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Reconceptualising Dementia Education: From Information Transfer to Behavioural and Contextual Change

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Abstract

Dementia represents one of the fastest-growing global public health challenges, with increasing prevalence placing significant pressure on individuals, families, and healthcare systems. In response, dementia education initiatives have expanded rapidly across digital platforms, community-based programs, caregiver interventions, and public health campaigns. Despite these developments, evidence suggests that improved access to information alone does not consistently lead to sustained behavioural change or meaningful real-world outcomes. This paper critically reviews contemporary literature relating to dementia education, health literacy, behaviour change, and implementation science. The review identifies a persistent gap between knowledge acquisition and behavioural enactment, highlighting the limitations of traditional information-transfer models. Drawing on health literacy theory, the Capability–Opportunity–Motivation Behaviour (COM-B) model, implementation science, and interpretative engagement theory, the paper argues, dementia education should be viewed as a dynamic, context-sensitive process that is influenced by emotional factors, engagement, interpretation, and environmental conditions (LoBue & Ogren, 2022). (LoBue & Ogren, 2022). Particular attention is given to interpretative engagement as a mechanism through which individuals construct personal meaning from dementia-related information. The review further identifies significant methodological limitations within current research, including overreliance on short-term knowledge outcomes, limited real-world evaluation, and insufficient consideration of contextual influences. In response, the paper proposes an integrated conceptual framework that shifts evaluation from simple resource availability toward effectiveness, usability, behavioural readiness, and sustained impact. The proposed study is methodologically based on a sequential four-phase mixed-methods design informed by critical realism and a pragmatic orientation to explore how dementia education functions across different real-world contexts (Glover et al., 2020). The framework contributes to emerging interdisciplinary approaches to dementia education by integrating behavioural science, health literacy, implementation theory, and contextual interpretation into a unified model capable of informing future research, intervention design, and policy development.

Keywords: Dementia Education, Health Literacy, Behaviour Change, COM-B Model, Implementation Science, Interpretative Engagement, Mixed-Methods Research, Critical Realism, Pragmatism

1. Introduction

Dementia is recognised as one of the most significant and rapidly expanding global public health challenges, affecting individuals, families, and healthcare systems on an unprecedented scale. Epidemiological projections suggest that the prevalence of dementia will continue to increase substantially, especially in ageing populations like Australia [1-3]. Beyond its clinical implications, dementia produces extensive social, emotional, and economic consequences, increasing the urgency for effective public education, prevention strategies, and supportive interventions.

Dementia education programs have grown significantly in recent decades in response to this escalating burden [2]. Educational resources now encompass digital interventions, online learning platforms, community-based programs, caregiver support initiatives, and public health campaigns designed to increase awareness, reduce stigma, and promote risk-reducing behaviours [4-6]. Advances in digital health technologies have further accelerated the diversification of educational delivery methods, enabling scalable and increasingly personalised approaches to information dissemination [7,8].

Despite these developments, important limitations remain within the existing evidence base. Much of the literature continues to focus on the availability and distribution of educational resources rather than their real-world effectiveness [9]. Although many interventions successfully improve knowledge acquisition, evidence consistently demonstrates that increased knowledge alone does not reliably produce sustained behavioural change or practical outcomes [10,11]. This disconnect, commonly described as the knowledge–behaviour gap, highlights the inadequacy of linear educational models that assume information automatically translates into action.

Contemporary behavioural and implementation research increasingly recognises that dementia education is a complex, dynamic, and context-dependent process shaped by emotional, social, cognitive, and environmental influences [12-14]. Individuals do not passively absorb information; rather, they actively interpret, evaluate, and apply knowledge according to their lived experiences, health literacy, motivations, and contextual circumstances [15]. Consequently, emerging scholarship emphasises the importance of user engagement, meaning-making, behavioural readiness, and implementation conditions in determining whether educational interventions achieve meaningful impact.

This paper critically reviews contemporary literature relating to dementia education, health literacy, behaviour change, and implementation science. The review examines key theoretical and methodological developments, identifies major limitations within existing research, and explores the growing conceptual shift from information availability toward effectiveness, usability, and sustained behavioural outcomes. Particular attention is given to the integration of health literacy theory, the Capability–Opportunity–Motivation Behaviour (COM-B) model, implementation science, and interpretative engagement as complementary frameworks for understanding how dementia education influences behavioural readiness and real-world impact across diverse populations.

