



Enhancing OHS Practices through Interactive Research: An Evidence-Based Approach

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Abstract- Effective occupational health and safety (OHS) practices play a crucial role in protecting the health and safety of employees in the workplace. The efficiency and effectiveness of OHS practices necessitate the continuous integration of current and evidence-based information. As OHS faces new threats every day, it is vital for these practices to remain constantly updated and adaptable. This study examines the potential of interactive research methods to support knowledge transfer and exchange in the OHS field. Compared to traditional knowledge-sharing methods, interactive research promotes a deeper exchange of information among OHS practitioners. This facilitates the quicker adaptation and more effective implementation of OHS strategies in the workplace. Particularly, promoting real-time information sharing among OHS practitioners allows for the rapid addressing of emergencies or new risks. Interactive research methods can also create a collaborative platform among professionals, decision-makers, and researchers working in the OHS field. This approach not only encourages more informed decision-making on OHS issues but also enhances the management of workplace risks. Continuous improvement and updating of OHS practices provide better protection for the health and safety of employees. Consequently, this study emphasizes that OHS professionals, decision-makers, and researchers should adopt interactive research methods to create safer and healthier work environments. These methods contribute to the continuous development of OHS practices and help minimize workplace risks. This innovative approach in the OHS field will play a significant role in achieving the goal of creating safer and healthier workplaces in the future.

Keywords- Occupational health and safety (OHS), interactive research, knowledge dissemination, evidencebased practice, knowledge exchange

İnteraktif Araştırma ile İSG Uygulamalarının Geliştirilmesi: Kanıta Dayalı Bir Yaklaşım

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Oz-Etkili iş sağlığı ve güvenliği (İSG) uygulamaları, iş yerlerinde çalışanların sağlığını ve güvenliğini koruma amacıyla oldukça kritik bir rol oynamaktadır. Bu bağlamda, İSG uygulamalarının etkinliği ve verimliliği, güncel ve kanıta dayalı bilgilerin sürekli olarak entegre edilmesini gerektirir. İş sağlığı ve güvenliği, her geçen gün yeni tehditlerle karşı karşıya kalmakta ve bu nedenle İSG uygulamalarının sürekli olarak güncel ve adapte olabilir olması hayati bir önem taşımaktadır. Bu bağlamda, bu çalışma, İSG alanındaki bilgi transferi ve değişimini desteklemek amacıyla interaktif araştırma yöntemlerinin potansiyelini incelemektedir. Geleneksel bilgi paylaşım yöntemlerine kıyasla, interaktif araştırma, İSG uygulayıcıları arasında daha derinlemesine bir bilgi değişimini teşvik eder. Bu, İSG stratejilerinin daha hızlı bir şekilde adapte edilmesini ve iş yerlerinde daha etkili bir şekilde uygulanmasını sağlar. Özellikle, İSG uygulayıcıları arasında gerçek zamanlı bilgi paylaşımının teşvik edilmesi, acil durumlar veya yeni risklerin hızla ele alınmasına olanak sağlar. İnteraktif araştırma yöntemleri ayrıca, İSG alanında çalışan profesyoneller, karar vericiler ve araştırmacılar arasında bir işbirliği platformu oluşturabilir. Bu yaklaşım, İSG konularında daha bilinçli kararlar almayı teşvik ederken, aynı zamanda iş yerlerindeki risklerin daha etkili bir şekilde yönetilmesini sağlar. İSG uygulamalarının sürekli olarak iyileştirilmesi ve güncellenmesi, çalışanların sağlığı ve güvenliği için daha iyi bir koruma sağlar. Sonuç olarak, bu çalışma, İSG profesyonellerinin, karar vericilerinin ve araştırmacılarının, iş yerlerinde daha güvenli ve sağlıklı bir ortam oluşturmak için interaktif araştırma yöntemlerini benimsemeleri gerektiğini vurgulamaktadır. Bu yöntemler, İSG uygulamalarının sürekli olarak geliştirilmesine katkı sağlar ve iş yerlerindeki riskleri minimize etmeye yardımcı olur. İSG alanındaki bu yenilikçi yaklaşım, gelecekte daha güvenli ve sağlıklı iş yerleri oluşturma hedefine ulaşmada önemli bir rol oynayacaktır.

