Research Report

Transitioning from Hard Hats to Safety Helmets

Job-Site Safety Institute®

Alex Albert, PhD
Anto Ovid

NC STATE UNIVERSITY

Sang D. Choi, PhD, MPH, MS, CSP, CPE
Pooja Thakkar, MPH

GEORGE MASON UNIVERSITY

EXECUTIVE SUMMARY

Traumatic brain injuries (TBIs) remain a significant cause of fatalities and severe injuries within the construction industry, particularly among workers operating in dynamic and hazardous environments. Traditional Type I hard hats, although historically important, offer limited protection against lateral and rotational impacts—leaving workers vulnerable to a broader range of injuries. Modern Type II safety helmets, designed with enhanced impact resistance and retention systems, present a promising solution. However, despite their superior protection, adoption among small construction businesses and independent contractors has remained low, largely due to cost concerns, lack of familiarity, and cultural resistance.

This study aimed to assess whether a targeted informational intervention could improve knowledge, perceptions, and willingness to adopt Type II safety helmets among workers primarily engaged in residential construction projects. A total of 46 participants were recruited for a structured case study. The intervention included a data-driven presentation, real-world testimonials, and a hands-on helmet familiarization session. Pre- and post-intervention surveys were used to measure changes in familiarity, confidence in head protection, willingness to adopt Type II helmets, and likelihood of real-world implementation.

The findings revealed that the intervention was highly effective in improving participants' familiarity with Type II helmets and increasing their willingness to adopt them, with over 75% expressing a positive attitude toward transition after the intervention. However, barriers such as cost, employer policies, and workplace norms were identified as significant obstacles to practical implementation. Based on these insights, the report presents a detailed roadmap for industry-wide adoption, emphasizing the importance of awareness campaigns, strategic partnerships, financial incentives, leadership-driven culture change, and policy advocacy. Broader industry efforts will be critical in translating improved perceptions into widespread, tangible safety improvements across the construction workforce.

INTRODUCTION

Head protection has long been a cornerstone of worker safety in the construction industry (OSHA 2024). Traditional Type I hard hats, introduced over a century ago, were primarily designed to protect workers from vertical impacts caused by falling objects (Weaver et al., 2024). Their lightweight, affordable design made them widely accessible, particularly to small construction contractors. However, as construction environments have evolved to become more complex and dynamic, the limitations of traditional hard hats have become increasingly apparent. Specifically, these helmets provide minimal protection against lateral, rotational, or angular impacts, leaving workers vulnerable to a broader range of injuries, including traumatic brain injuries (TBIs).

Traumatic brain injuries continue to represent a significant cause of fatalities and severe injuries within the construction industry. Between 2003 and 2010 alone, 2,210 construction workers died from TBIs, accounting for approximately one-quarter of all construction-related fatalities (Konda et al. 2016). More recent data (2015–2022) show that this troubling trend has persisted, with 2,297 fatal intracranial injuries reported among construction workers during this period (U.S. Bureau of Labor Statistics 2024). Given that many of these injuries result from falls, struck-by incidents, and slips—scenarios where lateral and rotational impacts are likely—the need for improved head protection has become increasingly urgent (CPWR 2024).

In response to these risks, modern Type II safety helmets have been developed, offering 360-degree protection, enhanced side-impact resistance, and improved helmet retention systems (e.g., integrated chin straps). Inspired by advancements in sports helmet technologies, these helmets also feature better fit, increased comfort, and greater compatibility with face shields, hearing protection, and other accessories. Major construction firms such as Clark Construction and Hensel Phelps have already transitioned to Type II safety helmets for their workforce, recognizing the superior protection they offer and the role they can play in preventing severe head injuries (Clark Construction 2024, Hensel Phelps 2025).

Despite these advancements and endorsements, adoption of Type II helmets remains uneven—especially among small construction contractors. Smaller firms, which often have limited safety budgets and resources, have been slower to adopt newer head protection technologies. Concerns about costs, worker resistance to change, lack of familiarity with the advantages of safety helmets, and the absence of regulatory mandates have all contributed to this lag in adoption. This disparity is particularly troubling, given that small businesses and independent contractors often operate in environments that expose workers to the very hazards that Type II helmets are designed to mitigate.

Recognizing these challenges, this study was undertaken to explore whether a targeted informational intervention could influence attitudes and willingness among small construction contractors and their workers to transition from traditional hard hats to Type II safety helmets. The research aims to contribute practical insights into promoting the adoption of advanced head protection technologies within an underrepresented and high-risk sector of the construction workforce.

BACKGROUND

The evolution of head protection in construction has been closely tied to changes in worksite hazards and industry safety practices. Edward W. Bullard's invention of the "Hard-Boiled Hat" in 1919 marked the beginning of organized head protection in construction. Over the following decades, hard hats made from canvas, aluminum, fiberglass, and thermoplastics became standard equipment, significantly reducing injuries from overhead hazards. However, their basic design has remained relatively unchanged, and with the increasing complexity of modern construction environments—including greater work at height, use of heavy equipment, and congested worksites—the simple vertical protection offered by traditional hard hats is no longer sufficient.

Recent research and industry analysis have underscored the limitations of Type I hard hats in protecting workers from the lateral and rotational forces commonly experienced during falls and side impacts (OSHA 2024). Advanced safety helmets—modeled after sports helmets used in activities such as rock climbing and cycling—were introduced to address these limitations. By incorporating impact-absorbing foam liners, polycarbonate shells, and retention systems, Type II helmets offer substantial improvements in both protection and stability. Table 1 presents a comparison of the features for Type I hard hats and Type II safety helmets (McAplin 2024).

Table 1. Traditional Type I Hard Hats Vs. Type II Safety Helmets

Feature	Type I Hard Hats	Type II Safety Helmets
Design Origin	Inspired by military helmets (1919)	Modeled after sports helmets (climbing, cycling)
Primary Protection	Protects against vertical impacts (falling objects)	Provides 360° protection, including lateral and rotational impacts
Material	Thermoplastics, fiberglass, aluminum	Polycarbonate shells, impact-absorbing foam liners
Chin Strap	Not included (prone to falling off)	Integrated chin strap for stability
Fit & Comfort	Basic design, may cause discomfort	Adjustable suspension for improved fit and comfort
Accessory Compatibility	Limited (some attachable shields available)	Designed for integration with face shields, hearing protection, and headlamps
Weight	Lighter but less stable	Slightly heavier but more secure
Suitability for Modern Construction	Limited protection in complex environments	Enhanced safety for dynamic and high-risk tasks
Cost	Affordable	More expensive (higher upfront investment)
Adoption Challenges	Familiar and widely accepted	Resistance due to cost, comfort concerns, and worker hesitancy
Regulatory Standards	Required under OSHA regulations	Not yet widely mandated but gaining industry support
Effectiveness in Reducing Injuries	Effective against falling objects but lacks lateral protection	Reduces injuries from falls, side impacts, and rotational forces

The construction industry has seen growing momentum toward adopting these helmets, but small businesses have lagged behind larger firms in implementing such changes. A major concern for small contractors is the cost associated with upgrading PPE across their workforce. Type II helmets typically cost $50–$100 more per unit compared to traditional hard hats, a significant burden for businesses operating on slim margins. In addition, there are cultural and behavioral barriers: workers accustomed to hard hats may view the new helmets as unnecessary, uncomfortable, or emblematic of excessive change.

Previous research has also identified a knowledge gap among small contractors regarding the comparative benefits of Type II helmets. While many workers are familiar with the basic need for PPE, few are aware of the specific advantages that newer helmet designs offer, particularly in preventing life-altering TBIs. Furthermore, the decentralized nature of small construction businesses makes large-scale, top-down enforcement difficult, reinforcing the need for tailored, grassroots interventions.