2. Methodology

This paper adopts a critical integrative literature review methodology designed to synthesise contemporary evidence across dementia education, behavioural science, health literacy, and implementation research [16-18]. Integrative and critical review approaches are particularly suitable for examining complex and heterogeneous bodies of literature where conceptual development, theory integration, and real-world application are central aims rather than narrowly defined effect estimation. The review draws upon interdisciplinary literature to examine how dementia education is conceptualised, implemented, and evaluated within real-world contexts.

This review is part of a wider study underpinned by a sequential four-phase mixed-methods design [19,20]. Sequential mixed-methods designs are often used in complex intervention research because they permit the systematic integration of qualitative and quantitative data within separate phases of inquiry, thereby providing breadth and depth of understanding [20,21]. This design integrates quantitative and qualitative approaches to investigate how diverse population groups engage with dementia education resources and how educational engagement translates into behavioural readiness and real-world outcomes. Coles et al. (2020) indicates that such designs are especially suitable for public health interventions where the outcomes are influenced by multiple interacting mechanisms and contextual factors [22].

The study is grounded in critical realism and pragmatic inquiry [23-25]. Critical realism recognises that observable outcomes emerge from underlying mechanisms operating within specific social, cultural, and environmental contexts [23,24]. This perspective is particularly relevant to dementia education because behavioural outcomes are shaped not only by information exposure but also by contextual influences, emotional experiences, health literacy, motivation, and environmental constraints. The framework therefore aims to identify not only whether interventions work, but how, for whom and under what conditions they achieve meaningful impact [26,27].

The study additionally adopts a pragmatic orientation focused on real-world applicability, practical effectiveness, and solution-oriented inquiry. Pragmatism supports methodological flexibility and the use of multiple forms of evidence to address complex applied problems [25,28]. It aligns with implementation science approaches, which prioritise usability, scalability, contextual adaptation, and sustained behavioural outcomes in real-world settings [14,29].

The methodological approach reflects the paper's central argument that dementia education cannot be adequately understood through linear or purely quantitative models alone. However, in line with modern complex intervention and systems-based approaches to public health research, comprehending educational effectiveness involves paying attention to dynamic interactions among engagement, interpretation, context, behaviour, and implementation conditions [4,5,30,31].

3. Expansion and Diversification of Dementia Education

The expansion of dementia education reflects broader public health priorities surrounding prevention, early intervention, and support for individuals living with chronic conditions [1,2]. Given the limited progress in curative dementia treatments, increasing emphasis has been placed on interventions that improve quality of life, support self-management, and assist individuals and caregivers in adapting to diagnosis and ongoing care needs [2,32].

Contemporary dementia education initiatives now target a wide range of populations, including older adults, family caregivers, healthcare professionals, and midlife individuals considered at elevated risk of cognitive decline. Educational approaches have diversified substantially in both format and delivery. Digital interventions have become central to contemporary dementia education strategies, including mobile applications, interactive online platforms, telehealth resources, and web-based learning modules have become central [7,8,33]. These technologies

offer important advantages, including scalability, accessibility, flexibility, and opportunities for personalised learning.

In addition to technological innovation, increasing attention has been directed toward culturally responsive dementia education. Research indicates that culturally relevant interventions improve engagement, comprehension, and perceived relevance among diverse populations [34]. Consequently, educational programs are increasingly designed to account for cultural beliefs, language differences, and community-specific understandings of dementia.

However, despite the rapid expansion of dementia education resources, significant concerns remain regarding their practical effectiveness. Existing literature consistently identifies a gap between accessibility and meaningful impact [35]. Many interventions are evaluated primarily through measures of participation, accessibility, or user satisfaction rather than sustained behavioural outcomes or practical application of knowledge (King et al., 2024). As a result, questions remain regarding whether increased exposure to dementia information produces meaningful changes in attitudes, behaviours, or health-related decision-making.

Furthermore, research suggests that effective educational programs share characteristics extending beyond content quality alone. Successful interventions, according to Eenadu et al. (2024), suggest that effective simulation-based educational interventions are facilitated by trained educators, involve active learner engagement, incorporate realistic clinical experiences, and promote repeated practice with feedback [36]. These results support the claim that the success of dementia education depends on engagement mechanisms, contextual relevance, and information availability [37].

