Metacognition and Critical Thinking in Trust and Safety

A Concentrix Research Study

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Introduction

The digital economy is in a state of hyperscale, with growing social media platforms, gaming communities, startups, new economy marketplaces with cryptocurrency, NFT trading, and a fast lane paved towards a Metaverse—all on a trajectory to become the next tech giants.

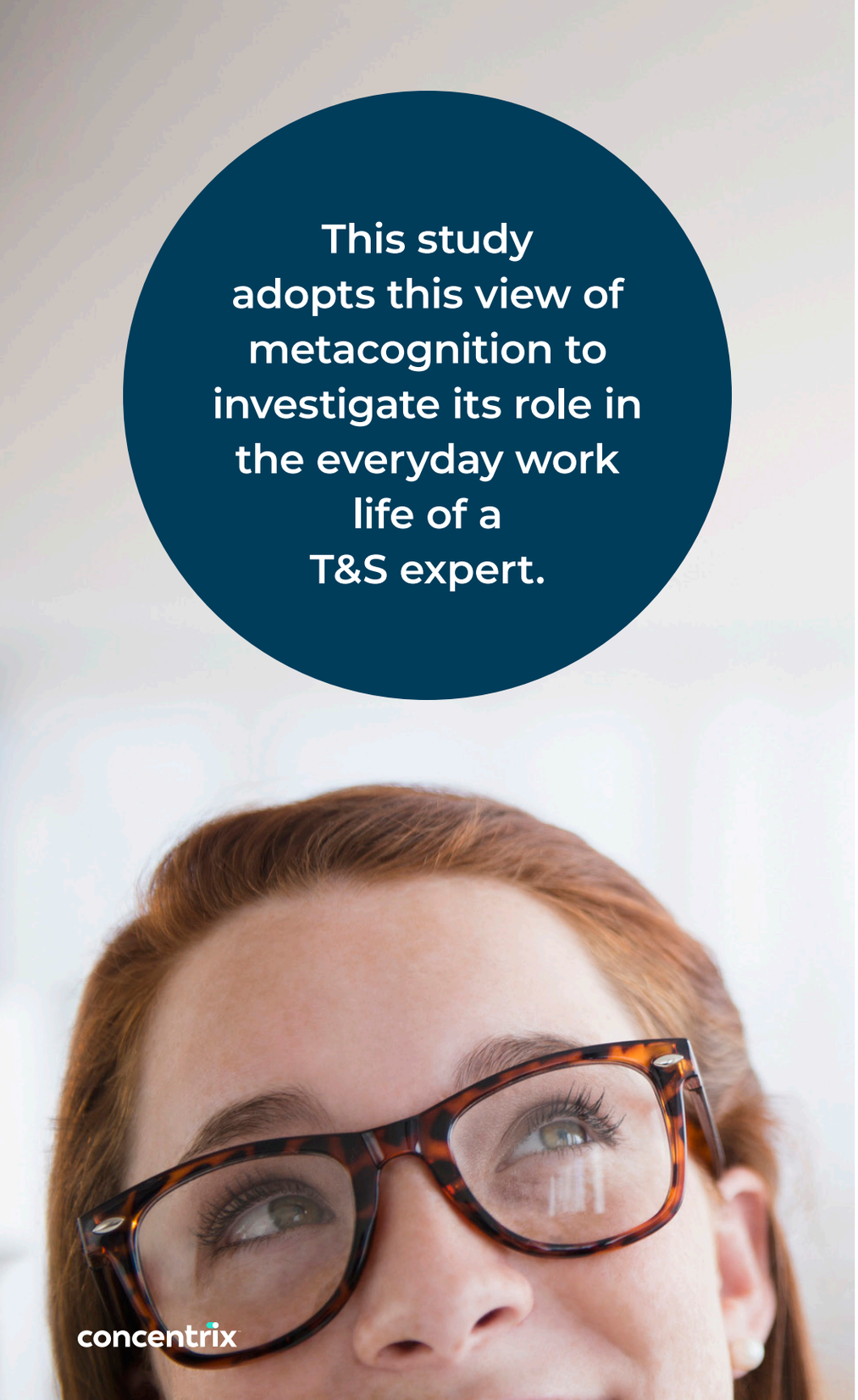
As this digital space continues to grow, so does the need for digital jurisdiction and moderation and, with it, the concern around user safety and protection of privacy becomes paramount. There is an ever-increasing need for users and service providers to coexist safely, protected from potential harm that might result from unsafe acts of privacy invasion, fraud, impersonation and identity theft, harassment, cyberbullying, exposure to violating content such as pornography, violence, hate, counter-terrorism, misinformation, and more.

To serve as protection, any real-world "regulations" are policies established by specific online platforms. These are neither necessarily established as law, at the point of writing this research, nor might be consistently applied across platforms in terms of standardization. Regardless of the current stage of these policies, however, they are applied via a blend of human and non-human automated (algorithms, interface/default design) intervention that is used to reduce the potential harm that an online user might be exposed to.

The human intervention, a global workforce of trust and safety experts (T&S experts), use specific platform policies as a guide to detect, assess, and intervene in any content and behavior deemed unacceptable by these platforms, thereby protecting users against a wide range of online harm.

