PROFICIENCY OF EMPLOYEES

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Abstract

The high pace business environment poses great competition among firms. The key to an organisation's survival is its workforce. Time taken by the workforce to reach to full proficiency in their job role takes very long in certain job roles. Thus, shortening time-to-proficiency of employees is a critical business problem for today's organisations. This qualitative research study explored the proven practices and strategies that have successfully reduced time-to-proficiency of the workforce in various settings. A total of 93 participants from seven countries participated in the research study. Bounded project case (with a defined start and defined end) was used as a sampling unit and unit of analysis in this study. This study collected 67 successful project cases with the evidence of significant reduction in time-to-proficiency of the workforce in their settings. These project cases are spanned across nine economic sectors, 20 business sectors and 28 industrial groups. This study revealed that project leaders across the board used six practices to successfully reduce the time-to-proficiency. The purpose of this paper is to present the model of accelerated proficiency in the work place developed in this study.

Keywords: Accelerated Proficiency, Speed-to-Proficiency, Time-to-Proficiency.

1. Introduction

Capabilities, Competencies and skills of the workforce are the most critical factors of time-to-market competitive distinction among organisations.*21st Century at Work* report indicates 'the rapid pace of technological change is expected to continue to propel demand for highly skilled workers who can develop the new technologies and bring them to market and who can exploit the new technologies in the production of goods and services' (Karoly & Panis, 2004, p. 44).One of the critical business expectations is to bring workforce up to speed in as short time as possible for a new job, or a new job role, new expectations, deliver to new standards and meeting business needs. Dreyfus, Dreyfus, & Athanasiou (1986) consider that at 'proficient' level an individual exhibits a consistent, superior performance regardless of the situation, problem and challenge.Therefore, proficiencyis considered as a key goal of organisations and workplace.

Every job role takes a certain amount of time to acquire the proficiency in the necessary job skills that deliver consistent performance. This time is referred to as 'Time-to-Proficiency'. As per Bachlechner, et al., (2010, p. 378) 'Time-to-proficiency (TTP) is defined as the amount of time an individual spends in a new job environment before they are able to fulfill most tasks without help from colleagues or supervisors'. Attri & Wu (2015, p. 2) noted that time-to-proficiency involves onboarding, formal and informal training, on-the-job learning and other allied activities (Attri & Wu, 2015)and is usually measured from the date of hiring or when

someone takes up new role or the first day of the training he or she attends. The deliberate and conscious effort of shortening time-to-proficiency is called 'accelerated proficiency' in academic language. Hoffman, et al., (2010, p. 9)position *accelerated proficiency* as 'phenomenon of achieving higher levels of proficiency in less time'. While considerations like time-to-market and competitiveness are the main drivers for a shorter time-to-proficiency, the additional factors that drive this need areconstant obsolescence of the skills, increasing complexity of jobs and skills, attrition or ageing workforce constantly getting replaced and need faster readiness to do the jobs which senior experts were doing earlier (Hoffman et al., 2010).Therefore, organisations are striving to figure out the interventions, systems and strategies to shorten time-to-proficiency of employees in acquiring skills for a given role(Attri, 2014; Attri & Wu, 2016).
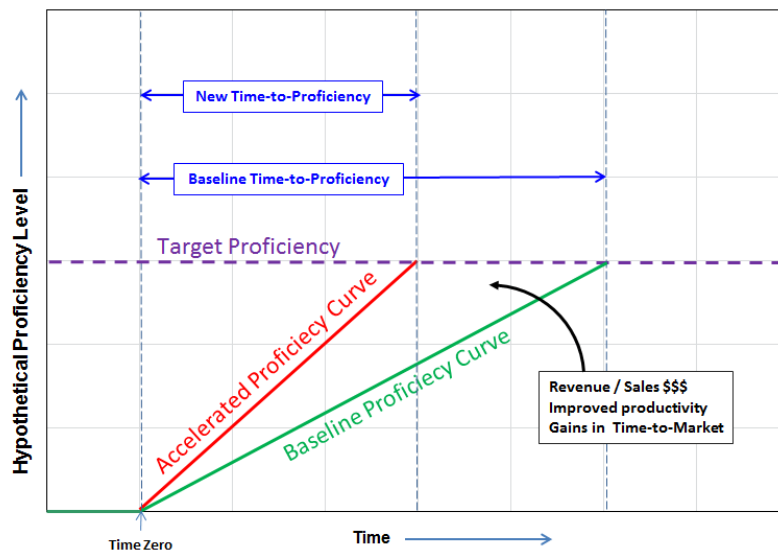