Anahtar Kelimeler - İş sağlığı ve güvenliği (İSG), interaktif araştırma, bilgi transferi, kanıta dayalı uygulama, bilgi değişimi

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1. Introduction

Relying on evidence-based practices and data-driven decision-making is critical in mitigating workplace hazards and subsequent injuries (Baker et al., 2015; Best & Holmes, 2010). Although efforts have been made to reinforce evidence-based approaches in the occupational health and safety (OHS) sector (CIHR, 2012; Contandriopoulos et al., 2010) and while there is an abundance of research outlining various intervention strategies to address work-related injuries (Damschröder et al., 2009; Greenhalgh & Wieringa, 2011; de Wit-de Vries et al., 2019), there's a significant gap in implementing these research outcomes into tangible actions (Baker et al., 2015). It's crucial to bridge the gap between theoretical research and its practical application to foster informed OHS policies and practices.

Endorsing evidence-driven decisions holds great significance for OHS practitioners and affects decision-making processes within the industry (Dugan & Punnett, 2017). More and more, funding entities are urging researchers to demonstrate and articulate their methods of knowledge dissemination among OHS stakeholders to ensure the integration of research conclusions into real-world applications (Dyreborg et al., 2022; Ellström et al., 2020). Renowned global institutions like the National Institutes of Health and the Canadian Institute for Health Research are advocating research that delves into the practical application of evidence-driven practices in real-life situations (Graham et al., 2006). Similarly, other international research bodies like the Campbell Collaboration and Cochrane emphasize methodologies and activities that employ evidence-based syntheses for audience outreach (Greenhalgh et al., 2004). The significance of translating research into practice is also acknowledged in continuing education programs offered by The Nordic Institute for Training in OHS (Laroche & Patoine, 2021). However, there's an ongoing concern about the targeted reach of OHS studies, especially since most researchers predominantly disseminate findings through academic channels (Laroche & Amara, 2011), potentially sidelining workplace stakeholders who might lack current insights from scientific papers when deciding on health and safety measures (Keown et al., 2008;Nguyen et al., 2020).

There's a nebulous understanding of how researchers engage and collaborate with stakeholders and end-users to transition OHS insights from theory to practice (Lomas, 2000a), particularly the methods to implement knowledge for better decision-making and policy amendments (Lomas, 2000b). The disparity in objectives between academic research and on-ground practice acts as a deterrent in knowledge transfer between these two spheres, hampering its assimilation and application in real-world contexts (Nielsen & Svensson, 2006). The challenge often lies in ensuring effective knowledge exchange, given the varied terminologies and methodologies that exist (Schulte et al., 2017). Some methodologies lean towards knowledge-to-action paradigms for external stakeholders, emphasizing dissemination and implementation research that offers insights into how knowledge distribution functions (Steckler & McLeroy, 2008).

In this study, we advocate for the term "knowledge transfer and exchange (KTE)" as a bridge connecting academic research and real-world application (Svensson et al., 2021). The foundation of this concept lies in the mutual interaction between researchers and industry professionals, viewed as a collaborative learning experience where insights from both research and industry are shared, setting the stage for evidence-driven decisions (Svensson et al., 2021).

Knowledge dissemination in the synthesis research sector and collaborations between academia and industry have been molded by various models, commonly referred to as "Knowledge Translation" (Tabak et al., 2012). Historically rooted in medical and health disciplines, this term signifies a structured process where research outcomes are conveyed to the practitioners (Greenhalgh et al., 2004). Predominant models include the client-centric approach of Cochrane and the dual methodologies of research diffusion and dissemination (Svensson et al., 2021). Often, these represent a direct, one-dimensional relation between research and its application, where knowledge is "packaged" and disseminated from researchers to industry professionals (Svensson et al., 2021). However, a drawback of this streamlined approach is that its success is primarily gauged by how research outcomes are presented to the target audience, overlooking the adaptation and application of this knowledge in decision-making processes (Svensson et al., 2021). A comprehensive approach to knowledge transfer goes beyond this one-dimensional method (Svensson et al., 2021).

Our study introduces a fresh perspective on the exchange of knowledge, particularly on the effective strategies for evidence-based decision-making concerning workplace injury prevention. This novel approach expands on established research-to-practice methodologies by:

- Evolving past the linear, one-dimensional mode of relaying OHS research insights.
- Integrating KTE with interactive research to bolster the active engagement in sharing OHS knowledge, showcased through a case study on evidence-based decision-making in accident prevention (Svensson et al., 2021).