This work can be emotionally and cognitively very challenging. T&S experts are constantly exposed to content of all types—images, videos, graphics, motions, gameplay—that can be violent, abusive, racist, pornographic content, and include social and cultural content that might be in opposition to personal beliefs and orientation. Together with content that can extract a heavy emotional price, the cognitive task of constantly gathering, understanding, organizing, combining, and evaluating information to make review decisions can add to the work pressure. There is no doubt that this work involves heavy cognitive and emotional load, testing the experts' analytical skills, flexible decision-making skills, and cognitive adaptability to different emerging formats, technology, and trends across varied cultural/social contexts.

Under these conditions, an awareness of one's cognition and how emotions can influence decision-making and performance is needed. The awareness and management of cognition for improved occupational wellbeing and performance can be accomplished through an application of the construct of metacognition.



This study adopts this view of metacognition to investigate its role in the everyday work life of a T&S expert.

As a multifaceted concept, it comprises knowledge, processes, and strategies that appraise, monitor, and manage cognition. In academic literature, there are two basic aspects of metacognition—metacognitive knowledge and metacognitive regulation (Brown, 1987; Flavell, 1979; Wells, 2000; Yussen, 1985).

- **Metacognitive knowledge** includes the information that individuals have about their cognition, learning strategies, and task factors that impact it (Wells, 2000).
- **Metacognitive regulation**, on the other hand, includes a broad spectrum of executive functions, such as monitoring, planning, checking, attention, and detection of errors in performance (Wells, 2000).

This study adopts this view of metacognition to investigate its role in the everyday work life of a T&S expert. More precisely, the objective is to understand how the above-mentioned aspects of metacognition are related to job performance.

Another set of skills that can aid the T&S expert in their work is well-developed critical thinking skills. These skills are extremely important as experts work with more varied content, deal with complex format and technology, confront challenging ethical and emotional issues, and cope within a constantly changing policy base throughout their careers. Focus on critical thinking skills allows for the development of pragmatic ability to reflectively think, critically evaluate a range of information, and incorporate this into their decision-making transparently and justifiably. It is this conceptualization of critical thinking that the study builds on.

Scope of the Study

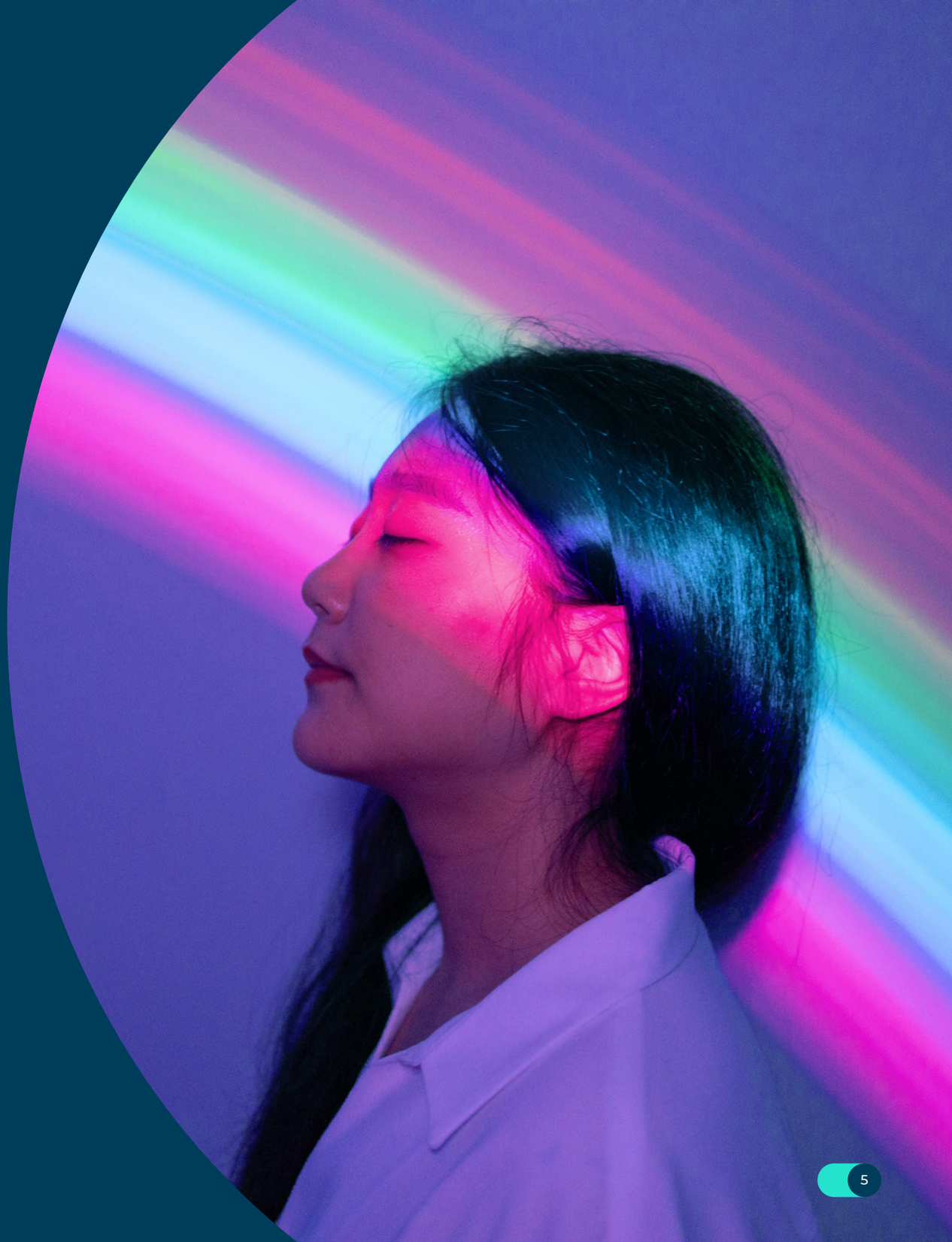
The following are the objectives of the study:

