

From Conceptual Scholarship to Realist Programme Theory: Establishing the Foundation for Digital Dementia Risk-Reduction Education

Peter Carey*

City of Perth, state of Western Australia, country of Australia Independent Researcher, Perth, Western Australia, Australia

ABSTRACT

Background

Dementia prevention has emerged as a major global public health priority following growing evidence that up to 45% of dementia cases may be preventable or delayed through modification of fourteen life-course risk factors. Despite increasing public awareness of these findings, translation of epidemiological evidence into sustained behavioural change remains inconsistent, highlighting the need for stronger theoretical approaches to understanding how digital dementia education influences behaviour (Livingston et al., 2024; World Health Organization, 2025).

Objective

This paper presents an integrated programme of scholarship culminating in the development of a Realist-Informed Conceptual Framework for Digital Dementia Risk-Reduction Education. The framework establishes the theoretical and methodological foundation for a future mixed-methods realist evaluation examining how digital dementia risk-reduction education influences behavioural readiness among midlife adults.

Methods

Rather than undertaking a conventional narrative review, this paper synthesises five interconnected conceptual publications that progressively examined dementia prevention literacy, digital dementia education, health literacy, behaviour change theory, implementation science, and realist evaluation. Through iterative conceptual integration, these complementary contributions were consolidated into a unified explanatory framework capable of informing empirical investigation [1].

Results

The synthesis demonstrates that digital dementia education should be understood as a complex intervention operating through interactions between contextual conditions, educational resources, interpretative engagement, and behavioural readiness. The resulting Realist-Informed Conceptual Framework identifies interpretative engagement as the central generative mechanism through which individuals actively construct meaning from dementia prevention information and translate knowledge into behavioural intentions. Integrating dementia prevention literacy, health literacy, behaviour change theory, implementation science, and realist evaluation, the framework provides a coherent explanation of how Context-Mechanism-Outcome (CMO) configurations influence intervention effectiveness across different populations and settings.

Keywords: Dementia prevention; Dementia prevention literacy; Digital health; Health literacy; Behaviour change; Realist evaluation; Implementation science; Knowledge translation

INTRODUCTION

Dementia is one of the greatest public health challenges of the twenty-first century. More than 55 million people currently live with dementia worldwide, and this number is projected to rise substantially over coming decades as populations continue to age (World Health Organization, 2025). Recent advances in epidemiological research have fundamentally changed understanding of dementia prevention. The 2024 Lancet

Standing Commission concluded that approximately 45% of dementia cases may be preventable or delayed through modification of fourteen potentially modifiable life-course risk factors, establishing dementia risk reduction as a major international public health priority [2]. Although the epidemiological evidence supporting dementia prevention has strengthened considerably, translating this knowledge into sustained behavioural change remains challenging. Public

*Correspondence to: Peter Carey, City of Perth, state of Western Australia, country of Australia Independent Researcher, Perth, Western Australia, Australia Email: peterjcarey@gmail.com

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awareness of modifiable dementia risk factors varies widely across populations, and many individuals continue to perceive dementia as an inevitable consequence of ageing rather than a condition influenced by lifestyle and health behaviours [3]. Even where knowledge improves, behavioural adoption remains inconsistent, suggesting that increasing awareness alone is insufficient to produce meaningful public health impact [4,5].

This persistent evidence-to-action gap highlights important limitations of traditional information-deficit models of health education. Contemporary health literacy theory recognises that individuals actively interpret and apply health information within the context of their existing beliefs, experiences, social environments, and opportunities rather than passively receiving information [6]. Similarly, behaviour change theory conceptualises behavioural adoption as an interaction between capability, opportunity, and motivation [7]. While implementation science demonstrates that intervention effectiveness depends upon contextual conditions operating across multiple organisational and social levels [8]. From a realist perspective, these interactions are best understood through Context-Mechanism-Outcome (CMO) configurations that explain not simply whether interventions work, but how, for whom, under what circumstances, and why [9,10].