3.1. The Knowledge-Behaviour Gap

A central assumption underpinning many dementia education initiatives is that improved knowledge will naturally produce behavioural readiness and behavioural change. However, this assumption has been increasingly challenged within contemporary behavioural science research [11,38]. Meta-analytic evidence suggests that educational interventions tend to increase knowledge and awareness, but generally have modest and inconsistent or short-lived effects on sustained behavioural change [10,39,40].

The persistence of the knowledge–behaviour gap reflects broader findings within health psychology and public health research, where behavioural outcomes are understood to emerge through complex interactions among cognitive, emotional, motivational, and environmental factors. Learning new information alone is rarely sufficient to alter deeply embedded habits, social practices, or health-related decision-making processes.

Within dementia education, this gap is particularly important because behavioural outcomes often involve emotionally sensitive and socially complex actions, including help-seeking, risk reduction, caregiving practices, or long-term lifestyle modifications. Individuals may possess adequate knowledge regarding dementia risk factors or available support services while simultaneously lacking the motivation, confidence, emotional readiness, or environmental support required to translate knowledge into action.

The continued existence of this gap highlights the limitations of traditional linear educational models that conceptualise education primarily as information transfer. Nahum-Shani also pointed out that contemporary research is increasingly confirming complex frameworks combining behavioural mechanisms, contextual influences and emotional engagement. behavioural mechanisms, contextual influences, and emotional engagement. Furthermore, as Surr et al. (2020) argued, educational interventions alone are unlikely to change behaviour unless broader implementation conditions and contextual influences are also addressed [41].

Consequently, dementia education must increasingly be understood as a behavioural and interpretative process rather than a purely informational one. This conceptual shift has important implications for intervention design, evaluation, and theoretical development.

4. Health Literacy and Interpretative Engagement

According to Sørensen et al. (2012), modern conceptions of health literacy go beyond simple reading comprehension to include critical analysis, decision-making, and context-sensitive application of knowledge because it influences how people acquire, comprehend, evaluate, and use health [13,15].

Research demonstrates that engagement with dementia education varies considerably according to individuals' prior knowledge, cognitive capacity, perceived relevance, cultural background, and lived experiences [42]. Consequently, even well-designed educational tools may prove ineffective when they fail to align with users' informational needs, emotional readiness, or practical circumstances.

An increasingly important concept within recent literature is interpretative engagement, referring to the process through which individuals actively construct meaning from educational content. Rather than passively receiving information, users interpret dementia-related knowledge according to their existing beliefs, social contexts, emotional states, and personal experiences. This perspective challenges conventional assumptions of passive information flow and highlights the importance of user-centred educational design.

Despite growing recognition of these processes, much of the existing literature lacks explicit theoretical grounding. To address this limitation, the present review draws on three complementary frameworks: health literacy theory, the Capability–Opportunity–Motivation Behaviour (COM-B) model, and implementation science.

4.1. Health Literacy Framework

Health literacy frameworks conceptualise individuals' abilities

to access, understand, evaluate, and apply health information within specific contexts [15]. Health literacy is dynamic, context-dependent, and influenced by social, cultural, and environmental factors, according to contemporary models [43].

Importantly, health literacy extends beyond comprehension to include application and decision-making, making it highly relevant to dementia education. However, many educational interventions continue to assume baseline literacy levels that may not reflect real-world populations. This limitation may contribute to disparities in engagement, understanding, and behavioural outcomes across diverse groups.

5. Behaviour Change Theory: The COM-B Model

The COM-B model provides a comprehensive framework for understanding behaviour change by proposing that behaviour emerges through dynamic interactions among capability, opportunity, and motivation, which collectively shape behavioural enactment and maintenance [12]. Capability includes both psychological and physical capacities required for behaviour. Willmott et al. (2024) explains opportunities are external social and environmental factors that either facilitate or impede behaviour. Motivation incorporates both reflective processes, such as conscious decision-making, and automatic processes, including habits and emotional responses [44].

The model highlights why knowledge alone is insufficient to produce sustained behavioural change. Dementia education interventions that neglect motivational or environmental barriers are unlikely to achieve long-term effectiveness.

5.1. Implementation Science

Implementation science focuses on understanding how evidence-based interventions are translated into routine practice and sustained within real-world environments [14,29]. This field emphasises scalability, usability, contextual adaptation, and practical effectiveness. According to the National Academies of Sciences, Engineering, and Medicine [NASEM], 2021, dementia education should be assessed not only on the quality of its content but also on how, by whom, and under what conditions treatments are employed [45]. This approach aligns closely with contemporary calls for more ecologically valid and context-sensitive evaluation frameworks.