- Understand how T&S experts perform on two aspects of metacognition: knowledge about cognition and regulation of cognition.
- Understand how critical thinking is related to performance.
- Enumerate implications in training, nesting, coaching, and leadership support.

Using tools like the “Metacognitive Awareness Inventory & Critical Thinking Disposition Scale,” we gathered responses from 915 T&S experts working in various work types of trust and safety moderation.

The work involves actioning on both sensitive and non-sensitive content on social media platforms. Their task-related performance scores were also collected to correlate scores on the above scales.

Findings



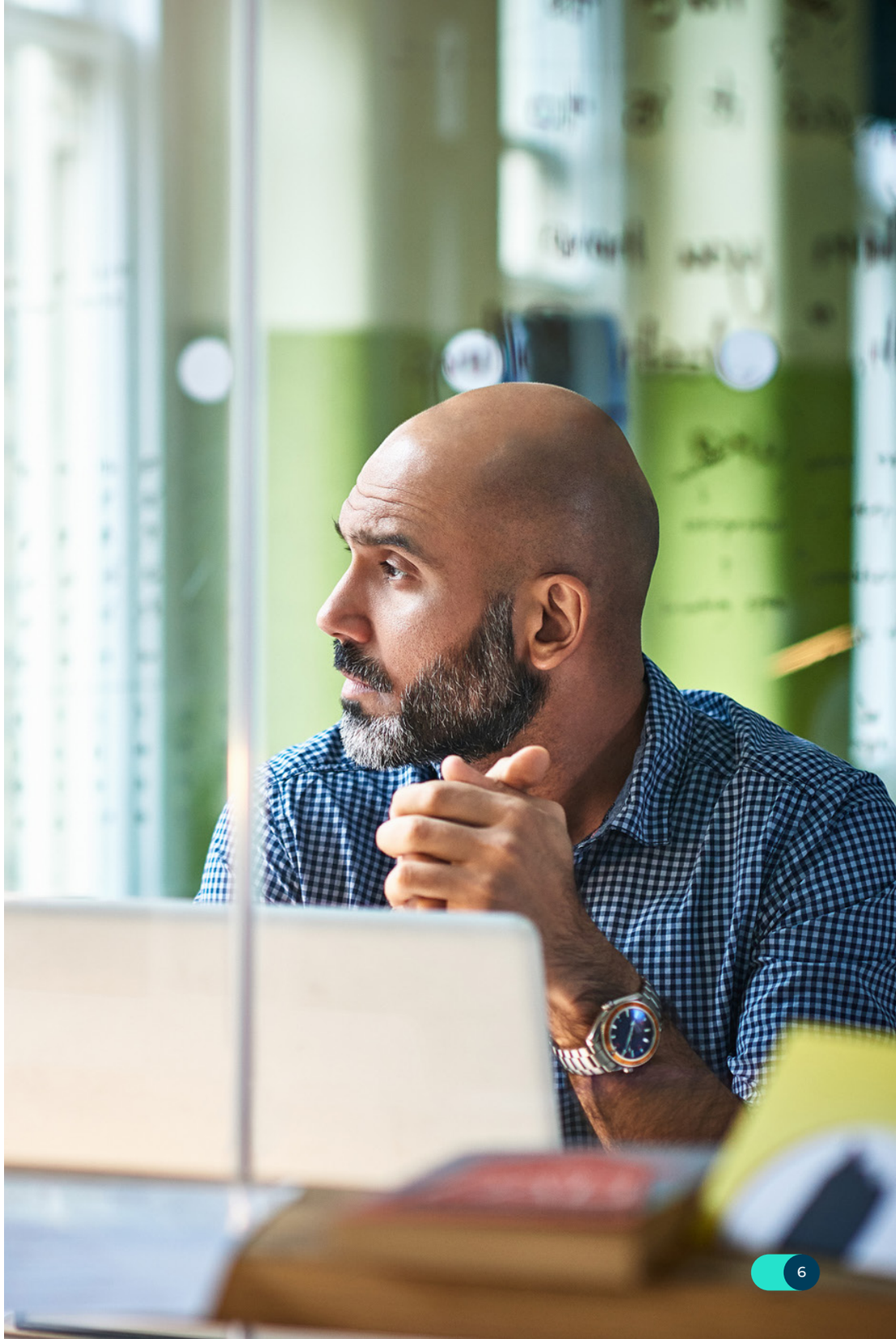
The criticality of metacognitive skills for content moderators

The study shows that T&S experts utilized both the aspects of metacognition: knowledge of cognition and regulation of cognition. However, nuances in subcategorization within these aspects can be seen.