To address these challenges, this study designed and implemented an informational intervention targeting workers primarily employed by small construction firms. The intervention consisted of a combination of educational materials, hands-on demonstrations, testimonials from early adopters, and pre- and post-intervention surveys to gauge changes in participant knowledge, perceptions, and willingness to adopt Type II helmets. By focusing on small contractors—a group historically underrepresented in both research and safety improvement initiatives—this effort aims to provide actionable strategies for enhancing head protection across the broader construction industry.

The findings presented in this article contribute to a growing body of evidence supporting the transition from traditional hard hats to modern safety helmets. They also offer practical guidance for designing effective informational campaigns, overcoming barriers to adoption, and fostering a cultural shift toward prioritizing comprehensive head protection on construction sites of all sizes.

METHODS

Stage I: Development of an Informational Intervention

An informational intervention was developed in the form of a targeted presentation titled "*Upgrading Your Safety: Why Type II Safety Helmets Matter.*" The goal of this presentation was to provide construction workers and related personnel—particularly those in small contracting firms—with a concise, compelling, and fact-based overview of why transitioning from traditional Type I hard hats to Type II safety helmets is critical for their protection. The primary objective of the intervention was to deliver a concise yet impactful message that educates workers on the limitations of traditional head protection and the advantages of upgrading to more comprehensive safety equipment.

The content of the presentation was structured to move from awareness to action, focusing on the following key areas:

1. ***The Seriousness of the Issue – Traumatic Brain Injuries (TBIs):***

The presentation began with a powerful statistic—over 200 construction workers die each year from TBIs in the U.S.—to immediately emphasize the life-threatening nature of head injuries. It underscored that many of these injuries could have been prevented with improved head protection.

2. ***Limitations of Type I Hard Hats:***

Workers and construction personnel were informed that Type I hard hats are designed to only protect against top-down impacts, leaving them vulnerable to side, front, and rear impacts that often occur during slips, trips, falls, or contact with equipment. The lack of a chin strap was also highlighted, showing how these hats can easily dislodge before impact—rendering them ineffective in dynamic or real-world scenarios.

3. ***Benefits of Type II Safety Helmets:***

The presentation clearly illustrated how Type II safety helmets provide 360-degree impact protection, staying secure with a chin strap and significantly reducing the risk of serious injury in falls or struck-by/struck-against incidents. Real-world examples such as falls from ladders and scaffolds, or contact with beams and machinery, were used to contextualize the value of these helmets.

4. ***Cost and Comfort Considerations:***

Acknowledging cost-related hesitation, the presentation positioned the $50–$100 price difference as a worthwhile investment when weighed against the potential cost of a life-altering injury. It also reassured workers that modern Type II helmets are built for comfort, with features such as internal padding, adjustable fit systems, and ventilation.

5. ***Motivational Messaging:***

The presentation posed a thought-provoking question:
"Would you rather wear a helmet that stays on and protects you fully, or take a risk with sub-optimal equipment?"

6. ***Real-World Testimonials and Case Examples***

To build trust and relatability, the presentation featured testimonials and case studies where workers, employers, and agencies benefited from having switched from Type I hard hats to Type II safety helmets. These stories offered authentic, persuasive evidence to support adoption.

7. ***Hands on Type II Safety Helmet Familiarization Session***

As a final element, apart from the informational content, the intervention also included a hands-on component that allowed participants to physically try on two different Type II safety helmets. The two safety helmets that were used for this purpose was the Studson SHK-1 vented safety helmet and the Kask Zenith X2 safety helmet. This session was designed to provide participants with a tangible experience of the helmets' features—such as fit, comfort, weight, and stability—which are often difficult to convey through presentation alone. By allowing participants to handle the helmets directly, adjust the chin straps, and feel the interior padding and suspension systems, the session was aimed to enhance familiarity with the new equipment.

The following visuals present screen-shots from the informational intervention presentation:

NC STATE UNIVERSITY

Upgrading Your Safety: Why Type II Safety Helmets Matter

NC STATE UNIVERSITY

Every year, over 200 construction workers die from traumatic brain injuries (TBIs) in the U.S.

– Many of these deaths could have been prevented with better head protection.

NC STATE UNIVERSITY

If you knew there was a helmet that could significantly reduce your risk of a serious head injury, wouldn't you want to wear it?

NC STATE UNIVERSITY

Limitations of Type I Hard Hats

- *Limited protection:* Only protects against top-down impacts.
- *Falls and side impacts:* No lateral protection, which is critical in falls, slips, trips, or being hit by equipment/structural members/debris.
- *Helmet falls off easily*: No chin strap, so it often falls off before impact.

NC STATE UNIVERSITY

Benefits of Type II Safety Helmets

- Type II safety helmets offer protection against:
  - Head injuries when workers fall (from ladders, scaffolds, and rooftops) backward, forward, or sideways and helmet stays on due to chin strap
  - Struck-by Incidents such as accidental head contact with moving machinery, swinging beams, and overhead loads
  - Struck-against incidents from low-handing pipes, scaffolding, or overhead obstacles

NC STATE UNIVERSITY

Cost and Comfort

- Investing roughly an additional $50-$100 in Type II safety helmets can potentially prevent costly life-altering incidents.
- Modern Type II safety helmets are engineered with improved padding, ventilation, and adjustable fit systems to enhance comfort and safety.