The programme of scholarship presented in this paper emerged in response to these conceptual challenges. Rather than investigating isolated theoretical questions, five interconnected publications progressively examined dementia prevention literacy [11], reconceptualised dementia education beyond information-transfer models, integrated realist evaluation with digital dementia education [12,13], and synthesised these perspectives into an integrated theoretical explanation of digital dementia risk-reduction education [14]. Collectively, these publications sought to answer a single overarching question: How can digital dementia risk-reduction education more effectively translate epidemiological evidence into sustained behavioural change?

Accordingly, this manuscript should not be regarded as a conventional review article. Instead, it presents an integrative conceptual synthesis that demonstrates how successive theoretical developments collectively culminated in the development of a Realist-Informed Conceptual Framework for Digital Dementia Risk-Reduction Education. This framework represents the principal intellectual contribution of the programme and provides the theoretical and methodological foundation for the proposed doctoral research, within which it will be operationalised and empirically evaluated through a mixed-methods realist design.

This paper therefore makes four original contributions. First, it begins by combining five complementing conceptual papers into a cohesive programme of scholarship. Second, it demonstrates the progressive evolution of theoretical thinking leading to the development of a unified realist-informed framework. Third, it integrates dementia prevention literacy, health literacy, behaviour change theory, implementation science, and realist evaluation within a single explanatory architecture for digital dementia education. Finally, it establishes this framework as the conceptual foundation for future empirical investigation,

thereby providing a structured research programme capable of informing intervention design, evaluation, and public health implementation.

Evolution of an Integrated Programme of Scholarship

The Realist-Informed Conceptual Framework presented in this paper did not emerge from a single conceptual investigation. Rather, it evolved through an iterative programme of scholarship that progressively addressed one central research problem: Why does increasing public awareness of dementia risk factors not consistently translate into sustained dementia risk-reduction behaviours?

Each of the publications in the programme approached a different facet of this question and at the same time fed into further theoretical development. Viewed individually, the publications contribute distinct conceptual insights. Viewed collectively, however, they represent successive stages in the development of an integrated explanatory framework that provides the theoretical and methodological foundation for future empirical investigation.

Unlike conventional literature reviews, which synthesise published evidence across a field, this manuscript synthesises an evolving body of original conceptual scholarship. The purpose is therefore not simply to summarise previous publications but to demonstrate how cumulative theoretical development progressively produced a coherent framework capable of informing intervention design, implementation, and evaluation.

The programme drew upon contemporary developments across several complementary fields, including dementia prevention epidemiology, health literacy, behaviour change theory, implementation science, digital health, and realist evaluation. Each discipline offers valuable theoretical perspectives, yet none independently provides a sufficient explanation for the persistent gap between knowledge acquisition and behavioural adoption. The programme therefore sought to integrate these perspectives into a unified explanatory model capable of accounting for the complexity of digital dementia risk-reduction education.

Throughout the programme, theoretical development followed an iterative process of conceptual refinement. Questions arising from one publication informed the focus of the next, allowing successive expansion of explanatory scope while maintaining a consistent overarching research objective. This cumulative process ultimately resulted in the development of the Realist-Informed Conceptual Framework for Digital Dementia Risk-Reduction Education presented in this manuscript.

Progressive Development of the Programme

The scholarly foundation of this programme developed through five distinct, interrelated stages, with each publication serving as a cumulative building block for the final explanatory architecture. This conceptual evolution is visually mapped out within the comprehensive manuscript paper in the image titled Figure 1. From Information to Impact: A Research Journey in Dementia Risk-Reduction Education.