Knowledge of cognition

Knowledge of cognition helps people selectively allocate their resources and use one's metacognitive strategies more effectively. This aspect includes three components, namely declarative (knowing about self and what factors influence one's performance), procedural (knowing how to do things) and conditional (the why and when to use declarative and procedural knowledge (Garner, 1990)) knowledge.

Experts showed a high score on this aspect. A closer look reveals that the highest score was on declarative knowledge (93.7%). This indicates that experts have good knowledge about different aspects of their memory, such as their capacity limitations, factors that aid or hinder their learning, and possess conscious rehearsal abilities and will respond well to distributed learning.



This was followed by high scores on procedural knowledge (94.5%). Typically represented as heuristics and strategies, a high score on procedural knowledge shows that experts possess the knowledge of how to apply policies and learning to their tasks. A high score on the procedural dimension can also signify high practice effects and that tasks can now be performed automatically with the help of a larger repertoire of strategies.

In comparison to declarative and procedural knowledge, awareness of conditional knowledge (91.9%) is low. Conditional knowledge is related to knowledge about specific decision-making situations in which a particular policy, procedure, or strategy will be the most effective. It enables one to adjust to the changing situational demands of each learning task. Operationally, this could mean that the development area for experts could be the application of policies under various scenarios. Strengthening the experts' judgment about the context of use, and selectively allocating resources to use strategies more effectively, can be identified as a training area.

One reason for lower scores on conditional knowledge might be related to the fact that many policies that guide decision-making appear to be insufficient, or even redundant, when it comes to their application in myriad content. For example, qualitative evidence in the form of expert self-reporting indicates that one of the greatest challenges they face is the limited range of content to which many policies are applied. Worse, the cultural, societal, and other contextual factors make decision-making and understanding which policy to apply in a given situation challenging. The evidence suggests there is an opportunity to sharply define and conceptualize policies with more clarity.

Looking at the above trend, we hypothesize that training for conditional knowledge can improve overall performance. Root cause analysis of errors also supports our views. While errors may fall under any of the three areas of policy, process, and people, most of the errors fall under the **people** category, where confusion regarding the application of policies assumes primacy. Training on identification and knowing specific conditional job demands can help reduce these errors and improve productivity. Training modules can be based on experiential learning and should include more role play, storytelling, and simulations with graded exposure to the sensitive content.

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Regulation of cognition

This aspect comprises the following five dimensions:

- **Planning:** Goal setting and allocating resources before learning
- **Information management strategies:** Skills and strategy sequences used to process information more efficiently, such as organizing, elaborating, summarizing, and selective focusing
- **Comprehension monitoring:** The assessment of one's learning, comprehension, and strategy used
- **Debugging strategies:** The strategies used to correct comprehension and performance errors
- **Evaluation:** The analysis of performance and strategy effectiveness after a learning episode

Data from the study shows high scores on self-regulation, with debugging (95%), information management (94.6%), planning (93.6%) and evaluation (92.3%) being the most often utilized skills.

What will benefit from development support is comprehension monitoring (79%). A lower scoring suggests that an assessment of one's learning, comprehension, and strategy is not utilized for optimal self-regulation. In this context, it is self-questioning rather than often followed classroom training during problem-solving, that may hold promise for enhancing experts' regulation in their consequent performance.

Some of the strategies that can be implemented to improve comprehension monitoring are through metacognitive strategies such as planning, monitoring and reviewing; graphic and semantic organizers such as storyboards, schema building, mind maps, visualizations; and monitoring and repair strategies such as modeling, providing guided practice, and independent practice.

Metacognitive awareness and skills across tenure

Metacognitive awareness and skills do vary with tenure. Study participants with a tenure of fewer than six months have scored higher on metacognition, followed by participants with a tenure of more than two years. One of the possible reasons for better metacognition in tenure less than six months might be a heightened, focused, and more conscious outlook and approach to work at the beginning of a career as a T&S expert.

While further research would be required to be exact on the root cause of metacognitive variances during tenure, the data suggests that periodically training experts and increasing one-to-one support after six months, or handholding through their journey from six months to two years can benefit their metacognition skills. A review of the coaching support program after six months is recommended.