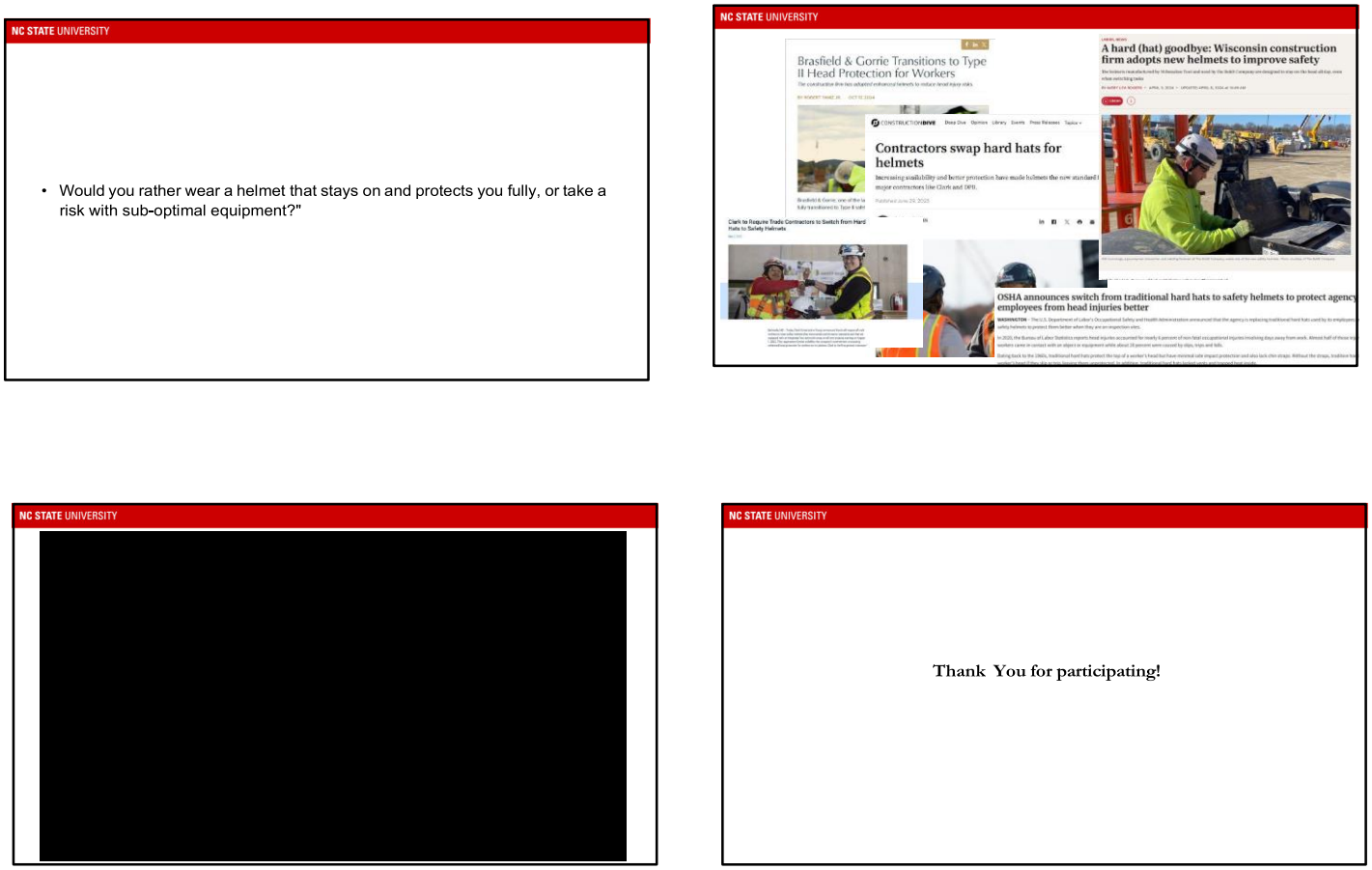


Figure 1: Informational intervention slides screen-shots

Stage II Pre-Intervention & Post-Intervention Survey Development

To assess the effectiveness of an informational intervention aimed at promoting the adoption of Type II safety helmets in construction settings, a structured pre-test and post-test survey approach was employed. The primary objective of these surveys was to determine whether participants' perceptions, knowledge, and willingness to adopt Type II safety helmets would change after being presented with comparative information and a demonstration.

Pre-Test Survey

The pre-intervention survey served to establish a baseline understanding of participants' familiarity with, usage, and attitudes toward Type I and Type II head protection. It consisted of two main sections. The first section gathered demographic details including experience in the construction industry, professional role, trade focus if relevant, and sector (e.g., residential, commercial, etc.). The second portion of the survey captured the following:

- **Current head protection used**, with response options:
  - Type I hard hat
  - Type II safety helmet
  - Other (please specify)

- Not sure
  (Follow-up: Open-ended explanation of why the participant uses the selected option)

- **Familiarity with Type II safety helmets**, rated on a 5-point Likert scale:
  - 1 = Not familiar at all
  - 2 = Slightly familiar
  - 3 = Neutral
  - 4 = Familiar
  - 5 = Very familiar
    (Follow-up: Open-ended explanation of what the participant knows about Type II helmets)

- **Confidence in current head protection (Type I hard hat)** for hazards such as falling objects or side impacts, rated on a 5-point Likert scale:
  - 1 = Not confident at all
  - 2 = Slightly confident
  - 3 = Neutral
  - 4 = Confident
  - 5 = Very confident
    (Follow-up: Open-ended explanation of the participant's rationale)

- **Openness to trying alternate head protection product that may offer superior protection**, rated on a 5-point Likert scale:
  - 1 = Very unwilling
  - 2 = Unwilling
  - 3 = Neutral
  - 4 = Willing
  - 5 = Very willing
    (Follow-up: Open-ended explanation of the participant's rationale)

Each quantitative response was followed by an open-ended prompt to gather qualitative insights, offering a deeper understanding of the reasoning behind each participant's choice.

Post-Test Survey Design

The post-intervention survey was planned for administration after the educational session explaining the advantages of Type II helmets over traditional Type I hard hats, including a

demonstration of their superior protection against lateral impacts. This survey was designed to identify any shifts in perception or intent resulting from the intervention.

- **Helmet Preference After Intervention:**
  - Type I hard hat
  - Type II safety helmet
  - Other (please specify)
  - Not sure
    (Follow-up: Open-ended explanation of the preference)

- **Updated Familiarity with Type II Helmets:**
  - 1 = Not familiar at all
  - 2 = Slightly familiar
  - 3 = Neutral
  - 4 = Familiar
  - 5 = Very familiar
    (Follow-up: Open-ended explanation of current knowledge)

- **Confidence in Current Head Protection (Type I hard hat):**
  - 1 = Not confident at all
  - 2 = Slightly confident
  - 3 = Neutral
  - 4 = Confident
  - 5 = Very confident
    (Follow-up: Open-ended rationale for the response)

- **Confidence in Type II Helmet Protection (Post-Demonstration):**
  - 1 = Not confident at all
  - 2 = Slightly confident
  - 3 = Neutral
  - 4 = Confident
  - 5 = Very confident
    (Follow-up: Open-ended rationale for the response)

- **Willingness to Adopt Type II Helmets in the Workplace:**
  - 1 = Very unwilling
  - 2 = Unwilling

- 3 = Neutral
- 4 = Willing
- 5 = Very willing
  (Follow-up: Open-ended explanation of the response)

- **Likelihood of adoption Type II Helmets in the Workplace considering barriers and challenges:**
  - 1 = Very unlikely
  - 2 = Unlikely
  - 3 = Neutral
  - 4 = Likely
  - 5 = Very likely
    (Follow-up: Open-ended explanation of the response)

Stage III: Participant Recruitment and Intervention Case Study

A total of 46 participants that used Type I hard hats on a regular basis as part of their job were recruited for the interventional case study, with a focus on ensuring representation from residential construction projects, where small businesses and trade-based contractors are most prevalent. The participant group included a diverse range of professionals across key construction trades, including electricians, plumbers, framers, carpenters, HVAC installers, painters, drywall installers, landscapers, and others. Additionally, the group featured several site supervisors and one field engineer, allowing for a broad perspective across roles and responsibilities. Participants brought with them a wide range of industry experience, spanning from 2 to 22 years, providing a well-rounded and practical foundation for evaluating the intervention's relevance, clarity, and potential for real-world impact.

Following participant recruitment, the study proceeded according to the planned sequence of activities. Each participant first completed a pre-intervention survey (pretest) designed to assess baseline knowledge, perceptions, and willingness to adopt Type II safety helmets. This was immediately followed by the informational intervention, which included a structured presentation, video testimonials, real-world case examples, and a hands-on helmet familiarization session. Upon completion of the intervention, participants were asked to complete a post-intervention survey (posttest) to evaluate changes in their understanding, attitudes, and intent to adopt Type II safety helmets. This structured flow ensured consistent exposure to the intervention content and enabled a direct comparison of pre- and post-intervention responses.

While the surveys served as the primary tool for data collection, a more interview-style approach was adopted to ensure that participants' responses were complete and that any necessary clarifications could be provided in real time. Additionally, in cases where participants faced challenges communicating in English, assistance from a coworker or another individual was sought to facilitate effective communication and ensure accurate data capture.

STUDY FINDINGS

The results presented in the following sections are organized into three subsections. The first subsection focuses on data collected exclusively during the pre-intervention phase, providing baseline insights into participants' responses. The second subsection examines changes in responses between the pre- and post-intervention phases, highlighting shifts in attitudes and intentions following the informational intervention. The final subsection presents findings drawn solely from the post-intervention phase, offering a snapshot of participants' perspectives and reflections after being exposed to the intervention materials.

Pre-intervention Findings

Figure 2 illustrates the participants' openness to adopting a new head protection solution if it offered superior protection that was captured prior to the intervention introduction. As shown, over 80% of the study participants indicated an openness to consider alternatives to traditional Type I hard hats, such as Type II safety helmets, if these alternatives could provide enhanced safety. This strong positive response suggests that workers are receptive to upgrading their equipment when clear benefits to their protection are demonstrated.