Relying on evidence-backed practices and data-driven decision-making is crucial for mitigating workplace hazards and subsequent injuries. Although significant strides have been made to strengthen evidence-based approaches in the occupational health and safety (OHS) sector, and a wealth of research has identified various intervention strategies to address work-related injuries, a considerable gap remains in translating these research findings into practical actions. It's vital to bridge the gap between theoretical research and its practical application to foster informed OHS policies and practices. This understanding aligns with the emphasis on implementing evidence-based practices within the OHS field to reduce workplace accidents and enhance safety. As industries continue to evolve, integrating academic research with practical applications becomes imperative, addressing the gap between knowledge and its practical use. This study not only introduces a new perspective on knowledge transfer but also highlights the importance of interactive engagement, setting the stage for safer and more informed workplace practices.

Understanding and implementing evidence-based practices in the realm of occupational health and safety is paramount for reducing workplace accidents and fostering safer work environments (Teufer et al., 2019). As industries evolve, there's an imperative need to integrate academic research into real-world practices, bridging the existing gap between knowledge and its practical application (van Dijk et al., 2010). This study not only offers a fresh perspective on knowledge transfer but also emphasizes the significance of interactive engagement, paving the way for safer, more informed workplace practices (Teufer et al., 2019).

2. General Information

Moving past the confines of linear and unidirectional communication as well as the one-sided conveyance of OHS research findings, we delve into two pivotal cornerstones of Knowledge Transfer and Exchange (KTE) and interactive research, with the aim of cultivating evidence-based strategies for averting accidental injuries.

Despite extensive literature on Knowledge Transfer and Exchange (KTE) in occupational health and safety (OHS), a clear and succinct explanation of its implementation remains elusive for many practitioners and stakeholders. This section aims to demystify the process, presenting a clear, practical overview of how KTE operates within the field of OHS.

KTE is a systematic approach that facilitates the sharing and co-creation of knowledge between researchers and practitioners, aimed at bridging the gap between theory and practice. It involves structured methods to ensure that research findings and evidence-based strategies are effectively communicated and adopted in practical settings to enhance OHS outcomes (Graham et al., 2006).

Implementing KTE involves several key components designed to ensure the effective dissemination and application of research findings:

- **Stakeholder Engagement:** Involves identifying and integrating all relevant stakeholders from the initial stages of research. This ensures that the findings are relevant and tailored to real-world needs, facilitating smoother translation into practice (Lomas, 2000a).
- **Interactive Methods:** Utilizes workshops, seminars, and real-time discussions that engage stakeholders in dialogue, allowing for immediate feedback and iterative learning processes. This method promotes the application of research to practical challenges faced in the OHS field (Ellström et al., 2020).
- **Tailored Communication:** Develops targeted dissemination materials such as policy briefs, training modules, and actionable guidelines that address the specific contexts and constraints of practitioners and policymakers (Wandersman et al., 2008).
- **Feedback Mechanisms:** Establishes continuous feedback loops through follow-up surveys, interviews, and impact assessments to gauge the effectiveness of the knowledge exchange and to refine future interventions based on practical insights (Wilson et al., 2010).
- **Long-term Collaborations:** Forms strategic partnerships between academic institutions and industry organizations to foster sustained knowledge exchange and continuous updating of practices as new research and data become available (Van Eerd & Saunders, 2017).

The practical application of KTE is demonstrated through case studies and evidence-based interventions that are iteratively tested and refined with direct input from end-users, ensuring that they are both effective and practically feasible. This dynamic approach not only enhances the receptivity of the intended audience but also increases the likelihood of sustainable impact within the OHS sector.

2.1. Cornerstone 1: Necessity for crafting KTE approaches that involve users in the transfer process

Two epistemological focal points underpin contemplation on the nexus between researchers and research recipients to facilitate evidence-based implementation: (1) recognizing the limitations of the linear paradigm, which envisions

knowledge translation as a one-way expedition from research to practice, and (2) intensified pressures to demonstrate research impact to policymakers and various audiences.

The dissemination or transference of research insights emerges as an intricate, dynamic, and cyclic endeavor, necessitating an orientation towards practical implementation (Graham et al., 2006; Guzman et al., 2008). Novel perspectives hold significance in redefining the linear (and unidirectional) conception of Knowledge Translation (KT) in the domain of work and health research (Best & Holmes, 2010). Within the sphere of health services research, the 'Knowledge to Action' (KtA) approach delineates the multifaceted nature of disseminating research insights, advocating for an autonomous developmental trajectory. This approach entails sequential phases and intermediaries of knowledge dissemination, each phase demanding specific proficiencies and capabilities from knowledge users to adapt and localize information (van Dijk & Caraballo-Arias, 2021).