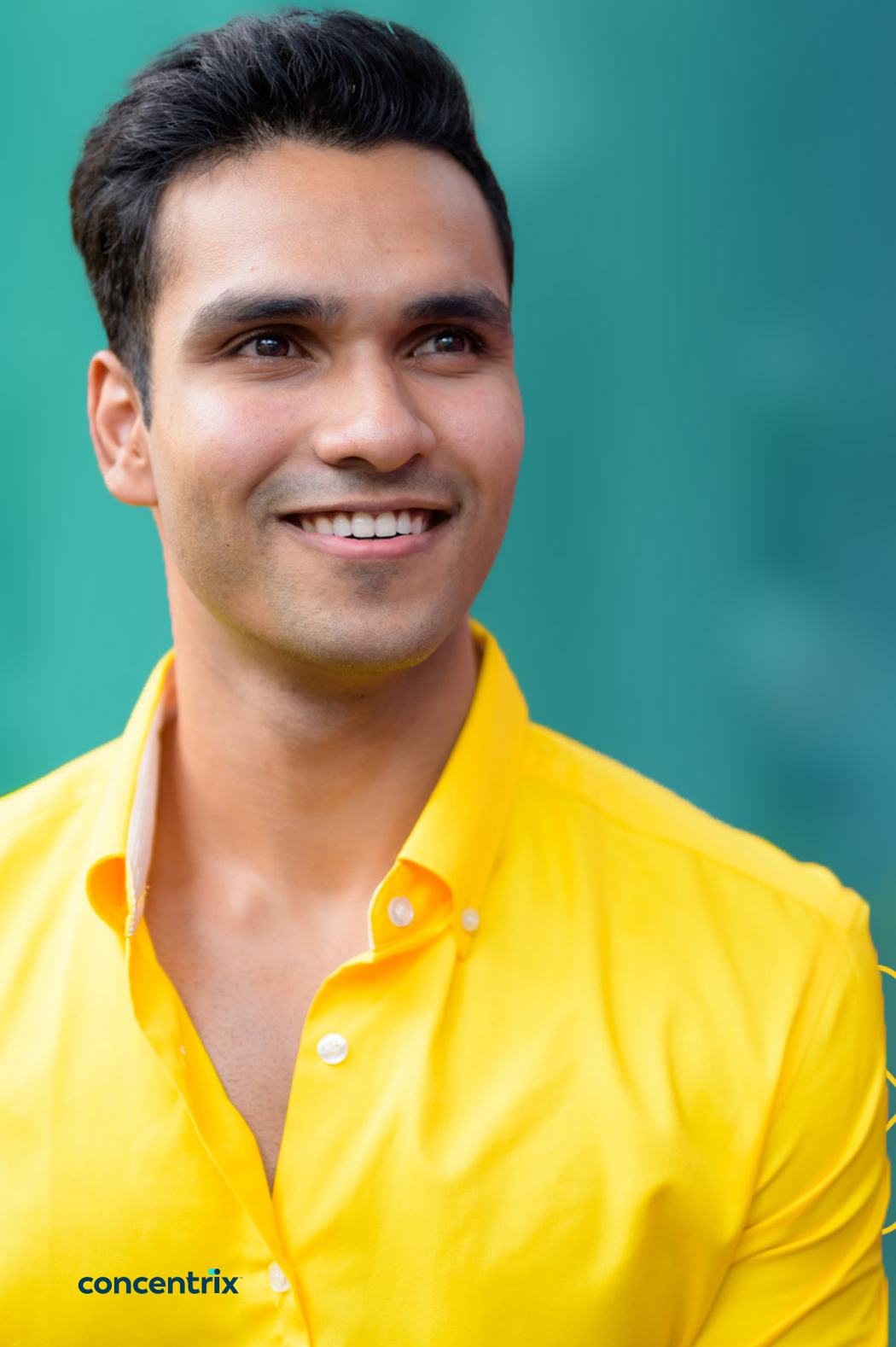
The study shows that utilization of metacognitive skills—including the perception of oneself as a learner, awareness of the nature of a task's components, and knowledge of when and how to use effective strategies—is fundamental to doing the job well.

Recognizing that work performance is related to metacognition has practical implications, especially during recruitment and in formulating and strengthening experts' training and feedback practices. Evaluating metacognitive abilities during recruitment, improving training to support metacognition, and modeling environments to support metacognitive work are a few options to consider.

The crucial role of critical thinking skills in trust and safety

Critical thinking is understood as reflective, purposeful, interactive learning, involving criticism and judgment about what we believe we do. As humans, we are not naturally critical. Instead, cognitive science research shows that we are pattern-finding and storytelling people, trying to make sense using the most readily available, pattern-fitting schema available to us. Therefore, it's not surprising that we are very prone to cognitive errors such as availability bias (relying on immediate examples that come to mind when evaluating an object) or recency effect (remembering items, ideas, or arguments that are most recent).

In trust and safety work, experts are exposed to high-volume content, often at high frequency and sometimes too quickly, that can promote such cognitive errors. This can negatively influence their production and increase performance accuracy errors. What makes the situation even more challenging is the ever-changing work policies that demand constant appraisal of new knowledge. Under such situations, there is a pressing need for an expert to develop acute thinking and reasoning skills to be able to make appropriate decisions and make moderation judgments independently and quickly.



Our study showed that experts make use of critical thinking skills across all tenures, with tenure of fewer than six months scoring the highest, followed by tenure of more than two years.

Critical thinking appears to dip after six months, and hits the lowest during one to two years working in the role. Another interesting finding seems to suggest that it is not high scores, rather moderate scores or even low scores, that seem to be linked with performance and quality. This raises the question as to whether, when, and in what form is critical thinking required to function well as a T&S expert.

Critical thinking is needed especially where decision-making is underpinned by policies or guidance that lacks definition or structure and is characterized by ambiguity or ambiguous goals. Since T&S work can often be challenged with 1) problems with ambiguous (open-ended) information, 2) problems with incomplete information, and 3) problems in which there is information conflict (contradictory information), critical thinking skills can be beneficial. The nature of when and how this can be done needs further research.