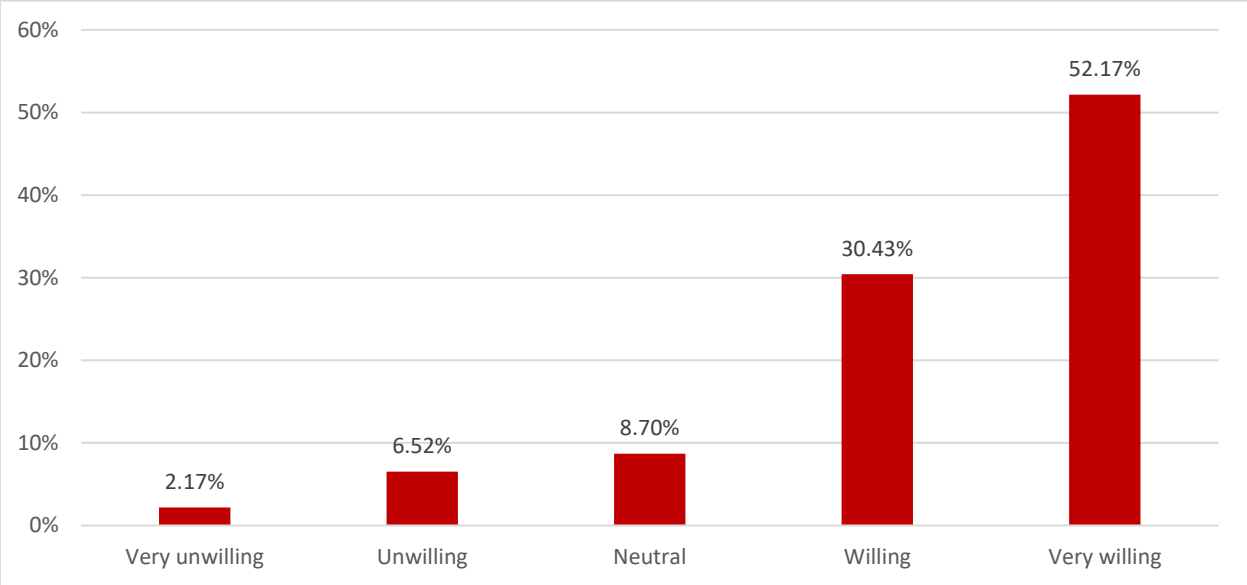


Figure 2: Openness to trying alternate head protection that may offer superior protection (e.g., Type II safety helmets)

It should be noted that the openness was evident even if the participants were not aware of the features and capabilities of the Type II safety helmet. Many of the participants were only exposed to the distinction between the two protective alternatives as part of the currently presented investigation.

Pre-intervention and Post-intervention Comparison Findings

Figure 3 illustrates the change in participants' self-reported familiarity with Type II safety helmets before and after the informational intervention. Prior to the intervention, most participants indicated relatively low levels of familiarity, with responses ranging from "not familiar at all" to

"slightly familiar." This finding is consistent with the known limited exposure to Type II helmets in the residential construction sector.

However, following the presentation and hands-on demonstration, there was a clear and substantial increase in familiarity. Post-intervention responses shifted significantly, with the majority of participants reporting they were now "familiar" to "very familiar" with Type II safety helmets. This change suggests that the intervention was effective in not only delivering new information but also in helping participants feel more confident in their understanding of the differences, benefits, and practical features of Type II head protection.

Participants' qualitative responses after the intervention demonstrated a clearer understanding of the advanced features of Type II safety helmets. Many recognized the added protection against both top and lateral impacts, as well as the importance of chin straps in keeping the helmet securely in place during falls. Several participants expressed surprise upon learning that different types of head protection offer varying levels of safety, reflecting a stronger awareness of the advantages Type II helmets provide over Type I hard hats.

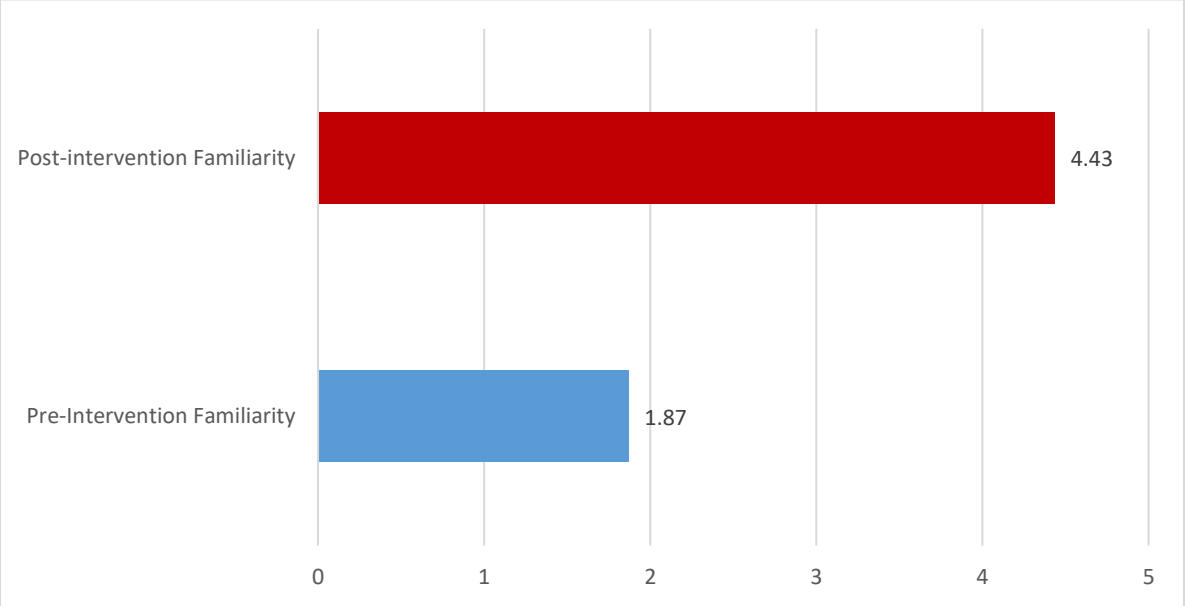


Figure 3: Change in Familiarity with Type II Safety Helmets

Figure 4 illustrates the change in participants' self-reported confidence in the protective capabilities of Type I hard hats, both before and after the informational intervention. Prior to the intervention, participants generally reported a moderately positive level of confidence in the protection offered by their traditional Type I hard hats. While many expressed trust in their equipment, a few participants rated their confidence lower, providing thoughtful qualitative explanations. One participant, for example, noted, *"PPE alone cannot provide complete protection,"* reflecting an awareness that personal protective equipment alone may not be sufficient to ensure protection.

However, following the intervention—which highlighted the limitations of Type I hard hats, particularly their inability to protect against side, rear, and rotational impacts—the average

confidence level dropped below the neutral point. This decline suggests that participants became more critically aware of the protection gaps inherent in Type I hard hats and began to recognize the need for more comprehensive head protection, such as that provided by Type II safety helmets. The shift in confidence levels supports the intervention's effectiveness in changing perceptions and encouraging informed evaluation of existing safety equipment.

