

## **10 Neuroscience-based Statistics That Show Visual SOPs and Training Methods Are More Effective Than Written (words) Ones**

In today's quick-paced manufacturing world, efficiency and precision are crucial. Standard Operating Procedures (SOPs) are essential for maintaining quality, consistency, and safety. However, as workplace dynamics change, it's worth questioning if traditional text-based SOPs are the best method for training employees and ensuring protocol adherence. Neuroscience research strongly suggests they are not. Studies widely support transitioning from written procedures to visual SOPs, and here are 10 neuroscience-based statistics that highlight why visual SOPs are more effective.

### **A. The brain processes visual information in just 13 milliseconds**

Research shows that the brain can interpret visual data in just 13 milliseconds, making visuals incredibly efficient for conveying complex information. In the workplace, Visual SOPs save time by enabling employees to quickly understand instructions, such as diagrams or videos, without the need to decipher lengthy text guides. This is especially crucial in fast-paced environments like manufacturing, where quick comprehension boosts productivity and reduces downtime. Visual SOPs streamline learning, reduce cognitive load, and allow employees to focus on execution rather than interpretation, enhancing task efficiency, minimizing errors, and improving overall operational effectiveness.

Relevance: The brain's rapid visual processing enhances training and on-the-job execution, enabling employees to perform tasks with speed and accuracy. Visual SOPs boost productivity and improve workflow by driving efficiency.

Ref.: MIT News on campus and around the world – In the blink of an eye, by Anne Trafton, MIT News Office. Jan. 16, 2014

### **B. Visual information is processed by the human brain significantly faster than text**

The brain processes visuals about 60,000 times faster than text, prioritizing visual information and enabling instant recognition of patterns, key elements, and meanings. This rapid processing is particularly beneficial in the workplace, where visual Standard Operating Procedures (SOPs) help employees understand instructions quickly and clearly, reducing confusion and errors. Visual SOPs, such as step-by-step videos or annotated diagrams, allow teams to act decisively and minimize cognitive load, ensuring smooth workflows and efficient task execution.

Relevance: The brain's quick visual processing leads to faster task execution and less downtime, boosting productivity and ensuring a more efficient workflow in manufacturing and operational settings.

Ref.: A Research Report commissioned by 3M Corp. (1982). Studies in Visual Communication

### **C. Users remember visual content four times better than text content after three days**

Studies show that individuals remember 80% of visual content after three days, compared to just 20% of text content. Visuals create strong mental associations, aiding recall of critical instructions. This is crucial in manufacturing and operational settings, where long-term recall impacts safety and productivity. Visual SOPs use memorable diagrams, images, and videos, reducing retraining needs and ensuring employees can rely on their knowledge in high-pressure situations

Relevance: A visual safety SOP with labeled diagrams of emergency procedures enables workers to quickly recall the correct actions during real-life scenarios, significantly reducing risks.

Ref.: Dale, E. (1946). Audiovisual Methods in Teaching. New York: Dryden Press

### **D. People adhere to visual instructions over 3 times more effectively than written ones**

A study found that individuals perform tasks 323% better with visual guides compared to written instructions, highlighting the significant impact of visuals on task performance (see reference). Visual aids simplify complex procedures, enhance understanding, and reduce confusion, which is crucial in manufacturing environments where precision and accuracy are critical. Visual guides ensure seamless operations, reduce costly errors, and accelerate learning and task execution. Visual SOPs leverage the brain's real-time processing capabilities, presenting information in an immediately actionable format that enhances accuracy and efficiency.

Relevance: A step-by-step video on machine maintenance allows employees to perform tasks accurately and confidently, significantly reducing errors compared to text-heavy manuals. This underscores the vital role of visual Standard Operating Procedures (SOPs) in enhancing performance and maintaining consistency in critical settings.

Ref.: Waller, R. (1981). Understanding Visual Instructions. Applied Cognitive Psychology Journal

### **E. Visual aids enhance memory retention significantly**

Studies show that individuals retain 42% more information when it's presented visually rather than in text. This is because the brain can store and recall images more effectively, creating stronger neural connections. Text-heavy formats can be overwhelming, leading to skimming and misunderstandings. Visual elements like flowcharts, step-by-step videos, or annotated images make content easier to digest and remember. Visual SOPs leverage the brain's memory strengths, allowing employees to recall procedures more easily, even in high-pressure situations

Relevance: Visual SOPs boost retention, ensuring employees are well-prepared to execute tasks accurately. This enhances operational outcomes and builds workforce confidence, fostering a culture of reliability and consistency.