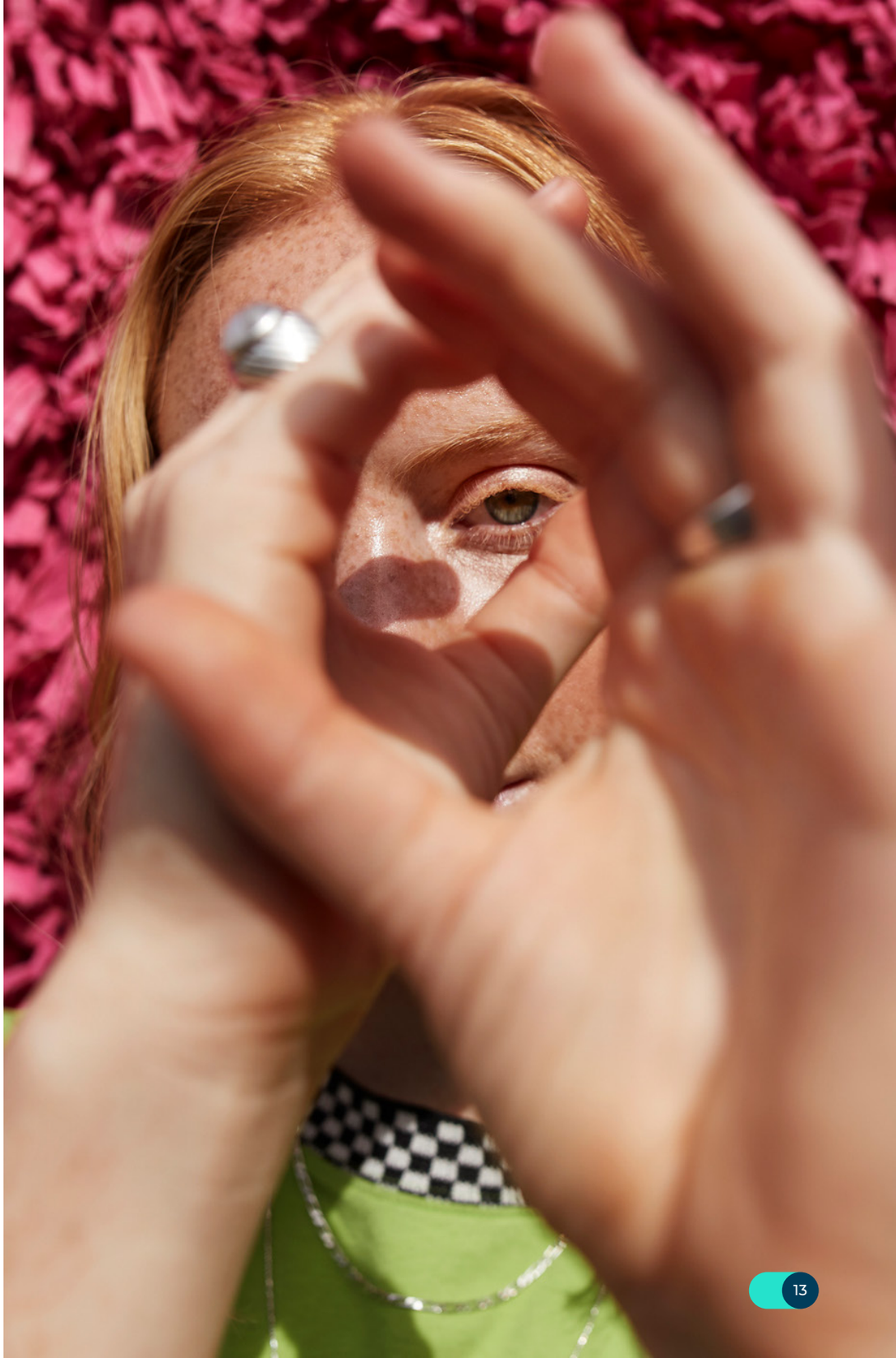
Key Takeaways

Learnings and Recommendations

The study enables operational and delivery leaders to understand the role of metacognition and critical thinking in successful job performance of a T&S expert. It paves a way to identify development opportunities, training needs, and how to establish coaching practices within the day-to-day operational environment.

- **Both metacognitive and critical thinking skills are critical in the job of a T&S expert.** While metacognition is presumed to be important for effective decision-making and in directing and regulating cognitive processes and strategies, critical thinking fosters analytical thinking required during the application of policies. In this way, both are inseparable.