Other researchers have proposed methods to engage knowledge recipients and offer insights into requisites for the effective conversion of applied OHS research into practical implementation. For instance, Schulte et al. (2017) advocate an initial phase of defining the precise OHS challenge, succeeded by a fourfold progression encompassing development, experimentation, institutionalization, and evaluation. The literature on Dissemination and Implementation (D&I) science furnishes methodological frameworks considering the determinants of knowledge application (Van Eerd, 2019), and the intricacies of system dynamics and the diffusion of innovations (Van Eerd et al., 2018). Recently, integrated KTE has gained traction as an avenue to stimulate the involvement of OHS knowledge recipients in OHS research, thereby facilitating the exchange of valuable evidence with decision-makers and practitioners (Waterson, 2016). These methodologies signal a shift from mere research generation towards incorporating knowledge exchange, thus aiding the translation of OHS research into tangible decision-making.

We advocate for an exploration of stakeholder involvement and a nuanced exploration of the interplay between knowledge and action, in order to gain deeper insights into the mechanics of knowledge exchange (Wandersman et al., 2008). Our adoption of the IWH's definition of KTE in Canada underscores its role as "a reciprocal process involving researchers and knowledge recipients, tailored to render pertinent research information accessible and practicable for use in planning, execution, and decision-making" (Van Eerd & Saunders, 2017). In alignment with Greenhalgh and Wieringa's stance (Wilson et al., 2010), we contend that this KTE process unfolds within an intricate web of interactions between researchers and knowledge users, characterized by varying degrees of intensity, complexity, and involvement, contingent upon the nature of research, findings, and the needs of the knowledge user cohort (Ward et al., 2009).

2.2. Cornerstone 2: Enforcing An Interactive Research Methodology Within The Ambit of KTE

The second foundational pillar encompasses Svensson's concept of interactive research as a collaborative learning journey and the exchange of research and practical wisdom, aimed at fostering decision-making informed by evidence. Such immersive learning processes hold the potential to bolster the meaningful integration of research discoveries into practice and to illuminate the external applicability of research findings (Wilson et al., 2010). We propose that embracing an interactive research approach could serve to facilitate knowledge exchange and the translation of research synthesis findings into the decision-making sphere within the landscape of workplace injury prevention.

In the broader spectrum, the challenge of effectively bridging the gap between OHS research knowledge and practical implementation calls for a dynamic strategy that embraces an iterative approach to conceptualizing the interplay between knowledge and action. Research attests to the significance of cultivating robust relationships between knowledge recipients and researchers, asserting that the direct engagement of knowledge users and the reciprocal exchange of insights throughout the research process heightens the utilization and integration of knowledge (Wilson et al., 2010). Expanding upon this foundation of knowledge, our quest extends towards a more profound understanding of how the interactive exchange between research perspectives and practical exigencies can be facilitated in a manner that truly holds meaning. Within the Nordic context, a framework known as the Triple Helix perspective has garnered support as an approach that bridges the gap between knowledge and action, advocating for heightened involvement of knowledge recipients in the knowledge generation process (Van Eerd & Cardoso, 2017). So that propound a synthesis wherein theory and practice interweave through interconnected cycles of activities bridging the chasm between the research system and the practical domain (Figure 1).