Ref.: Levie, W. H., & Lentz, R. (1982). Effects of Text Illustrations: A Review of Research. Educational Communication and Technology Journal, 30(4), 195–232

## **F. Most of the information processed by the brain is visual**

The human brain is highly evolved for visual processing, adept at interpreting images, colors, patterns, and motion. Neuroscience reveals that 90% of information transmitted to the brain is visual, enabling faster and more efficient processing compared to text. Visual aids significantly enhance memory retention, comprehension, and engagement, making them invaluable for conveying detailed instructions, especially in professional settings. They help employees absorb and apply information more effectively, reduce guesswork, and overcome language barriers, promoting inclusivity and reducing training time. Visual content thus plays a crucial role in improving learning and operational efficiency.

Relevance: Visual Standard Operating Procedures (SOPs) align with the brain's preference for visual information, resulting in faster understanding, improved memory retention, and fewer errors. This method boosts operational efficiency and provides employees with clear, actionable guidance.

Ref.: Medina, J. (2008). Brain Rules: 12 Principles for Surviving and Thriving at Work, Home, and School. Pear Press/Perseus Books Group, ISBN-10: 0-9797777-4-7, ISBN-13: 978-0-9797777-4-5

## **G. Using visual content boosts employee training completion by 75%**

Training completion rates increase by 75% when visual elements like videos, infographics, and animations are used. Visual content is more engaging and less intimidating than text-heavy formats, encouraging thorough completion of training modules. Visual SOPs make learning enjoyable and interactive, motivating employees to actively participate and improve knowledge retention, ensuring compliance with required training standards

Relevance: Higher completion rates lead to a more knowledgeable and confident workforce, which reduces risks and enhances overall operational efficiency.

Incorporating visuals into training programs boosts participation and achieves better outcomes.

Ref.: Forbes Insights (2010). Video in the C-Suite: Executives Embrace the Non-Text Web' ([https://www.forbes.com/forbesinsights/StudyPDFs/Video\\_in\\_the\\_CSuite.pdf](https://www.forbes.com/forbesinsights/StudyPDFs/Video_in_the_CSuite.pdf))

## **H. A majority of people tend to learn best through visual means**

Approximately 65% of individuals are visual learners, meaning they understand and remember information better when presented visually. Traditional text-based SOPs cater to verbal learners, which can leave visual learners struggling with critical instructions. This often leads to misunderstandings, inconsistent task execution, and increased errors. For example, employees who learn best through demonstrations may find dense, text-heavy manuals challenging, resulting in slower performance and mistakes.

Relevance: Visual SOPs incorporate videos, infographics, and step-by-step visuals to support diverse learning styles, including visual, auditory, and kinesthetic learners. This

method improves understanding, retention, engagement, and confidence, creating a more effective and balanced learning environment for all employees.

Ref.: Bruner, J. S. (1966). Studies in Cognitive Growth. Wiley. ISBN-10: 0471114006  
ISBN-13: 978-0471114000

### **I. Multimedia learning enhances comprehension by more than 75%**

Research based on Mayer's Multimedia Learning theory shows that combining visuals with explanatory audio or text can improve understanding by up to 77%. This is because multimedia engages multiple senses, creating a more effective learning experience. For instance, employees watching a video with voice-over instructions and visuals will understand a process better than reading text alone. Multimedia SOPs simplify complex processes into manageable steps, enhancing clarity and reinforcing key points through repetition across different formats.

Relevance: A multimedia SOP demonstrating proper equipment setup, with voice-over and visuals, can significantly reduce training time and ensure employees grasp intricate details with confidence.

Ref.: Mayer, R. E. (2001). Multimedia Learning. Cambridge University Press. ISBN-10: 0521787491, ISBN-13: 978-0521787499

### *J. Using visuals can boost engagement levels by up to almost 100%*

Studies show that visuals boost engagement by 94% compared to text-only content, as the human brain is naturally drawn to images, colors, and motion. This increased engagement ensures employees pay attention and stay focused during training or tasks. In distracting environments, where understanding instructions is crucial for accuracy and safety, visual SOPs (like video tutorials or infographics) keep employees immersed. This is especially beneficial for lengthy or complex procedures, where traditional text-based instructions often fail to hold attention.

Relevance: By increasing engagement, visual SOPs help employees stay focused, leading to better understanding, fewer errors, and improved task execution.

Ref.: HubSpot (2017). The State of Inbound Marketing, Brian Halligan CEO, HubSpot

### **In conclusion**

The proof is undeniable: Visual SOPs and trainings surpass written procedures in nearly every aspect, including comprehension, retention, engagement, and performance. By integrating neuroscience-based strategies, organizations can transform their training and operational processes (Lean GMP).

Contact us for training and support.