Figure 1: Conceptual depiction of Accelerated Proficiency

The intent of this research study is explained in the simple pictorial form in Figure 1. The idea of this research study is to explore and find certain practices which could accelerate the rate of baseline proficiency acquisition curve (green) to a new slope accelerated proficiency curve (red) so that time to reach target proficiency (dotted purple) from baseline value to new time-to-proficiency. The reduction in time-to-proficiency, thus achieved, translates to revenue dollars, productivity and gains in time-to-market. This paper intends to present the practices and strategies which are seen successful in shortening time-to-proficiency in the organisations.

2. Research Problem

The business problem and the central research question this research strive to solve is: *How can organisations accelerate time-to-proficiency of the employees at the workplace?* The objectiveof this research study is to develop a conceptual model of practices and strategies to shorten time-to-proficiency in the organisations. Three research questions are addressed in this study:

1. What does the phenomenon of accelerating proficiency or accelerating time-to-proficiency mean to organisations?
2. Why is it important and how much is it critical for organisations to reduce time-to-proficiency of their workforce?
3. What core practices and strategies business leaders and practitioners adopt to achieve shorter time-to-proficiency of the workforce in a given job?

3. Literature Review

3.1 Performance and Skill Acquisition

Effective performance from employees in any job is a key business expectation that fuels the whole business operations, profit and competitive advantage (Sonnentag & Frese, 2002, p. 4). The performance is viewed from several lenses like task vs contextual performance, behavioural vs. outcome performance, task vs. job performance, individual vs. team performance and job vs. organisational performance(Sonnentag & Frese, 2002). However, several researchers maintain that job performance is much more than task performance. Campbell, McHenry, & Wise (1990, p. 314) elaborate the complex nature of job performance as 'There is not one outcome, one factor, or one anything that can be pointed to and labeled as job performance. Job performance really is multidimensional.' Literature also notices that learning should be considered as a major dimension of performance and the central role(Campbell, 1999).However, Sonnentag & Frese (2002, p. 6) express the debate as 'one might argue that what ultimately counts for an organization is the individuals' performance and not their learning—although learning might help to perform well. This line of reasoning stresses that learning is a highly relevant predictor of performance, but is not performance itself. 'Nevertheless, to deliver a performance to certain standards, one needs to acquire skills to the certain level of mastery. Dreyfus et al. (1986) used performance as the scale to qualify the progression of people as they acquire skills. He postulated that a novice goes through five stages: novice, advanced beginner, competent, proficient and expert whereby these stages are points on the continuum of performance. On the other hand, Hoffman et al. (2010)and Hoffman et al. (2013)considered proficiency of their skills as the scale while they progress through stages like an apprentice, junior journeyman, senior journeyman, junior expert and senior expert, where in experts exhibit a very high level of proficiency.

For years, researchers have been exploring novice-expert differences to understand either extreme of this continuum. Charness & Tuffiash (2008)define expertise as a superior performance which is two standard deviations from mean and is achievedthrough a combination of high-level skills and domain-specific knowledge and skilled memory. Researchers maintained that developing employees to a world-class expertise, as suggested by the construct of expert performance is not usually an organisational goal. Rather, the goal is to develop employees to demonstrate at least proficient performance, be independently productiveand deliver consistent performance (Rosenbaum & Williams, 2004; Hoffman et al., 2013; Dreyfus et al., 1986).