6. Emotional, Social, and Contextual Influences

Engagement with dementia education is strongly influenced by emotional, social, and contextual factors. Caregivers and individuals affected by dementia frequently experience high levels of emotional burden, stress, anxiety, and uncertainty, which may significantly affect their ability to process information and engage with educational interventions effectively.

Research increasingly highlights the importance of emotional readiness, perceived risk, stigma, social support, and cultural beliefs in shaping responses to dementia-related information [1,2,46]. These influences affect not only whether individuals engage with educational materials but also whether they subsequently apply acquired knowledge in practice.

Emerging person-centred and human-centred approaches to dementia care similarly emphasise the need to consider emotional and relational dimensions of learning and support [14]. Educational interventions that fail to account for these factors risk becoming informationally accurate yet practically ineffective.

These findings further challenge purely informational approaches to dementia education and support the development of more comprehensive, context-sensitive models capable of accounting for real-world complexity.

7. Digital Innovation and the Real-World Implementation Gap

Digital technologies have substantially transformed dementia education by enabling scalable, interactive, and personalised approaches to learning. Advances in digital health and human–computer interaction have facilitated increasingly sophisticated educational tools, including virtual learning platforms, mobile applications, and interactive self-management resources [8]. The implementation gap identified in digital dementia education reflects broader challenges associated with digital health translation, sustainability, and user engagement within routine healthcare systems [47,48].

Although interventions may show positive results under experimental conditions, evidence regarding sustained engagement and long-term practical outcomes remains limited.

Several barriers contribute to this gap, including unequal access to technology, variable levels of digital literacy, insufficient contextual adaptation, and limited long-term evaluation. Older adults and vulnerable populations may experience particular challenges engaging with digital resources, potentially exacerbating existing health inequities.

These limitations highlight the need for research that moves beyond technological innovation alone to examine usability, accessibility, engagement, and behavioural outcomes within real-world contexts.

8. Evaluation Limitations and Methodological Gaps

A major limitation within the current dementia education literature is the lack of comprehensive and standardised evaluation frameworks. Many studies focus primarily on short-term knowledge gains while providing limited assessment of behavioural outcomes, decision-making processes, quality of life, or sustained engagement.

Complex intervention research increasingly advocates for multifaceted evaluation approaches capable of capturing the dynamic and context-dependent nature of behavioural change [14,30]. Recent Medical Research Council guidance further emphasises the importance of process evaluation, contextual assessment, and systems-level analysis when evaluating complex

health interventions [4,5].

Mixed-methods approaches integrating quantitative and qualitative data are particularly valuable for understanding both intervention outcomes and the mechanisms through which those outcomes occur.

Additionally, inconsistencies in outcome measures significantly limit comparability across studies and hinder the development of evidence-based best practices. Without robust and standardised evaluation frameworks, it remains difficult to determine which educational strategies are most effective across diverse populations and settings.

8.1. Conceptual Shift: From Availability to Impact

Contemporary literature increasingly supports a conceptual shift from evaluating dementia education according to accessibility alone toward assessing real-world effectiveness, usability, implementation quality, and sustained impact [1,29,49].

Traditional educational approaches have emphasised information dissemination, content accuracy, and resource availability. Emerging frameworks, on the other hand, place more emphasis on behavioural preparedness, emotional and environmental impacts, interpretive processes, user involvement, and sustained behavioural results [50]. This shift reflects broader developments within public health, behavioural science, and implementation research, all of which recognise that access to information does not automatically ensure behavioural change or practical impact.

9. Research Gap and Study Contribution

Despite substantial growth in dementia education research, significant conceptual, theoretical, and methodological gaps remain within the literature. Existing studies have predominantly focused on information dissemination, accessibility, and short-term knowledge acquisition, often assuming a linear relationship between education and behavioural change. However, many studies have demonstrated that merely improving knowledge is insufficient to alter an individual's behaviour or yield significant long-term results [2,10,11,51,52]. A major limitation within current literature is the insufficient understanding of how individuals actively engage with, interpret, and apply dementia-related information across diverse real-world contexts. While behavioural frameworks such as the COM-B model explain behaviour in terms of capability, opportunity, and motivation, they provide comparatively limited insight into interpretative and meaning-making processes through which educational information becomes personally relevant [12,53]. Similar to this, health literacy models Sørensen et al. (2012) and Poureslami et al. (2017) indicate place a strong emphasis on knowledge comprehension and application, but they often do not incorporate behavioural enactment and contextual implementation processes [15,54].