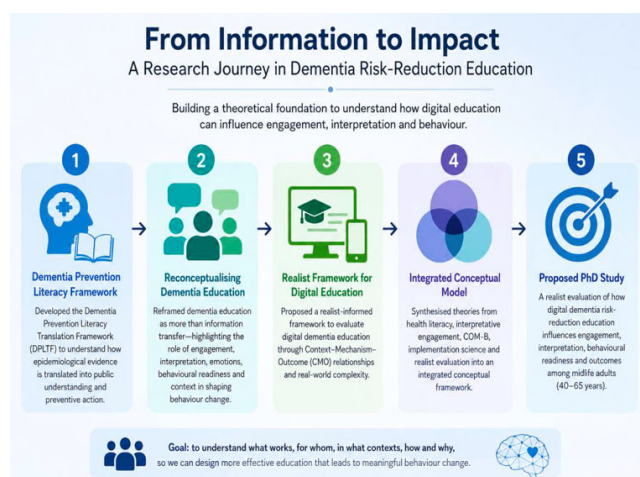


Figure 1: From Information to Impact: A Research Journey in Dementia Risk-Reduction Education

As illustrated in Figure 1 and summarised in Table 1, the research journey moves sequentially from initial framework development to absolute theoretical integration.

Stage / Step	Visual Text in Figure 1	Corresponding Manuscript Reference	Core Conceptual Shift (Gap Addressed)
Step 1	Dementia Prevention Literacy Framework	Introduces the DPLTF (Carey, 2026c)	From general health literacy to dementia-specific literacy: Explicitly defines the cognitive skills required to access, appraise, and apply complex epidemiological dementia risk data.
Step 2	Reconceptualising Dementia Education	Reframes education beyond information transfer (Carey, 2026b)	From information deficit to active meaning-making: Challenges passive "knowledge transfer" models by introducing Interpretative Engagement as an active process.
Step 3	Realist Framework for Digital Education	Proposes the framework using CMO logic (Carey, 2026a)	From linear causality to real-world complexity: Replaces simplistic "cause-and-effect" views of education with Context-Mechanism-Outcome (CMO) architecture.
Step 4	Integrated Conceptual Model	Synthesises health literacy, COM-B, and implementation science (Carey, 2026d)	From fragmented theories to structural integration: Combines individual behavioural, clinical, and environmental frameworks into a single explanatory architecture.
Step 5	Proposed PhD Study	Empirically evaluates the framework in midlife adults (Carey, 2026e)	From conceptual abstraction to empirical validation: Transitions a theoretical architecture into a testable, mixed-methods realist evaluation programme theory.

Table 1: Mapping of Milestone Publications and Conceptual Evolution Across the Research Journey

As illustrated in Figure 1 and summarised in Table 1, the research journey moves sequentially from initial framework development to absolute theoretical integration. Crucially, Table 1 outlines not merely a chronological publication trail, but a deliberate sequence of core conceptual shifts—each milestone

explicitly resolving a theoretical gap or limitation identified in the preceding step. Supporting this progression is a common, end-goal highlighted at the bottom of the model: to understand what works, for whom, in what contexts, how and why, so that digital interventions can proactively progress beyond information provision to achieve meaningful, real-world behaviour change [15]. Each numbered stage in Figure 1

represents a milestone publication that directly resolves a theoretical limitation of the last, mapping out a direct path toward the empirical phase of the doctoral study.

The concept of dementia prevention literacy was first presented in the first publication, which argued that effective dementia prevention goes beyond knowledge of modifiable risk factors to include the ability to access, comprehend, critically interpret, and apply epidemiological evidence in daily decision-making [16]. Furthermore, he notes that this work established dementia prevention literacy as a crucial conceptual basis for further research and revealed a serious translation gap between scientific knowledge and public action. The second publication reconceptualised dementia education by challenging traditional information-transfer models. Rather than assuming that information dissemination naturally produces behavioural change, the paper proposed that individuals actively construct meaning through interaction between educational resources, prior experiences, beliefs, motivations, and contextual influences [17]. This work introduced interpretative engagement as the key process through which dementia prevention information becomes personally meaningful and behaviourally relevant.

The third publication integrated realist evaluation with digital dementia education, arguing that educational interventions should be understood as complex interventions operating differently across different populations and contexts [18]. Drawing upon Context-Mechanism-Outcome (CMO) logic, the paper demonstrated how variation in educational outcomes may be explained through interactions between contextual conditions and underlying mechanisms rather than by intervention content alone.