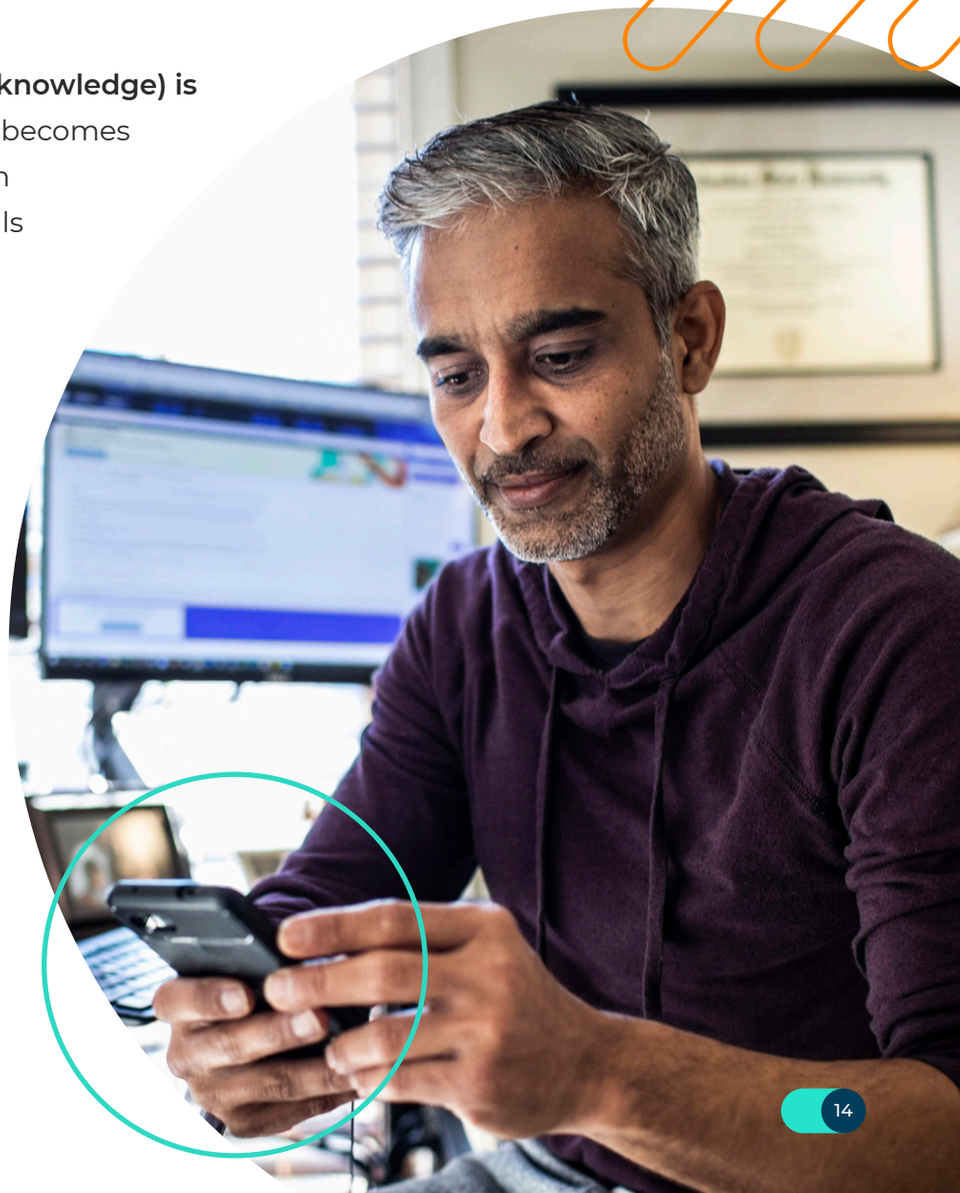
- **Critical thinking can be taught by strengthening metacognition.** The relationship between metacognition and critical thinking was initially explained by Schoen (1983), where the enhancement of knowledge was referred to as critical thinking, and the process of organizing knowledge was a factor of metacognition. This was further emphasized by Halpern (1998), who posited that while engaging in critical thinking, people used specific metacognitive skills like monitoring their thinking process, checking whether progress is being made toward an appropriate goal, ensuring accuracy, and making decisions about the use of time and mental effort. These are very similar to the self-directed learning and performance required in the role of a T&S expert.



- **Environmental structuring, including building systemic processes and specific strategies (such as techniques like prompts, topics, and keywords) can help facilitate both metacognition and critical thinking.** Environmental structuring can include feedback sessions where scope of argument is not focused on finding the correct answer, but includes a process of deep-level processing. For example, metacognition and critical thinking can be taught in the context of a debate, where the emphasis is on understanding an opponent's argument and constructing one's counterargument based on it.

- **Conditional knowledge (knowing when to apply declarative and procedural knowledge) is very crucial for the application of policies.** Training on conditional knowledge becomes important when policies are ever-changing and fluid. This can be done through progressive problem-solving techniques that target the mindset of professionals who, through practice across different contexts, learn when to apply strategies. Continuous training on conditional knowledge can also help avoid the routinization of work (e.g., yet another case of a particular policy) by creating challenges that increase the cognitive burden of the encounter, even when the circumstances do not require it.

- **Screening for metacognition and critical thinking.** Our emphasis on screening for recruitment includes practices and activities that can be applied by organizations with the objective of distinguishing and attracting suitable talent. In this context, competency-based talent management becomes a necessary process for any organization working within T&S. In this direction, our research shows that both metacognitive and critical thinking abilities are linked with job performance. While further research is needed to establish this link, the present study succeeds in defining and strongly recommending a prescreening process that assesses metacognition and critical thinking as competencies required by successful T&S experts.