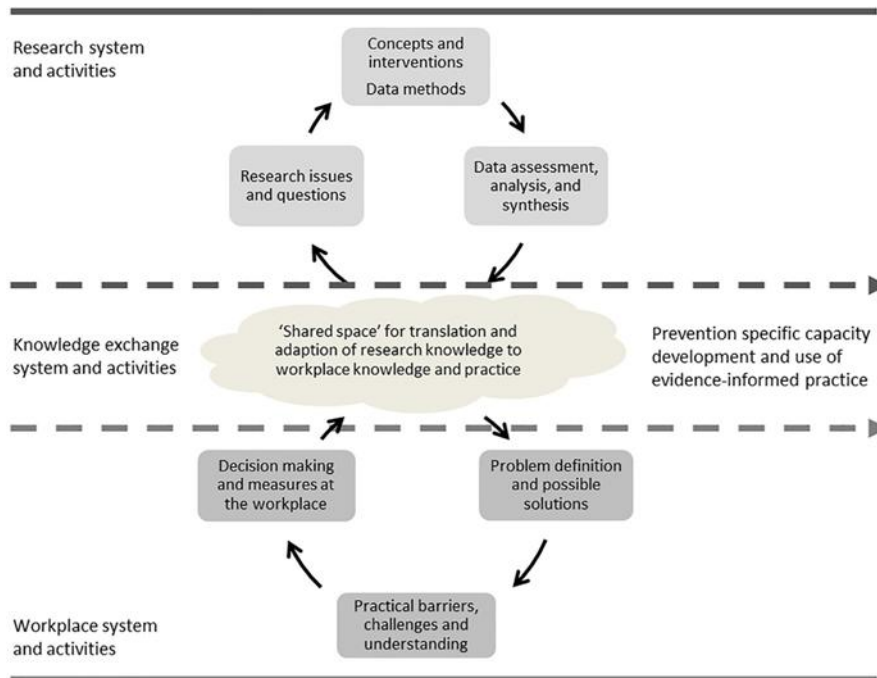


Figure 1. Facilitating Knowledge Transfer And Exchange (KTE) via Interactive Research, Bridging Three Interconnected Systems: Research, Knowledge Transfer and Exchange, And Workplace

In order to foster and facilitate the seamless exchange of knowledge, it becomes imperative to establish a shared space wherein this exchange can transpire on the foundation of equity and parity. This space, which we designate as the "knowledge transfer and exchange system," resonates with the conceptual framework articulated by Wandersman et al. (2008). While the interactive framework was initially conceptualized to address collaborative research initiatives, it takes into profound consideration the distinct stances and vested interests of both researchers and the recipients of research insights (Wilson et al., 2010). Within the ambit of research projects, this "shared space" pertains to the tangible instances of exchange facilitated by knowledge brokers throughout the course of research endeavors. On a broader societal scale, this shared space can potentially manifest as an institutionalized knowledge infrastructure wherein funding entities, research institutions, practitioners, and policymakers actively engage in reciprocal discourse, thereby culminating in the exchange and dissemination of knowledge, synchronization of KTE undertakings, and provision of support for the actual application of knowledge in real-world scenarios (Wandersman et al., 2008). Importantly, the identification and nurturing of knowledge within such an infrastructure form a critical juncture for pioneering research in the realm of KTE.

The participatory aspiration underlying interactive research centers on enabling a shared understanding through conditions conducive to the collaborative analysis of organizational practices (Svensson, 2006). Thus, the interactive perspective propels inquiries aimed at comprehending the dynamics of workers, groups, or even organizational practices, along with their collective learning endeavors. The methodologies entailed by interactive research can be aptly implemented within a spectrum encompassing organizational as well as community contexts, often synergized with complementary techniques such as large-scale seminars or workshops (Nielsen & Svensson, 2006). In a departure from conventional participatory evaluation research, the interactive framework in the research landscape perceives the process of knowledge exchange as a joint learning venture. This paradigm offers Occupational Health and Safety (OHS) researchers a dynamic mechanism to dissect and scrutinize the intricate workings of knowledge exchange, thus providing insights into its operational mechanics (Ellström et al., 2020).

2.3. How the Synergy of KTE and Interactive Research Amplifies the Utilization of OHS Research in Decision-Making

The seamless fusion of the interactive research paradigm with Knowledge Transfer and Exchange (KTE) found its realization within the context of a recent systematic review by Campbell titled 'Safety Interventions to Prevent Accidents at Work' (SIPAW) (Dyrborg et al., 2022). This review yielded research-derived evidence that practitioners could judiciously consider incorporating into their organizational initiatives aimed at averting workplace injuries. Nevertheless, the knowledge pertaining to safety interventions necessitates a process of contextual reimagining to render it not just relevant but actionable in the context of real-world practices and safety predicaments (Ellström et al., 2020). The integration of KTE with the interactive research framework was underpinned by the approach laid out by the Institute for Work & Health (IWH) as articulated by Van Eerd and Saunders (2017). We put forth a comprehensive framework comprising four "best practice" components, which serve as guiding principles for leveraging the synergy between KTE and interactive research, thereby enhancing the practical integration of OHS research within the decision-making paradigm. These components are versatile enough to be tailored and adapted to the distinctive context and jurisdiction of various sectors (Svensson et al., 2015):