Building upon these developments, the fourth publication synthesised dementia prevention literacy, interpretative engagement, behaviour change theory, implementation science, and realist evaluation into a unified theoretical perspective [19]. Rather than presenting these theories as parallel explanations, the paper demonstrated how they collectively contribute to understanding digital dementia risk-reduction education as a complex adaptive process operating through context-dependent mechanisms.

The present manuscript represents the fifth stage of this scholarly progression. It integrates these complementary conceptual developments into a single Realist-Informed Conceptual Framework and demonstrates how the programme has matured from conceptual exploration to a coherent theoretical platform capable of supporting empirical realist investigation.

Integration Rather than Accumulation

An important characteristic of the programme is that its contribution lies not in the accumulation of independent publications but in their progressive integration. Each publication addressed theoretical limitations identified in preceding work while simultaneously generating new conceptual questions that informed subsequent investigation. Consequently, the overall contribution is greater than the sum

of its individual components. This progression illustrates an iterative process of conceptual development in which theoretical refinement occurred through continuous integration across multiple disciplines rather than through isolated advances within a single theoretical tradition. Dementia prevention literacy provided the initial explanatory focus; interpretative engagement explained how individuals construct meaning from educational information; behaviour change theory contributed mechanisms of behavioural adoption; implementation science explained contextual influences on intervention delivery; and realist evaluation supplied the overarching explanatory logic through Context-Mechanism-Outcome configurations.

Collectively, these developments culminated in the Realist-Informed Conceptual Framework presented in this paper. The framework therefore represents the synthesis of an integrated programme of scholarship rather than the extension of any single conceptual model. It offers an explanatory framework for understanding digital dementia risk-reduction education as well as a theoretical basis for the empirical research planned in the accompanying doctoral programme.

Development of the Realist-Informed Conceptual Framework

The principal scholarly outcome of the programme is the development of the Realist-Informed Conceptual Framework for Digital Dementia Risk-Reduction Education. This comprehensive architectural model is visually mapped out within the manuscript paper in the image titled Figure 2. Realist-Informed Conceptual Framework for Digital Dementia Risk-Reduction Education. The framework integrates the complementary theoretical contributions described in Section 2 into a single explanatory architecture that addresses the central challenge of translating dementia prevention knowledge into meaningful behavioural action.

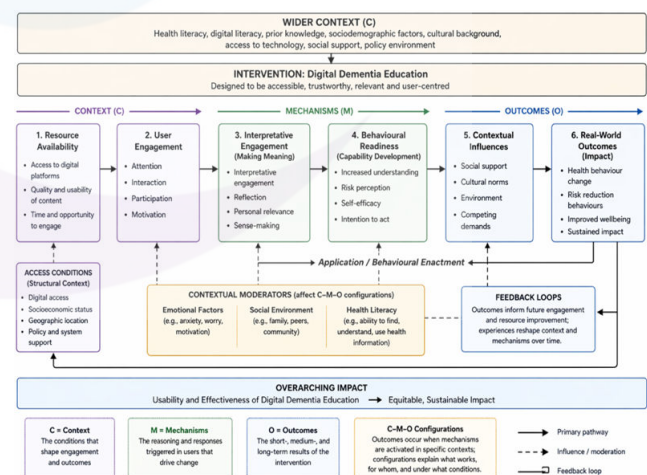


Figure 2: Realist-Informed Conceptual Framework for Digital Dementia Risk-Reduction Education

As mapped out in the structural architecture of the diagram, the framework is founded on a simple but important proposition: exposure to information is necessary but not sufficient to produce behavioural change. While epidemiological evidence identifies modifiable dementia risk factors, behavioural adoption depends upon how individuals engage with, interpret,

and apply that information within the context of their own lives. Consequently, educational interventions should be understood as complex social processes rather than linear pathways from information provision to behavioural outcomes.