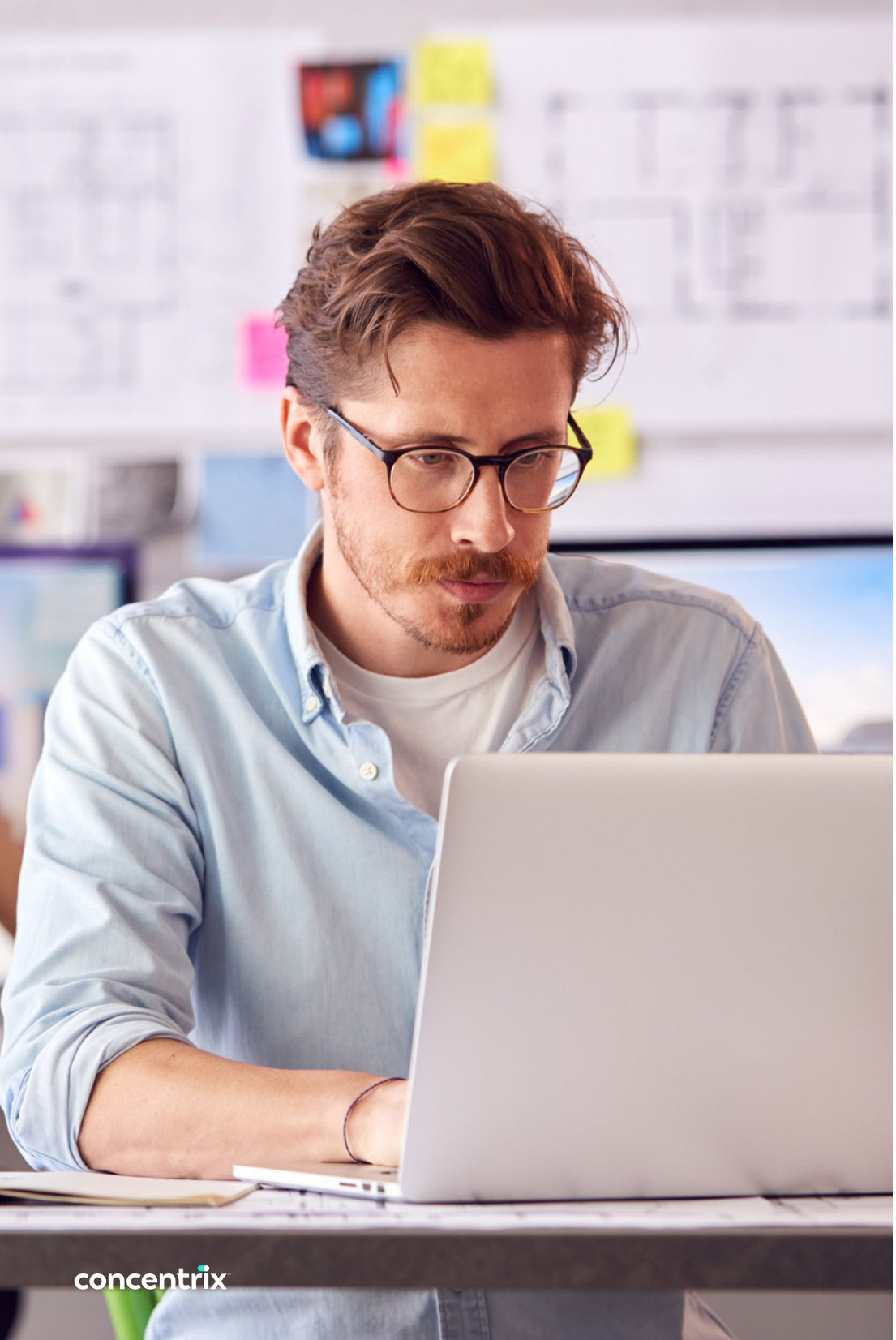
Research Takeaways for Operational Leaders

- Hiring the right candidate for the job of a T&S expert can be one of the most significant contributions that can be made towards an organization and towards a candidate. Establishing, revising, and upgrading recruitment and selection practices to accommodate the right competencies, including a readiness for metacognition and critical thinking, can be further explored and deliberated upon.

- Intermittent, yet regular, coaching and training on metacognition, especially on conditional knowledge, can be particularly useful for T&S experts, who can be fatigued and can soon become apathetic to content for moderation. Using simulations, open discussions, and perspective taking, the experts can exercise using declarative and procedural knowledge, thereby strengthening the conditional knowledge.

- Developing comprehension monitoring can facilitate error detection. Experts' monitoring abilities can improve if they are given assistance and handholding in selecting the appropriate schema for understanding content and applying relevant policies to it. Feedback on errors can benefit from such an approach. One immediate and effective technique to improve comprehension monitoring can be during the policy training sessions, where the newly hired T&S experts can be exposed to a variety of tasks and content. If a variety of tasks are used during the initial phase of policy learning and understanding, more confidence can be placed in understanding generalizations drawn from them.

- While building training, feedback, and coaching practices can boost metacognitive and critical thinking skills, peer learning in the form of reverse mentoring and mentoring can also help. This is especially true since T&S experts with a tenure of less than six months and more than two years show highest utilization of metacognition. One-on-one mentoring can be particularly helpful under such circumstances.



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