As a result, there is a significant theoretical gap between behavioural outcomes and educational engagement [55]. Specifically, current dementia education research insufficiently explains the mechanisms through which users interpret information, develop behavioural readiness, and translate understanding into action within emotionally and socially complex environments [14,56].

Another major gap concerns the limited incorporation of contextual and emotional influences into educational evaluation. According to Polack and Miller (2022), the majority of studies only examine short-term outcomes and test programs in strictly regulated environments [55]. The impact of real-life issues, such as stigma, culture, technological proficiency, and everyday challenges, on whether or not individuals truly use and profit from these technologies in the real world is still largely unknown [9,14]. This limitation reduces the ecological validity and practical applicability of existing evidence.

Methodologically, there remains a lack of standardised, user-centred, and multidimensional evaluation frameworks capable of capturing the complexity of behavioural and contextual change. The majority of current research undervalues lived experience, interpretation, emotional involvement, and implementation processes in favour of quantitative measures of knowledge acquisition (Hawke et al., 2025). As a result, the literature lacks integrated frameworks capable of explaining not only whether dementia education interventions work, but how and why outcomes emerge across different populations and settings [4,5].

The present study addresses these gaps through several key contributions. First, the study advances a conceptual shift from viewing dementia education as a process of information transfer toward understanding it as a dynamic behavioural and contextual process shaped by engagement, interpretation, emotional readiness, and implementation conditions [13,14].

Second, the study introduces interpretative engagement as a central theoretical mechanism linking educational exposure to behavioural readiness. This concept extends existing behavioural and health literacy models by recognising that individuals actively construct meaning from dementia-related information according to their lived experiences, prior beliefs, emotional states, and contextual realities [15,57].

Third, the study integrates health literacy theory, the COM-B model, and implementation science into a unified interdisciplinary framework. This integration provides a more comprehensive explanation of how behavioural readiness and real-world outcomes develop through interactions among capability, motivation, opportunity, interpretation, and context [12,29,49].

Fourth, the study contributes methodologically through the adoption of a sequential four-phase mixed-methods design grounded in critical realism and pragmatic inquiry. This approach enables examination of both measurable behavioural outcomes and the underlying mechanisms and contextual conditions that shape engagement and implementation in real-world settings [14,20].

Finally, the study contributes to dementia education research by prioritising real-world effectiveness, usability, sustained behavioural readiness, and contextual relevance rather than short-term knowledge acquisition alone. In doing so, the framework supports the development of more person-centred, context-sensitive, and implementation-informed approaches to public health education and dementia prevention [1,2].

10. Conceptual Framework

The proposed conceptual framework shown in Figure 1 reconceptualises dementia education as a dynamic, multi-component process rather than a linear model of information transfer. The framework integrates health literacy theory, the COM-B model, and implementation science to explain how dementia education is accessed, interpreted, and translated into real-world outcomes [1,12].