Drawing upon realist philosophy, the framework conceptualises digital dementia education as operating through interactions between contextual conditions, educational resources, underlying mechanisms, and behavioural outcomes. Context shapes opportunities for engagement; educational resources provide the stimulus for learning; interpretative mechanisms generate meaning; and behavioural outcomes emerge through the interaction of these elements rather than through information delivery alone.

Central to this framework is the concept of interpretative engagement. Unlike traditional educational models that assume knowledge acquisition directly influences behaviour, interpretative engagement recognises that individuals actively evaluate the personal relevance, credibility, feasibility, and emotional significance of dementia prevention information. This process mediates the translation of evidence into behavioural readiness and explains why identical educational interventions may produce markedly different outcomes across individuals and settings.

Accordingly, the framework integrates five complementary theoretical traditions within a unified realist perspective:

Dementia prevention literacy, which explains variation in understanding and application of dementia prevention knowledge;

Health literacy, which informs the processes by which individuals access, understand, appraise, and use health information;

Behaviour change theory, which explains how capability, opportunity, and motivation interact to influence behavioural adoption;

Implementation science, which takes into consideration the environmental factors influencing the sustainability and implementation of interventions and

Realist evaluation, which provides the overarching explanatory structure through Context–Mechanism–Outcome configurations.

Rather than competing explanations, these perspectives function as complementary components within a coherent explanatory system. Their integration represents the principal theoretical contribution of the programme and provides the conceptual basis for the empirical realist evaluation proposed within the doctoral research.

The Need for an Integrated Framework

Although substantial progress has been made in understanding modifiable dementia risk factors, existing theoretical approaches remain fragmented. Epidemiological research has successfully identified life-course risk factors associated with dementia and has provided compelling evidence that many cases may be preventable through behavioural modification. However,

epidemiological evidence alone does not explain why individuals differ in their responses to dementia prevention information or why knowledge frequently fails to translate into sustained behavioural change.

Health literacy theory provides valuable insights into how individuals access, understand, appraise, and apply health information, yet it does not fully explain the contextual variability observed in digital educational interventions. Similarly, behaviour change models, including the COM-B model, explain behavioural capability, opportunity, and motivation. However, while the COM-B framework successfully identifies motivation as a critical driver of action, it lacks a micro-level explanatory mechanism to account for how digital educational content acts as the specific catalyst that alters or activates that motivation. It provides less emphasis on the immediate, internal cognitive processes through which individuals interpret the personal meaning of dementia prevention information before behavioural intentions are formed. This theoretical limitation directly justifies the introduction of Interpretative Engagement as the missing mediator within the evidence-to-action pathway.

Implementation science contributes further understanding by recognising that interventions operate within complex organisational, cultural, and social environments. However, implementation frameworks primarily address intervention delivery and adoption rather than the internal cognitive and interpretative processes experienced by individual participants.

Realist evaluation offers an overarching explanatory perspective by recognising that interventions do not work universally but generate different outcomes depending upon the interaction of contextual conditions and underlying mechanisms. Nevertheless, realist evaluation itself does not specify what those mechanisms may be within dementia risk-reduction education.

Consequently, no existing framework independently provides a comprehensive explanation of how digital dementia education translates epidemiological evidence into meaningful behavioural action. The Realist-Informed Conceptual Framework proposed in this paper was developed to address this theoretical gap by integrating complementary concepts from these disciplines within a single explanatory architecture.

Interpretative Engagement as the Central Generative Mechanism

The defining feature of the proposed framework is the identification of interpretative engagement as the principal generative mechanism linking digital educational interventions with behavioural readiness.

Interpretative engagement extends beyond information acquisition or cognitive understanding. It describes the active process through which individuals evaluate the relevance, credibility, emotional significance, and practical implications of dementia prevention information within the context of their own lives. Through this process, educational information is transformed from objective knowledge into personally meaningful understanding capable of influencing behavioural decisions.