3.2   Developing and Accelerating Proficiency

Though time-to-proficiency is highly dependent on-the-job, there are some estimates that to achieve high proficiency, an individual needs 10 years of constant practice(Ericsson et al., 1993). However, organisations do not have that much time (Fadde & Klein, 2010). Therefore, researchers started exploring methods to accelerate performance and accelerate proficiency. Over 21 different theories or models were reviewed for this study (out of the scope of this paper) specifically for evidence of application in accelerating proficiency/expertise. Among all the models, the literature suggests that four models appear to have evidence and potential in shortening time-to-proficiency. These models are - van Merriënboer, Jelsma, &Paas (1992)4C/ID 4-Component Model of Complex Skill Acquisition; Klein (1993) Recognition-Primed Decision (RPD) Model; Collins, Brown, & Newman (1989) Cognitive Apprenticeship Model and finally Cognitive Task Analysis (CTA) Approach to Model Expertise.However, Hoffman et al. (2013) contend that there is a lack of any unified theory to explainaccelerated proficiency. In the absence of one, they suggested that potentially two theories, namely Spiro & Jehng's (1990) Cognitive Flexibility Theory and Klein & Baxter's (2006) Cognitive Transformation Theory, could be merged to form a new theory for accelerated proficiency. However, this stands as a research gap to be investigated.

In terms of methods, several researchers suggested different training methods to accelerate expertise or proficiency. Among the earliest ones, literature suggested using CTA to elicit the knowledge from experts and then teaching this to novices is a reasonable way to accelerate their path to proficiency. Patterson et al. (2013) demonstrated that in using CTA based curriculum, it is possible to accelerate on-the-job performance. Some researchers have used scenario-based learning with real-world cases to train complex skills (Arnold, Collier, & Vincent, 2013).Doane, Alderton, Sohn, & Pellegrino (1996)demonstrated that difficult or tough cases could accelerate the proficiency of individuals. Literature also suggested that using time-compression techniques in which several cases or problems are compressed in a short timeframe and learners are exposed to potential failures rapidly. For example, Fletcher (2010) and DiBello, Missildine, & Struttman (2009) advocated time-compression of failures in operational simulation. Gamification, serious games and scenario-based simulation type of immersive learning have seen a lot of successes in accelerating skill acquisition in different context and different types of skills in the studies conducted by Gott & Lesgold (2000) and Backus, Keegan, Gluck, & Gulick (2010).

While most of these approaches have been tested either in a controlled environment or in the training settings, the real challenge is developing and accelerating proficiency at the workplace in natural settings. Workplace poses its own challenges due to inherent unstructured activities and other factors (Billet, 1999). Now, workplace learning and on-the-job training methods to accelerate proficiency at the workplace are seeing some research. Structure on-the-job training (S-OJT) approach has demonstrated some evidence of accelerating low complexity skills (Jacobs, 2014). Fadde & Klein (2010) argued that working professionals do not have enough time to engage in deliberate practice advocated by Ericsson et al. (1993)to attain high proficiency. Instead, they recommended deliberate performance activities using day-to-day activities at the workplace. Among other workplace techniques, DiBello et al. (2009)suggested operational simulation method. Apart from usual methods of training and learning, Baxter (2013) demonstrated knowledge capture and sharing accelerated rate of proficiency of executives in the energy sector.

4. **Gaps and Research Issues**

While there is some evidence of methods to accelerate skill acquisition and proficiency in certain settings, several gaps and research issues are observed. Foremost is that there is a lack of a comprehensive theory that could be applied to explain phenomena of accelerated proficiency (Hoffman et al., 2013). Apart from it, there is a lack of good understanding of themeaning of proficiency and accelerated proficiency in a business context. This gap leads to first research issue addressed in this study in regards to the understanding concept of proficiency and concept of accelerated proficiency. Lack of such a thorough understanding leads to second research question to understand drivers and business requirements that drive the need for shorter time-to-proficiency in business settings. Further, the literaturelacks holistic framework on how proficiency can be developed and accelerated at the workplace. Vander Heijden (2002, p. 55) argue that 'Existing literature on the relationship between influencing conditions, onone hand, and professional expertise on the other, lacks fundamental theoretical framework. 'From practitioner standpoint and business application angle, there is no framework to guide business professionals, instructional designers and learning specialists to put together strategies in place to accelerate time-to-proficiency of employees. In highlighting a need to accelerate proficiency, Hoffman, Andrews, & Feltovich (2012, p. 9) compiled a set of research questions which they believe are the gaps and there are no direct answers in the literature. The two main ones are: Can the achievement of journeyman-level skill be accelerated? Can the achievement of expert-level skill be accelerated? This appeal leads to the third research question in regards to understanding how business leaders and organisations are currently accelerating proficiency of their employees. To that effect, Hoffman et al. (2012, p. 9) make a strong appeal to research