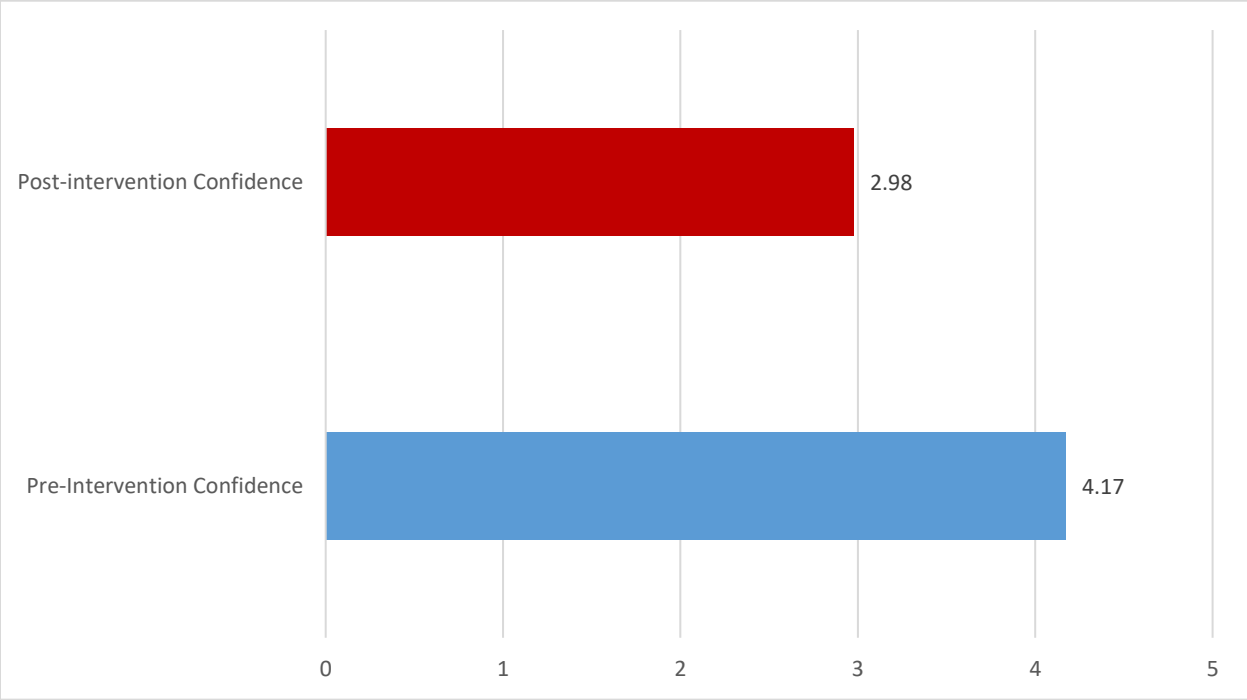


Figure 4: Change in Confidence with Type I Hard Hats

Post-intervention Findings

Figure 5 presents the participants' confidence levels in Type II safety helmets compared to Type I hard hats following the informational intervention. As can be seen, over 92% of the study participants were confident or very confident that Type II safety helmets offered superior protection when compared to the Type I hard hats. This strong endorsement reflects an increased awareness of the enhanced safety features provided by Type II helmets

A few participants, in their qualitative responses, expressed skepticism about the benefits of adopting Type II safety helmets within the context of their specific work environments. For instance, one participant, who was part of a crew erecting fencing on a residential project, indicated that they did not perceive a significant risk of falling objects that would justify the need for enhanced head protection. This participant also noted that they typically only wore hard hats when project requirements explicitly mandated their use. A similar sentiment was shared by a participant working in landscaping, who also questioned the necessity of upgrading to a more advanced helmet given the nature of their day-to-day tasks. These perspectives highlight that perceived risk levels

and work-specific hazards strongly influence worker attitudes toward adopting higher levels of personal protective equipment.

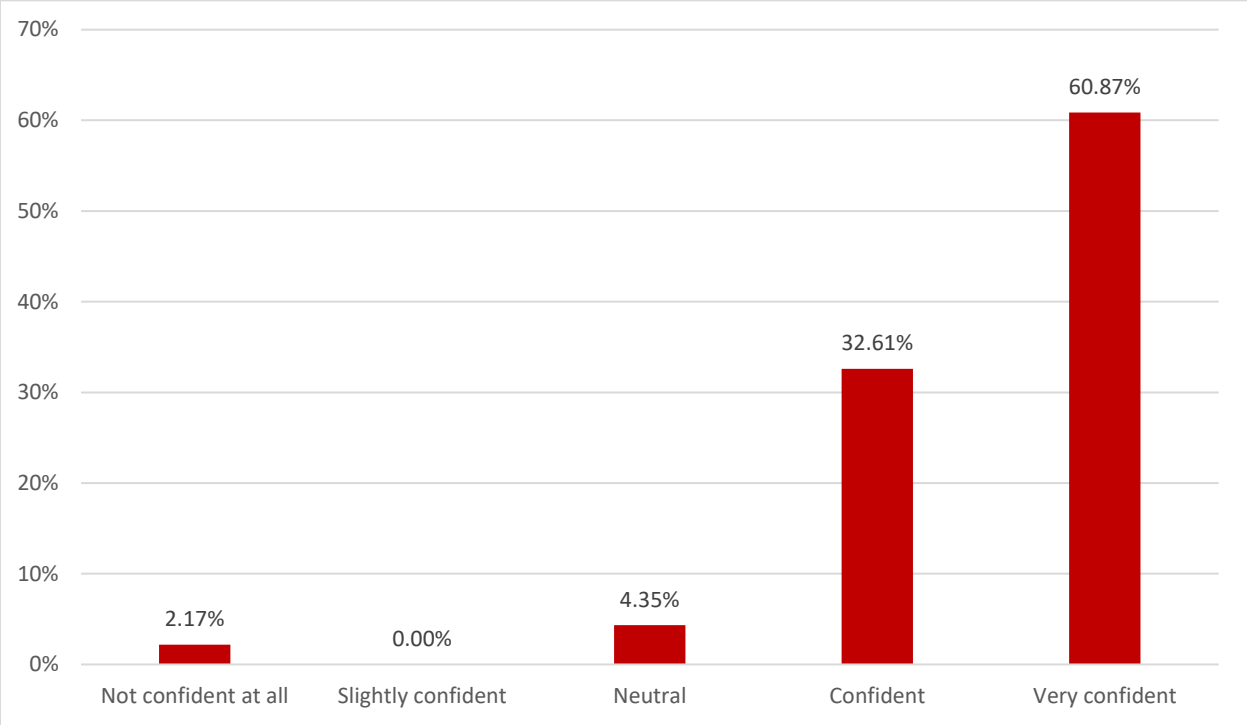


Figure 5:Confidence with Type II safety helmets compared to Type I (Post-intervention)

Figure 5 presents the participants' willingness to adopt Type II safety helmets following the informational intervention. As shown, over 75% of participants indicated that they were either willing or very willing to make the switch to Type II helmets, reflecting a strong positive response to the educational experience. Among those who reported lower willingness to transition, many cited their belief that the upgrade would offer limited benefits given the nature of their specific work environments, such as tasks with minimal exposure to overhead hazards or lower perceived risks of impact. In addition, a few participants expressed concerns about discomfort during warmer months, noting that the additional straps and internal padding in Type II helmets could lead to increased heat retention and discomfort while working in the summer. Overall, these findings highlight that while the intervention was largely successful in promoting acceptance, perceived relevance to individual job roles remains a key factor influencing adoption decisions.