- **Integrating Engagement into the Genesis of Research Knowledge:** Researchers are prompted to accentuate the practical takeaways that knowledge users can glean from the research process. They should actively lend an ear to the challenges faced by knowledge users, thereby comprehending their precise needs. Knowledge users can play a pivotal role in ensuring that the research approach adopted aligns with their specific needs. Additionally, they can actively contribute to shaping the exchange process in a manner that resonates with their understanding.
- **Nurturing Relationships and Networks:** The engagement of facilitators can prove instrumental in steering the exchange process and pinpointing key factors that facilitate the effective translation of knowledge. A collective sharing of experiences related to exchange and translation processes within professional networks can be pursued by researchers, facilitators, and knowledge users alike.
- **Fortifying the Capacity for Evidence-Informed Decision-Making within Workplaces:** Researchers can aid knowledge users in comprehending and selecting pertinent information that holds the potential to address prevailing issues. This includes insights into the translation of knowledge into actionable solutions that cater to practical concerns. Knowledge users can, in turn, contribute by adapting relevant information to their unique contexts and decision-making processes, thus ensuring the applicability of research-derived insights.
- **Pioneering Innovative Approaches to Knowledge Application:** The utilization of multimedia resources like video clips can be harnessed to vividly illustrate key prevention concerns and their corresponding solutions. Interactive guidelines and web-based resources can serve as a robust foundation for formulating evidence-driven measures aimed at the prevention of accidental injuries. Comprehensive stepwise instructions elucidating the practical deployment of various tools and methodologies can offer substantial guidance. The interactive research methodology, when harnessed for KTE endeavors, empowers researchers to not merely convey research findings to end users but to actively engage them in the exchange process. This approach simultaneously facilitates an in-depth exploration of how knowledge users adapt and integrate research insights into their decision-making practices. Furthermore, it provides a conduit for unraveling the collaborative learning dynamics shared between researchers and research recipients, thereby shedding light on the intricate mechanisms through which knowledge exchange contributes to the successful implementation of injury prevention programs within diverse workplace settings (Svensson et al., 2007).

Table 1 presents a synthesis of pivotal studies that explore the realms of Knowledge Transfer and Exchange (KTE) and interactive research within occupational health and safety (OHS). These studies collectively underscore the shift from traditional, linear modes of knowledge dissemination towards more dynamic, reciprocal, and interactive methodologies aimed at fostering evidence-based strategies for preventing workplace injuries.

Table 1: Synthesis of Studies on Knowledge Transfer and Exchange (KTE) and Interactive Research in Occupational Health and Safety (OHS)

Author(s)	Focus Area	Key Findings
Graham et al. (2006)	Practical implementation of research	Emphasizes orientation towards practical implementation
Best & Holmes (2010)	Redefining KT in work and health	Highlights the significance of moving beyond linear KT
van Dijk & Caraballo-Arias (2021)	KtA approach in health services research	Sequential phases in knowledge dissemination for adaptation
Schulte et al. (2017)	Methodology for applied OHS research conversion	Development, experimentation, institutionalization, evaluation model
Van Eerd (2019)	Determinants of knowledge application	Frameworks considering application determinants
Van Eerd et al. (2018)	System dynamics in innovation diffusion	Insights into system dynamics and diffusion
Waterson (2016)	Engagement in OHS research	Stimulates recipient involvement in research
Wandersman et al. (2008)	KTE as a reciprocal process	Defines KTE as a collaborative, tailored process
Wilson et al. (2010)	Interactions in KTE	Describes web of interactions in KTE
Van Eerd & Saunders (2017)	Tailoring research information for use	KTE tailored to planning, execution, decision-making
Van Eerd & Cardoso (2017)	Triple Helix perspective in knowledge exchange	Bridging gap between research and practice
Dyrborg et al. (2022)	Evidence for safety interventions	Research-derived evidence for organizational initiatives
Ellström et al. (2020)	Contextual reimagination of safety interventions	Necessity of contextualizing research for real-world application
Svensson (2006)	Collaborative analysis of practices	Enables shared understanding through collaborative analysis
Nielsen & Svensson (2006)	Organizational learning in OHS	Explores dynamics of learning and practice
Svensson et al. (2015)	Best practices in KTE and interactive research	Guiding principles for integrating KTE with research
Svensson et al. (2007)	Interactive research and knowledge exchange	Highlights the dynamic mechanism of knowledge exchange

The studies listed in Table 1 elucidate the complexities and multifaceted nature of transferring and exchanging knowledge in the context of OHS. They reveal a consensus on the necessity of moving beyond unidirectional communication and emphasize engaging knowledge users throughout the research process. This engagement ranges from the initial definition of OHS challenges to the development, experimentation, and evaluation of interventions. Furthermore, these studies advocate for integrated KTE approaches and interactive research methods, highlighting their potential to enhance the practical application of research findings. Through collaborative efforts, researchers and OHS practitioners can ensure that evidence-based interventions are not only contextually relevant but also actionable, thereby significantly contributing to the reduction of workplace injuries.