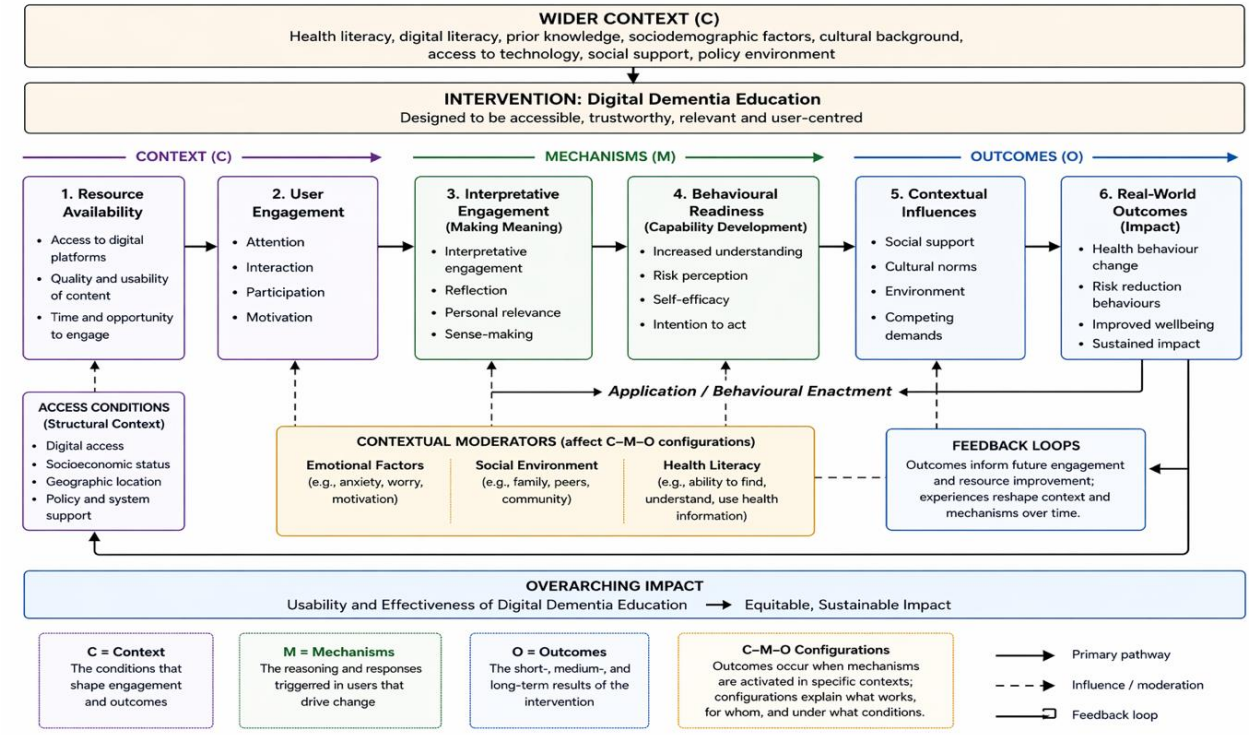

Figure 1: Shows the Context–Mechanism–Outcome (CMO) Framework Illustrating How Digital Dementia Risk-Reduction Education Operates Across Contextual Conditions, Engagement Mechanisms, Behavioural Readiness, and Real-World Outcomes Within a Critical Realist Framework.

The framework consists of six interconnected components:

1. **Resource Availability** – Exposure to and access to dementia education resources, including digital tools, community programs, and online materials.
2. **User Engagement** – Active interaction with educational resources shaped by usability, relevance, motivation, and accessibility.
3. **Interpretative Engagement** – The process through which individuals actively construct meaning from information according to prior knowledge, lived experience, and health literacy.
4. **Behavioural Readiness** – Development of self-efficacy, risk awareness, understanding, and behavioural intention.
5. **Contextual Influences** – Social, emotional, cultural, and environmental factors that shape individuals' capacity to engage with and act upon dementia-related information [14,58].
6. **Real-World Outcomes** – Changes in knowledge, attitudes, behavioural intentions, and sustained behaviours.

A key contribution of the framework is the inclusion of interpretative engagement as a distinct mechanism linking user engagement to behavioural readiness. This addition addresses limitations within existing behavioural models that insufficiently account for meaning-making processes.

The framework further aligns with realist perspectives by recognising that outcomes emerge through interactions among mechanisms, contexts, and implementation conditions. Simultaneously, its emphasis on practical effectiveness reflects a pragmatic orientation toward real-world application across diverse populations and settings.

Overall, the framework advances existing models by moving beyond linear, knowledge-based approaches and emphasising the dynamic interplay between engagement, interpretation,

behavioural readiness, context, and outcomes. It provides a theoretically grounded structure for evaluating the real-world effectiveness of dementia education interventions.

11. Conclusion

The literature demonstrates that although dementia education resources have expanded substantially, important limitations remain regarding their practical effectiveness and sustained impact. Existing evidence highlights the inadequacy of purely knowledge-based educational approaches and increasingly emphasises the importance of engagement, interpretation, contextual influences, and behavioural outcomes.

Contemporary research supports a conceptual shift away from viewing dementia education as simple information dissemination and toward understanding it as a dynamic and context-sensitive process shaped by behavioural, emotional, and environmental factors. Integrating health literacy theory, behaviour change frameworks, and implementation science provides a more comprehensive understanding of how educational interventions influence behavioural readiness and real-world outcomes.

The proposed conceptual framework contributes to this evolving field by integrating user engagement, interpretative processes, behavioural readiness, contextual influences, and implementation conditions into a unified model. By doing this, it provides a theoretically sound and practically applicable basis for future research on dementia education, the creation of interventions, and assessments [37].

Future dementia education research should prioritise implementation quality, sustainability, and ecological validity to ensure interventions produce meaningful and equitable real-world outcomes across diverse populations [14,49].

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