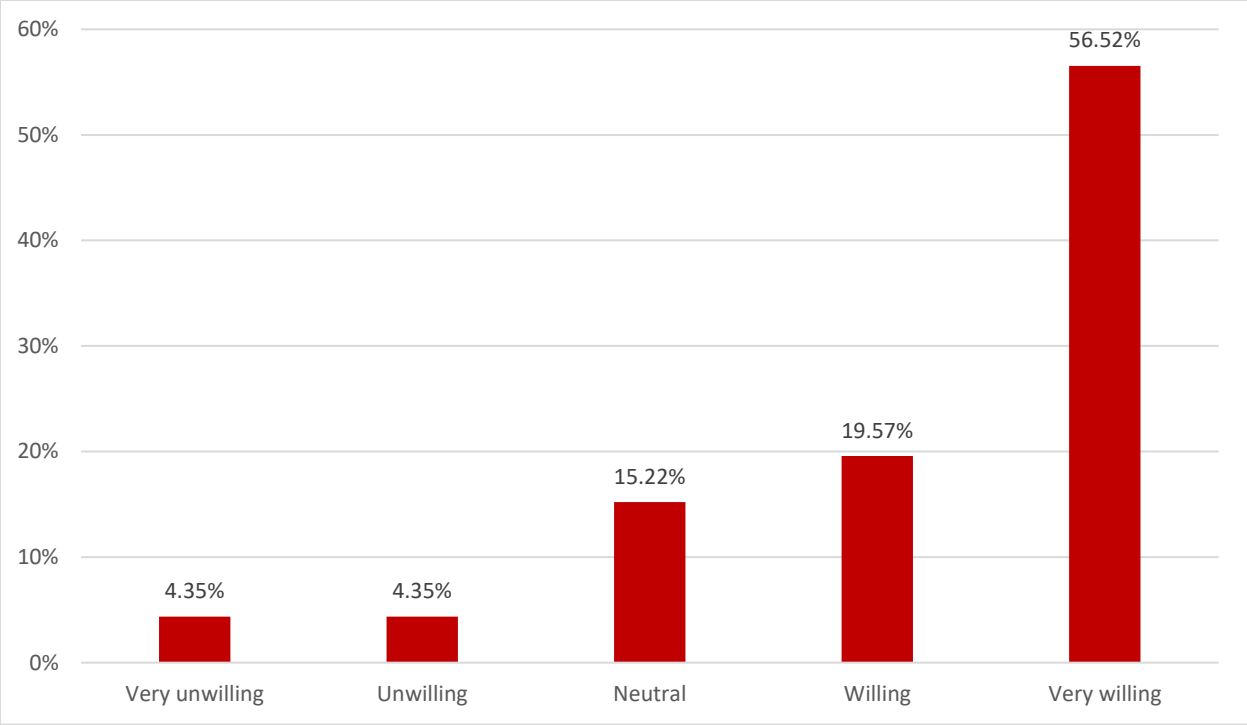


Figure 5:Willingness to adopt Type II safety helmets after intervention (Post-intervention)

Finally, Figure 6 presents results from a slightly differently worded question that asked participants to assess the likelihood that they would actually make the switch to Type II safety helmets in practice, considering real-world barriers and challenges.

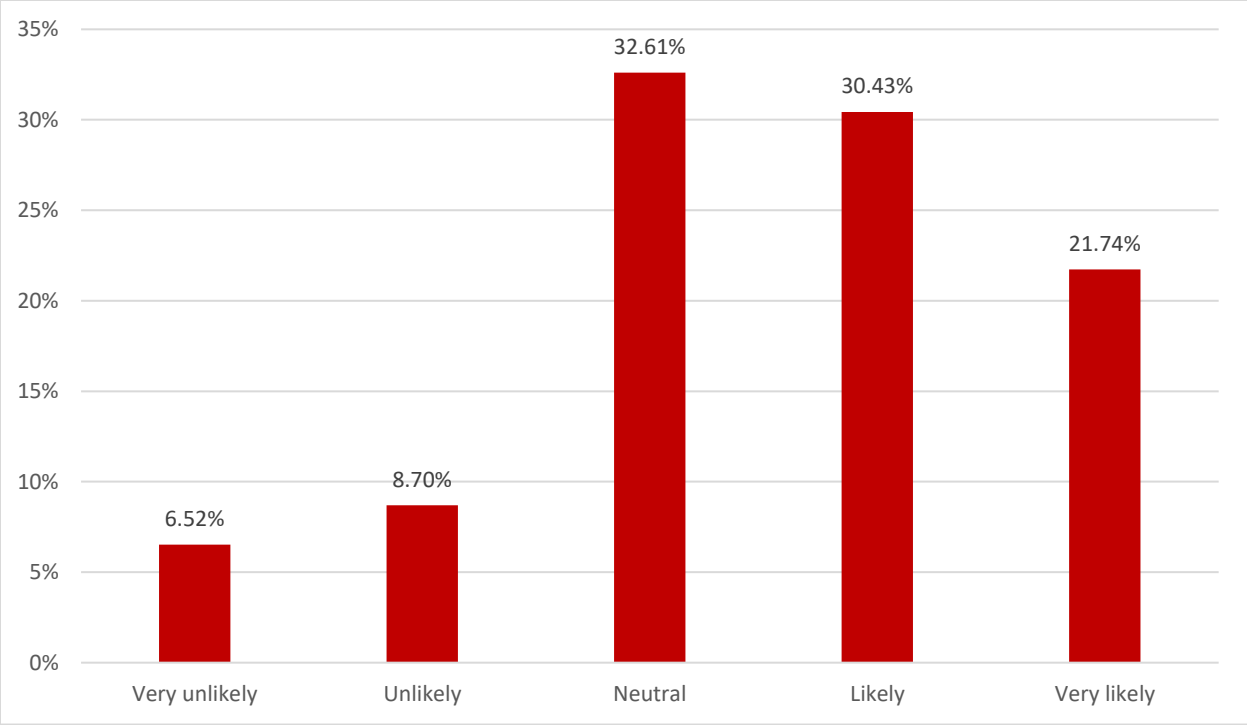


Figure 6: Likelihood of adopting Type II safety helmets in the next six months considering barriers and challenges

The results reveal an important distinction: while a substantial number of participants expressed willingness to adopt Type II helmets in principle, several indicated that they may not be able to implement the switch in practice. This pattern suggests that while attitudes toward safety improvements were largely positive, practical obstacles—such as cost, availability, employer policies, or industry norms—could hinder actual adoption on the job site. For example, one participant noted, *"I don't think my boss will want to spend more on upgrading PPE for everyone*," while a supervisor similarly remarked, *"We don't have the additional funds to support this change."* Some workers also noted that unless mandated by contractors or project owners, changes in PPE practices might be difficult to achieve on an individual basis.

Finally, Figure 7 captures the preference of the participants between adopting Type I hard hats and Type II safety helmets. As can be seen, over 86% of the study participants preferred Type II safety helmet over Type I hard hats for work applications after the intervention. However, roughly 13% of the participants continued to prefer Type I hard hats. The workers that continued to prefer Type I hard hats were largely those that believed that a switch was not necessary as Type II safety helmets were not particularly necessary for their work contexts.