3. Material and Method

This study adopts a systematic literature review approach to explore the role of interactive research methods in enhancing Occupational Health and Safety (OHS) practices. The aim is to synthesize existing research, identify gaps, and propose future research directions.

3.1. Literature Search Strategy

- **Data Sources:** Relevant articles, reports, and papers were identified through databases such as PubMed, Scopus, Web of Science, and Google Scholar.
- **Search Terms:** Keywords used included "Occupational Health and Safety", "OHS", "interactive research", "knowledge transfer and exchange", "evidence-based practice", and combinations thereof.
- **Inclusion and Exclusion Criteria:** Criteria were established based on relevance to OHS and interactive research, publication date, and study quality. Articles not directly addressing the integration of interactive research methods in OHS were excluded.

3.2. Data Extraction

- **Selection Process:** Identified articles were screened based on their titles and abstracts. Full-text reviews were conducted for selected studies to determine their relevance.
- **Data Extraction:** Key information such as study objectives, methodologies, findings, and implications for OHS practice were extracted and tabulated for comparison and analysis.

3.3. Quality Assessment

- **Critical Appraisal:** The quality of included studies was appraised using standardized assessment tools suitable for qualitative, quantitative, and mixed-methods research.

3.4. Data Synthesis and Analysis

- **Thematic Analysis:** Data were analyzed thematically to identify common themes, patterns, and insights related to interactive research methods in OHS.
- **Integration of Findings:** The findings were integrated to form a cohesive understanding of the current state of interactive research in OHS, its challenges, benefits, and potential for future application.

This literature review aims to consolidate existing knowledge on interactive research methods in OHS, evaluate their effectiveness and utility, and provide a foundation for future empirical research in this field.

4. Discussion and Conclusion

In the culmination of this comprehensive analysis, it becomes unequivocally clear that the quest for innovative methods to efficaciously disseminate research knowledge within workplace environments remains an enduring imperative. Emerging from these discussions is a departure from the traditional paradigm of mere outreach, initiating an exploration of an approach that not only accelerates the integration of research findings into practical contexts but also enriches the societal value intrinsic to Occupational Health and Safety (OHS) research. This synthesis propels toward a realization: the amalgamation of interactive research with the dynamic realm of Knowledge Transfer and Exchange (KTE) could potentially forge a bilateral conduit of knowledge exchange, echoing palpably within the decision-making fabric of workplaces.

However, this juncture also signals a beckoning path for future research—a trajectory that ventures beyond the conventional framework of unidirectional knowledge transmission, characterized by the dissemination of findings to decision-makers, into a realm of a symbiotic, interactive research and KTE paradigm. Here, the discerning needs of knowledge users intersect with the intricate calculus of available resources, invigorating the research application landscape. A promising avenue for this evolving narrative involves strategically adapting the KTE framework to embrace a broader audience, encompassing OHS knowledge brokers and intermediaries. Such a strategic refinement in KTE strategizing aims to expand the horizons of knowledge diffusion, extending beyond the immediate participants of KTE efforts.

By fostering collaborative engagements with entities such as OHS services and professionals, who command influence over extensive networks within workplaces, the process of knowledge dissemination can potentially achieve greater reach

and sustained impact. Moreover, the journey of advancement traverses into the domains of formalized partnerships, laying the groundwork for collaboration at the very inception of research endeavors, thereby weaving a fabric of lasting exchange.

Within the broader echelons of academia, institutions, and funding bodies, a pronounced and concerted effort is underway to deepen the engagement with knowledge transfer mechanisms. This entails the exploration of innovative strategies that illuminate and articulate the multifaceted benefits research imparts across various sectors, encompassing economic, cultural, and societal dimensions. Yet, this transformative quest mandates immediate investments in terms of temporal commitment and resource allocation. The cultivation of fertile grounds for the interchange of insights and experiences between researchers and knowledge recipients is undoubtedly resource-intensive in the short term. However, the prospective long-term dividends from this investment could redefine the cultural landscape, wherein OHS research knowledge attains heightened resonance within decision-making circles, simultaneously fostering a practice-oriented ethos among researchers themselves.