community:

> Our vision is that methods for accelerating the achievement of proficiency, and even extraordinary expertise, might be taken to new levels such that one can accelerate the achievement of proficiency across the journeyman-to-expert span post-hiring.

Researchers are yet to respond to this appeal. The present study attempts to respond to above appeals. Objective of this research is to contribute towards practice and literature by developing a conceptual model or framework of accelerated workplace proficiency.

5. **Methodology**

This study employed a qualitative research study to explore the unchartered areas of accelerated proficiency. A pragmatic paradigm stand of "what works" is used in this study to generalise the practices and strategies across various contexts (Tashakkori & Teddlie. 2003, p. 713). In the presentstudy, the pragmatic viewpoint has been used with qualitative methods (Goldkuhl, 2012).

Purposive sampling was used in this research (Creswell, 2007). Research participants consisted of carefully selected worldwide training experts and business leaders with proven project experience in shortening time-to-proficiency of employees. LinkedInprofessional database (Facebook for professionals with over 450 million members in over 200 countries) was primarily used to identify potential participants based on systematic search criteria. A total of 549 participants were identified. To ensure high-quality data, a criteria-based sampling was applied to ensure participants had experience of leading at least one project to shorten time-to-proficiency(Patton, 2002, p. 243). The experience was verified with the evidence like mentions in any blog post, success story, previous interview, magazine article, report authorship, industry recognition, or any other verifiable artifact. Applying criteria of verifiable evidence, generated the list of 326 contactable targeted participants (Morse, 1991). 93 of them participated in the study(in 90 interviews) with a response rate of 29%. The participants hailed from 8 countries, with majority (78%) of the participants from the US, with an average experience of more than 20 years. 35% of the participants held a doctorate degree. The sample composed of 74% males and 26% females.

The primary sampling unit (and unit of analysis) was a 'bounded project' case'. This sampling unit was chosen with the understanding that organisations typically institute temporary project teams to drive most of the performance improvement and operational changes (Turner & Müller, 2003). Reducing time-to-proficiency is also one such initiative which warrants project-based management. Thus, bounded project case (with a definitive start and definitive end) renders itself as a tool to best understand the success story.67 projects cases were collected through semi-structured in-depth interviews designed around bounded project case structure.

Data from 90 interview transcripts and 66 documents were analysed using three-stage data analysis process suggested by Miles, Huberman, & Saldana (2013). This three-stage process consists of data condensation (coding), data display and drawing and verifying conclusions. These three stages were supported mainly through several matrices to understand the within-case dynamics of each project. Using bounded project case as aunit of analysis, comparative analysis of project cases across various contexts was done using cross-case analysis methodology with the help of detailed matrix analysis techniques suggested by Miles et al. (2013). This comparative analysis identified first-cycle thematic codes. Coding basicallyinvolvedthematic analysis techniques suggested by Boyatzis (1998), Braun & Clarke (2006) and Guest, MacQueen, & Namey (2013) to identify patterns, develop themes and categories. Pattern codes were formed from first-cycle codes to label the major patterns noticed during this comparison. The pattern codes were then combined to represent major themes. Pattern codes and themes were visually

depicted using thematic networks as suggested by Attride-Stirling (2001) and Thematic Maps as suggested by Braun & Clarke (2006)led to several visual representations to make relationships, association and conclusions. The major themes were, in turn, suitably grouped to form top level categories based on relationship, dimensions and key ideas that emerged from the analysis.By integrating the categories, a model of practices and strategies used to reduce time-to-proficiency was developed.The range of techniques including member checks, replication and expert focus group methods were used to check for transferability and generalizability of the findings.