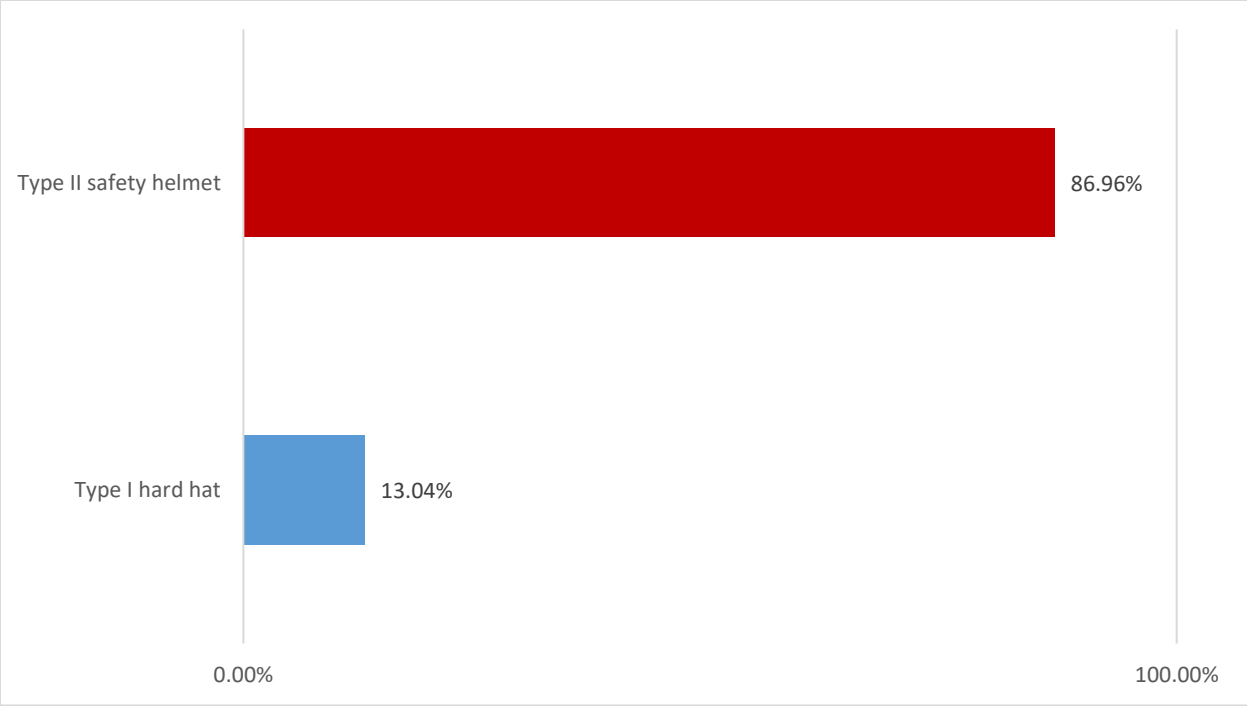


Figure 7: Preference between Type I and Type II head protection

DISCUSSIONS AND IMPLICATIONS

Overall, the case studies demonstrated that the informational intervention led to a positive shift in workers' perceptions toward Type II safety helmets and their willingness to adopt them. For instance, more than 75% of participants indicated that they were willing or very willing to transition to using Type II helmets. However, when participants were asked about the likelihood of actual adoption within the next six months, the findings revealed several barriers that could impede implementation. These challenges included concerns about the additional cost of Type II helmets, a lack of influence over employer purchasing decisions and policies, and social factors such as prevailing norms and practices within their work environments. These results suggest that while educational efforts can successfully shift attitudes, broader systemic and organizational support is critical for achieving widespread adoption.

The findings of this study have several important implications for both safety practice and future research in the construction industry.

- *Educational Interventions Are Effective:* The significant increase in familiarity and confidence in Type II safety helmets suggests that informational interventions—especially those that combine educational content with hands-on demonstrations—are an effective means of increasing awareness and willingness to adopt new safety practices. As such, such interventions should be considered as key tools in encouraging safer practices in the construction industry including to support adoption of protective PPE.

- *Understanding and Overcoming Barriers to Adoption:* While the intervention was successful in increasing awareness and confidence, practical barriers such as cost, accessibility, and employer policies need to be addressed in order to achieve widespread adoption of Type II helmets. Future efforts should focus on providing solutions to these barriers, such as employer incentives, employer education, subsidized helmet programs, or industry-wide mandates.

- *Tailoring Interventions to Specific Work Environments:* The variability in responses regarding the perceived need for enhanced head protection underscores the importance of context-specific messaging. Workers in roles with lower perceived risks—such as landscaping or residential fencing—may require additional tailored education on the potential hazards they face, even if they aren't immediately apparent. For example, evidence suggests that falls are frequently linked with head-related injuries, which are also a concern among landscapers and fencing contractors. Customizing educational intervention to capture some of the causes of head injuries and its relevance to specific audience may more broadly encourage Type II safety helmet adoption.

- *Promoting Cultural Change in Safety Practices:* The gap between willingness to adopt and likelihood to implement suggests that simply changing workers' attitudes is not enough. Cultural shifts within companies and industries must accompany educational efforts, and safety changes may need to be mandated by employers or contractors to overcome inertia.

- *Further Research Needs:* Future studies should explore the long-term impact of adopting Type II helmets on injury rates and workers' health, as well as real-world adoption rates. Research could also examine peer influence and how workers' social environments affect safety gear adoption. Additionally, it would be valuable to explore financial models that could make these helmets more accessible to smaller contractors and workers in lower-risk sectors.

STRATEGIC ROADMAP TO SUPPORT INDUSTRY-WIDE ADOPTION OF TYPE II SAFETY HELMETS

While this research provided a valuable small-scale effort to inform and promote the adoption of Type II safety helmets, broader, industry-wide initiatives are essential to achieve widespread adoption and foster lasting cultural change—particularly among small construction firms and independent contractors. A coordinated, multi-channel outreach strategy that combines education, partnerships, incentives, and community engagement will be critical to advancing adoption efforts.

1. Enhance Awareness and Education through National Campaigns and Training Integration

Public-awareness campaigns, modeled on successful initiatives like OSHA's National Safety Stand-Down, can be used to highlight the safety benefits of Type II helmets. These campaigns should draw on credible sources such as OSHA's 2024 bulletin, which recommends Type II helmets (with chin straps) for construction tasks involving fall or struck-by hazards. Emphasizing the fact that falls account for nearly 40% of construction fatalities will help convey the urgency and relevance of adopting superior head protection.

Integrating helmet education into existing training channels—such as OSHA 10-hour and 30-hour courses, apprenticeship programs, and union training centers—can provide consistent exposure to the benefits of Type II helmets. Instructors can supplement instruction with live demonstrations and allow workers to physically experience the fit, stability, and features of modern helmets.

2. Develop and Distribute Targeted Educational Materials

To reach a wide range of stakeholders, both printed and digital materials should be developed. Brochures, flyers, and posters should explain the protective advantages of Type II helmets using clear visuals and testimonials from workers who have benefited from the switch. These materials should be made available in multiple languages and distributed during toolbox talks, safety trainings, and jobsite briefings. Example material are provided in Appendix A. A complementary digital outreach campaign leveraging platforms such as LinkedIn, Facebook, and Instagram can further extend reach—especially among younger and independent workers.

3. Strengthen Partnerships with Trusted Industry Organizations

Engagement with trusted industry stakeholders can dramatically amplify the adoption message. Strategic partnerships should be formed with agencies such as OSHA, NIOSH, CPWR, and OSHA state plans and consultation programs. Professional societies such as the National Safety Council (NSC) and the American Society of Safety Professionals (ASSP) can also serve as key messengers. In parallel, collaboration with contractor organizations (e.g., AGC, NAHB) and trade unions (e.g., IBEW, UA) will ensure the message reaches field-level workers and small business owners directly. Inclusion of Type II safety helmet messaging in ongoing outreach efforts by these organizations can help normalize their use across the industry.

4. Promote On-Site Demonstrations and Community Engagement

On-site demonstrations and local field events can provide workers and employers with hands-on experience. Events such as "helmet try-on" days hosted at hardware stores, supply yards, or community colleges can allow workers to directly compare Type I and Type II helmets. Booths at industry expos, job fairs, and even at active job sites can provide powerful opportunities for face-to-face education and discussion. These events should include live demonstrations, real-life testimonials, and opportunities for workers to ask questions.

To expand grassroots engagement, outreach efforts can also include participation in community meetings and worker gatherings hosted by local unions, trade schools, or online construction forums. Short presentations and interactive materials—such as slideshows and testimonial videos—can be used to visually and emotionally connect with audiences.