Adopting a strategic vantage point allows researchers to navigate a landscape teeming with initiatives aimed at fostering robust engagement with knowledge users and facilitating the dissemination of OHS knowledge. Nevertheless, it is crucial to recognize that this endeavor demands the dedication of time, resources, and the establishment of institutional capacities to catalyze this paradigm shift.

In conclusion, the synergistic integration of interactive research with the KTE framework transcends a mere methodological innovation. It emerges as a pivotal conduit to advance the utility of research within the decision-making apparatus. Its implications, however, extend beyond the pragmatic sphere, serving as a clarion call for the orchestration of a more encompassing metamorphosis—a dynamic ecosystem where research knowledge not only suffuses decision-making realms but also triggers a profound transformation within the societal fabric. As this narrative unfolds, the interactive research and KTE paradigm emerges as a cornerstone to elevate research knowledge to a pinnacle of relevance, reshaping the role it plays within workplace dynamics and society at large. This expanded perspective underscores the significance of ongoing dialogues and collaborations, hinting at a future where the integration of research findings into practical applications becomes not just a possibility, but a reality, fostering safer, healthier, and more informed workplace environments.

In light of the insights gleaned from this analysis, several recommendations are proposed to enhance the effectiveness of Knowledge Transfer and Exchange (KTE) and interactive research within the realm of Occupational Health and Safety (OHS). These recommendations are intended to guide researchers, practitioners, policymakers, and other stakeholders in the OHS community towards fostering a more integrated, responsive, and effective framework for knowledge dissemination and application:

1. **Foster Multidisciplinary Collaborations:** Encourage partnerships across different fields of expertise, including social sciences, technology, and education, to enrich the OHS knowledge base with diverse perspectives and methodologies. These collaborations can lead to the development of more comprehensive and adaptable solutions to workplace safety challenges.
2. **Strengthen Stakeholder Engagement:** Develop strategies to actively involve a broader spectrum of stakeholders, including workers, employers, industry associations, and regulatory bodies, in the research process. This engagement should extend beyond consultation to involve stakeholders in co-creating research agendas, participating in studies, and implementing findings.
3. **Enhance Accessibility of Research Findings:** Simplify the communication of research outcomes to ensure they are accessible and understandable to non-specialist audiences. Utilize various dissemination channels, including digital platforms, visual media, and interactive workshops, to reach a wider audience and facilitate the practical application of knowledge.
4. **Implement Adaptive Knowledge Exchange Frameworks:** Adopt flexible and dynamic KTE frameworks that can be tailored to specific contexts and audiences. This includes the development of customizable tools and resources that can be adjusted based on the needs and capacities of different stakeholder groups.
5. **Invest in Capacity Building:** Support the development of skills and competencies among OHS professionals and researchers in the areas of knowledge translation, interactive research methodologies, and stakeholder engagement. This could involve specialized training programs, workshops, and mentorship opportunities.
6. **Promote Continuous Evaluation:** Establish mechanisms for the ongoing assessment of KTE and interactive research initiatives to measure their impact, identify areas for improvement, and adjust strategies accordingly. This should include both qualitative and quantitative measures of success.
7. **Leverage Technology and Innovation:** Utilize digital technologies and innovative approaches to facilitate the exchange and application of knowledge. This could include the development of mobile apps, online platforms, and virtual reality simulations to enhance training, education, and awareness efforts.

8. **Secure Sustainable Funding:** Advocate for and secure long-term funding commitments from government agencies, industry partners, and foundations to support the development and implementation of KTE and interactive research initiatives. This funding should be flexible enough to support innovative approaches and pilot projects.
9. **Build Institutional Support:** Encourage organizational policies and cultures that value and support the integration of evidence-based practices and research findings into decision-making processes. This includes recognizing the importance of knowledge transfer activities in performance evaluations and resource allocations.
10. **Expand International Collaboration:** Engage in international partnerships to share knowledge, resources, and best practices in OHS. This can help to address global workplace safety challenges and foster a culture of continuous learning and improvement.

By adopting these recommendations, the OHS community can significantly enhance the impact of its research efforts, leading to safer, healthier, and more productive workplaces.

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Researchers' Participation Rates

KÜÇÜKARSLAN AB., who is the responsible author in this study, created the main concept and idea of the study, made the design and design, performed the literature review and wrote the article. Therefore, the participation rate of KÜÇÜKARSLAN A.B: is 100%.

Conflict of Interest / Çıkar Çatışması

No conflict of interest was declared by the authors.