Within the framework, interpretative engagement is not conceptualised as a fixed psychological characteristic. Rather, it represents a context-sensitive mechanism that is activated through interaction between educational resources and individual circumstances. Factors such as previous experiences with dementia, perceived susceptibility, cultural beliefs, family influences, digital literacy, and access to healthcare may all influence how educational information is interpreted and whether behavioural readiness develops.

This interpretation is consistent with realist philosophy, which conceptualises mechanisms as underlying generative processes that are triggered only under particular contextual conditions. Consequently, identical educational resources may produce different outcomes across individuals because interpretative engagement is activated differently according to each participant's unique context.

The framework therefore proposes that improvements in dementia prevention knowledge represent necessary but insufficient conditions for behavioural change. Meaningful behavioural outcomes occur only when educational resources successfully activate interpretative engagement within favourable contextual circumstances, leading to increased behavioural readiness and subsequent adoption of dementia risk-reduction behaviours.

Integration of Theoretical Perspectives

A distinguishing characteristic of the proposed framework is its integration of complementary theoretical traditions rather than its reliance upon any single explanatory model:

Dementia prevention literacy, establishes the public health foundation by explaining how individuals access, understand, and apply information relating to modifiable dementia risk factors.

Health literacy, extends this perspective by recognising that health information must be interpreted, evaluated, and applied within diverse social and cultural contexts. Rather than treating literacy as the simple acquisition of knowledge, the framework recognises literacy as an active process supporting informed decision-making.

Behaviour change theory, particularly the COM-B model, contributes an explanation of how capability, opportunity, and motivation interact to influence behavioural adoption. Within the integrated framework, these constructs affect both the activation of interpretative engagement and the translation of behavioural readiness into sustained action.

Implementation science, provides an understanding of how organisational, environmental, and social conditions shape intervention delivery and long-term sustainability. These contextual influences are represented within the framework as important determinants of both engagement and behavioural outcomes.

Finally, a realist evaluation provides the overarching explanatory logic linking contextual conditions, interpretative mechanisms, and behavioural outcomes through Context-Mechanism-Outcome configurations. Rather than functioning as a separate

theoretical perspective, realist evaluation provides the philosophical foundation within which the remaining theoretical components are integrated.

Together, these complementary perspectives produce an explanatory architecture that extends beyond any individual theory while preserving the distinctive contribution of each.

Original Contribution of the Framework

The principal contribution of this manuscript is not simply the presentation of another conceptual framework. Rather, it demonstrates how an integrated programme of scholarship can progressively synthesise diverse theoretical traditions into a coherent explanatory model capable of supporting empirical investigation.

The resulting Realist-Informed Conceptual Framework makes three original contributions.

First, it introduces interpretative engagement as the central explanatory mechanism through which digital dementia education influences behavioural readiness.

Second, it integrates epidemiology, dementia prevention literacy, health literacy, behaviour change theory, implementation science, and realist evaluation within a unified conceptual architecture, thereby addressing the persistent evidence-to-action gap in dementia prevention.

Third, it offers a theoretically based foundation for empirical realist evaluation. Unlike many conceptual frameworks that remain descriptive, the present framework is explicitly designed to be operationalised through mixed-methods research. It therefore functions not only as an explanatory model but also as the theoretical and methodological foundation for the proposed doctoral investigation.

In this sense, the framework represents both the culmination of the present programme of scholarship and the starting point for its next phase. Future empirical research will examine, refine, and extend the framework through realist investigation of how digital dementia risk-reduction education operates across diverse populations and contexts.

From Conceptual Framework to Empirical Programme Theory

The development of the Realist-Informed Conceptual Framework represents a transition from conceptual scholarship to empirically testable programme theory. Whereas the preceding publications progressively developed and integrated theoretical perspectives, the framework provides the explanatory architecture through which these propositions can now be investigated using realist methodology.

Within realist evaluation, conceptual frameworks are not regarded as fixed models requiring confirmation. Rather, they function as initial programme theories that are progressively refined through empirical investigation. The purpose of empirical research is therefore not simply to determine whether an intervention works, but to explain how, for whom, under what contextual conditions, and through which mechanisms particular outcomes are produced.