6. **Findings**

Overall, this research study led to six major prepositons for the phenomenon of *Accelerated Proficiency*against three researcher questions as follows:

Characteristics of accelerated proficiency
In the nutshell, the data analysis of research question #1 led to three major prepositions:
i) Organisations view proficiency as a state of performance where someone is consistently producing business outcomes for a given job role as a whole.
ii) Clearly defining the proficiency upfront is most critical to shortening the time-to-proficiency. Project leaders considered a lack of clear and crisp definition of proficiency upfront as the biggest hindrance to accelerating proficiency.
iii) Accelerating proficiency requires strategies beyond training and learning interventions. Project leaders interviewed in this study did not view training as the only solution to accelerating proficiency, rather they used a range of non-training solutions as well, which altogether appeared to reduce time-to-proficiency. The study noted that the journey towards proficiency is much beyond training events or learning interventions.

Significance, Drivers and business gains of accelerated proficiency

In a nutshell, data analysis of research question #2 led to two prepositions that:

i) Magnitude, scale and benefits of time-to-proficiency are so huge that it worth doing something about it. The length of time-to-proficiency ranged from few weeks to several months to several years depending on job type and organisational business. Organisations cannot ignore the problem of such a large scale when its effect is multiple across the staff.

ii) Time, speed and skill-related business needs drive the organisations to shorten time-to-proficiency. Shortening such long time-to-proficiency automatically leads to cost savings.

Practices and strategies to reduce time-to-proficiency
Business leaders across various contexts use six practices leveraging workplace and on-the-job opportunities to shorten time-to-proficiency of the workforce successfully. These six practices are:

1) *Business-driven proficiency definition and measures in terms of expected business outcomes and baselining time-to-proficiency:*This practice suggested to define measures in terms of business goals, job accomplishments and outcomes rather than in terms of activities or tasks.
2) *Developing comprehensive proficiency reference model of all the inputs and factors that go into producing required business outcomes:*After defining proficiency measures and setting up new targets for desired time to proficiency, the majority of project leaders followed a practice to develop a comprehensive map (called "Proficiency Reference Mode" here) of all the inputs that are required produce the desired outputs in a given job role and the map of the all known factors influencing one's ability to produce these outcomes.Inputs included things like tasks required to be done in a given job role; skills and knowledge to do those tasks; success behaviours to do the tasks effectively and efficiently; and assessment of capabilities and capacities of performers to do those tasks. The influencing factors included environmental factors, job conditions and roadblocks that influence the deceleration or

acceleration of proficiency. From this map, project leaders identified the "levers" that could be manipulated to achieve outcomes in a much a shorter time.

3) *Building an efficient sequence of activities as complete proficiency path:*Analysis indicated that project leaders developed a full path of a job role from day one of the journey until the desired proficiency and established the sequence in which performers must be exposed to activities and tasks should happen that cut away the time. "Proficiency Path" thus, represented ablueprint of how to get a performer from certain level of proficiency to full proficiency in most efficient and effective manner in shortest possible time. Optimal and effective sequencing appeared to be the key to accelerating the proficiency.

4) *Manufacturing accelerated contextual experiences in a compressed time-frame by leveraging on-the-job opportunities or training interventions:* Instead of putting time and investment on designing cumbersome, lengthy training programs, it was seen that project leaders across the board deliberately lay out the job assignments or create opportunities if job assignments provided better and faster ways to learn and demonstrate how to produce those outcomes. However, in some project cases, it was seen that the nature of job did not always offer such opportunities. Instead of waiting for an experience to come by, project leaders chose to manufacture those experiences deliberately with similar scenarios, context, challenges, loading and limitations as would unfold in a real job.