5. Incentivize Adoption through Insurance Partnerships and Recognition

Cost remains a major barrier to adoption, particularly for small businesses. Insurance providers can play a pivotal role by offering premium discounts or policy incentives to contractors that adopt Type II helmets as part of their safety program. In addition, safety councils and trade organizations can offer public recognition to early adopters, such as "Safety Helmet Champion" awards or digital badges that can be displayed on jobsite signage or company websites. These forms of recognition can enhance the reputational value of adopting improved head protection.

6. Engage Owners and Contractors in Driving Change
Project owners and general contractors can play a critical role by requiring Type II helmets in project specifications. Public agencies (e.g., school districts, housing authorities, and DOTs) can lead by example by incorporating head protection standards into their procurement requirements. When large contractors include helmet requirements in their subcontractor agreements, it creates cascading effects across the supply chain, driving broader industry compliance.

7. Support Policy Development and Regulatory Guidance
Finally, regulatory agencies such as OSHA can support industry-wide transition through updated policy guidance and standards. While OSHA has acknowledged that Type II helmets offer superior protection, formalizing these recommendations into enforceable policy or inspection guidance can promote consistent field-level adoption. Such policy shifts, supported by data and industry consensus, would further normalize the expectation that modern helmets are standard equipment on today's job sites.

CONCLUSION

This study demonstrated that targeted informational interventions can significantly influence construction workers' knowledge, perceptions, and willingness to adopt enhanced head protection such as Type II safety helmets. The results revealed a strong shift in familiarity and confidence toward Type II helmets, with over 75% of participants expressing willingness to adopt them after the intervention. However, practical barriers—including cost concerns, limited influence over employer purchasing decisions, and ingrained workplace norms—remain challenges that must be addressed to achieve widespread and sustained adoption. These findings highlight that while education is a powerful catalyst for change, systemic support from employers, industry organizations, and policymakers is equally critical.

Moving forward, broader industry-wide efforts are needed to translate this positive shift in perception into tangible improvements in workplace safety. The roadmap elements proposed—centered around awareness campaigns, strategic partnerships, hands-on engagement, financial incentives, and leadership-driven cultural change—provide a practical path forward. By aligning educational initiatives with policy advocacy and resource support, the construction industry can foster a lasting cultural shift toward modern, higher-standard head protection, ultimately reducing the burden of traumatic brain injuries and enhancing worker safety across all sectors.

REFERENCES

"Edward W. Bullard | National Inventors Hall of Fame® Inductee." 2025. Accessed April 29, 2025. https://www.invent.org/inductees/edward-bullard.
Head protection: safety helmets in the workplace. (2024). Occupational Safety and Health Administration. https://www.osha.gov/sites/default/files/publications/safety_helmet_shib.pdf
U.S. Bureau of Labor Statistics. 2015-2022 Census of Fatal Occupational Injuries. https://www.bls.gov/iif/

Konda, S., H. M. Tiesman, and A. A. Reichard. 2016. “Fatal traumatic brain injuries in the construction industry, 2003−2010.” *American Journal of Industrial Medicine*, 59 (3): 212–220. https://doi.org/10.1002/ajim.22557.
McAlpin, J. 2024. “Enhancing Safety in Construction: The Evolution of Hard Hats to Safety Helmets.” *Build Your Future*. Accessed April 29, 2025. https://arizona.byf.org/enhancing-safety-in-construction-the-evolution-of-hard-hats-to-safety-helmets/.
Weaver, A., III, Kemp, J., Ojiambo, W. & Simmons, A. (2024, Aug.). From hard hats to helmets: The history and future of head protection. Professional Safety, 69(8), 34-43.
Hensel Phelps (2025). https://henselphelps.com/the-hensel-phelps-way/safety/.
“Clark to Require Trade Contractors to Switch from Hard Hats to Safety Helmets | Clark Construction.” (2022). Accessed April 29, 2025. https://www.clarkconstruction.com/news/clark-require-trade-contractors-switch-hard-hats-safety-helmets.

APPENDIX A: EDUCATIONAL CAMPAIGN MATERIALS [EXAMPLES] - FYLER AND BROCHURE

SAFETY HELMETS - THE FUTURE OF PROTECTION

PROTECT YOUR HEAD, PROTECT YOUR FUTURE!

Why Safety Helmets Matter in Construction

Reduce Workplace Injuries & Fatalities

Ensure Compliance with Evolving Safety Standards

Save on Injury-Related Costs & Insurance Claims

THE PROBLEM: HARD HATS ARE OUTDATED

TRADITIONAL HARD HATS WERE DESIGNED FOR SIMPLER RISKS

NO RISK SAFETY HELMETS

The Solution: Why Safety Helmets?

✅ Side-Impact Protection – Shields against lateral & rotational impacts
✅ Secure Fit – Chin straps prevent helmets from falling off
✅ Enhanced Comfort – Lightweight & ergonomic for all-day wear
✅ Accessory-Ready – Supports face shields, headlamps, & hearing protection

RISKS OF HARD HATS

❌ NO SIDE-IMPACT PROTECTION

❌ UNSTABLE FIT – FALLS OFF EASILY

❌ MINIMAL PROTECTION IN SLIPS & FALLS

❌ LIMITED LONG-TERM SAFETY

REAL-LIFE STORY.

HOW TYPE II SAFETY HELMET SAVED TOM'S LIFE

A CONSTRUCTION WORKER (TOM), WHILE WORKING ON A JOB SITE, EXPERIENCED AN UNEXPECTED FALL. THE WORKER'S HEAD MADE SIGNIFICANT CONTACT WITH THE GROUND, BUT THANKS TO THE TYPE II SAFETY HELMET BEING WORN, THE IMPACT WAS SIGNIFICANTLY REDUCED. THE TYPE II SAFETY HELMET ABSORBED THE FORCE OF THE FALL, PREVENTING SEVERE HEAD INJURIES.

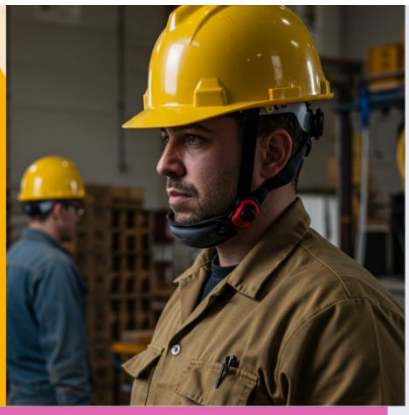
(BUZZSPROUT.COM/ROCKTALK)

TOM'S WORDS

"It's amazing how well the helmet worked. I would have had stitches at a minimum and possibly a concussion. I had my head hit the ground yeah this was a a five minute job and you know it was it was a cakewalk and so it goes to show you how quickly things can go wrong and how you never expect something to go wrong like that I would wear it all the time, anytime that you need PPE wear it and strap it on your head if I had the old hard hat on it would have come off it might have wedged under my shoulders as I was trying to scoop back out of the way I probably wouldn't have been able to move as Nimble as um having this hard hat on if your helmet hits anything and there's a shock to the helmet get with safety"

WATCH THE VIDEO :
https://www.youtube.com/watch?v=SsKkwiWCSGA

BENEFITS OF TYPE II SAFETY HELMET



Chin Strap

Ensures the helmet stays securely in place during use.

Side-Impact

Protection from lateral forces to safeguard against collisions.

Accessory Mounts

Allows attachment of additional safety gear or tools.

Vertical Impact

Protection from downward forces to prevent head injuries.

Fit & Comf

Provides a snug comfortable fit prolonged wea

More Information

Call Us
000000000

Visit Our Website

Our Location