5) *Driving active and emotional immersion similar to the one experienced while doing the job:* Study noted that the manufactured or leveraged learning experiences were delivered in such a way that allowed active emotional immersion of the learners. The training was made as challenging as work, drove emotional loading similar to the job, provided immediate feedback, made learners more reflective and were assessed with realistic standards.

6) *Setting up enabling proficiency eco-system consisting of supportive manager, structured mentoring, social connectivity, subject matter experts and performance support systems:*The study analysis indicates that the most critical element of developing and accelerating the proficiency is the manager, environment, coaching and resources that are made available to the performers.The right mix of these elements in an ecosystem which surrounds a performer while on the job throughout his or her proficiency path greatly accelerates the proficiency.

Conclusion

A general model of practices and strategies for accelerated proficiency is developed from the findings. Accelerating proficiency at the workplace is depicted as a closed-loop transfer function which converts inputs (proficiency reference model) into outputs (shorter time-to-proficiency) under certain conditions (proficiency eco-system), and output is constantly monitored and fed back (business-drive proficiency measures) to adjust inputs and conditions to achieve the target time-to-proficiency. Elements of efficient proficiency path, accelerated contextual experiences and active emotional immersion act as transfer function converting inputs into outputs.
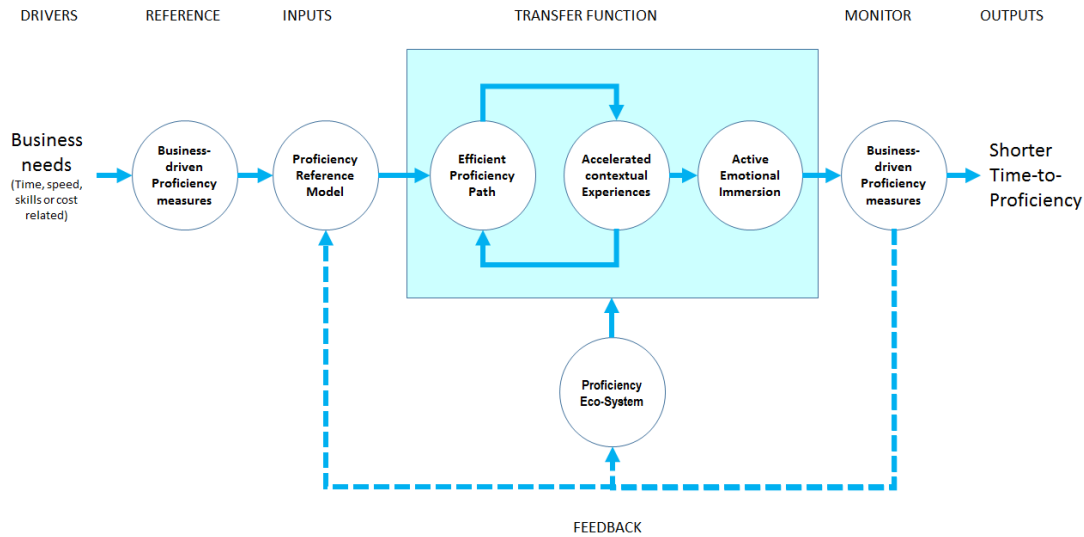
Figure 3: Conceptual model of Accelerated Proficiency

Findings of this research advance the observation in part by Hoffman et al. (2013) in regards accelerated contextual experiences by compressing the experiences in an accelerated fashion. It also found that the use of strategies of tough cases to accelerate experience for rare events as seen byHoffman et al. (2013) and Soule (2016). However, remaining five practices noticed in this research largely remain unexplained or partially explained by the extant literature. Thus, this study significantly contributes to the extant literature in terms of theory, methodology and practice. This research is the first to describe the concept of accelerated proficiency in the workplace and contributes to building a model of practices, processes and strategies to shorten time-to-proficiency in organisations. Recent research studies continued appealing for the need for mechanisms to accelerated proficiency (Jung, Kim, & Reigeluth, 2016, p. 58).The outcomes of this study addressed these recent appeals significantly. This model can be implemented across a range of contexts with reasonable success in shortening time-to-proficiency.

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