Accordingly, the Realist-Informed Conceptual Framework developed in this paper should be understood as an initial programme theory for digital dementia risk-reduction education. It proposes that educational resources interact with contextual conditions to activate interpretative engagement, which subsequently influences behavioural readiness and, ultimately, dementia risk-reduction behaviours. These theoretical propositions provide the conceptual foundation for the proposed doctoral research, within which they will be systematically examined, refined, and extended.

Rather than representing the completion of the programme of scholarship, the framework therefore marks the beginning of its empirical phase.

Initial Programme Theory

The integrated framework proposes that digital dementia risk-reduction education operates through four interdependent components.

The first comprises the contextual conditions within which educational interventions are delivered. These include demographic characteristics, educational attainment, digital health literacy, prior experiences with dementia, cultural beliefs, social support, healthcare accessibility, and broader environmental influences. Such contextual conditions shape both opportunities for engagement and the mechanisms through which educational resources are interpreted.

The second component consists of the educational resources themselves. These include evidence-based digital materials communicating information concerning modifiable dementia risk factors, healthy ageing, and behaviour change strategies. Within realist philosophy, these resources do not directly produce behavioural outcomes. Rather, they provide the conditions under which underlying mechanisms may be activated.

The third component is interpretative engagement, identified throughout this programme of scholarship as the principal generative mechanism. Through interpretative engagement, individuals actively assess the personal relevance, credibility, feasibility, and emotional significance of dementia prevention information. This process transforms epidemiological evidence into personally meaningful understanding and generates behavioural readiness.

The fourth component comprises behavioural outcomes. Rather than conceptualising behaviour as an immediate consequence of information exposure, the framework proposes a staged progression from increased understanding to enhanced behavioural readiness, to sustained adoption of dementia risk-reduction behaviours. These outcomes remain contingent upon continuing interactions between contextual conditions and interpretative mechanisms.

Together, these four components constitute the initial programme theory that will guide subsequent empirical realist evaluation.

Operationalising the Framework Through Mixed-Methods Realist Evaluation

The proposed doctoral research will operationalise the Realist-Informed Conceptual Framework through a mixed-methods realist evaluation. Consistent with realist methodology, quantitative and qualitative evidence will be integrated to investigate Context-Mechanism-Outcome (CMO) configurations underlying digital dementia risk-reduction education.

Quantitative methods will contribute information concerning participant characteristics, intervention engagement, behavioural readiness, and measurable educational outcomes. These data will assist in identifying patterns of variation across different contextual conditions and participant groups.

Qualitative methods will complement these findings by exploring participants' experiences, reasoning processes, and interpretations of dementia prevention information. Understanding how interpretative engagement emerges, how participants reconcile conflicting incentives and beliefs, and why comparable instructional materials produce disparate behavioural reactions among individuals will all receive special focus.

Integration of quantitative and qualitative findings will permit iterative refinement of the initial programme theory. Rather than treating quantitative and qualitative evidence as independent streams, mixed-methods analysis will seek explanatory convergence through development and testing of Context-Mechanism-Outcome configurations.

This approach reflects the central principles of realist evaluation and aligns with contemporary recommendations for evaluating complex public health interventions.

Expected Contribution of the Empirical Programme

The proposed empirical investigation extends beyond evaluation of a single digital intervention. Its broader purpose is to refine the theoretical understanding of how digital dementia risk-reduction education functions across diverse contexts and populations.

Anticipated Theoretical and Practical Contributions:

Contextual Determinants: Provides empirical evidence concerning the specific contextual factors that facilitate or constrain effective user engagement with digital dementia prevention education.

Mechanism Refinement: Refines the theoretical understanding of Interpretative Engagement as the principal generative mechanism driving individual meaning-making and behavioural readiness within the framework.

Theoretical Integration: Strengthens and operationalises the explanatory links connecting health literacy, behaviour change theory, implementation science, and realist evaluation.

Transferable Programme Theories: Contributes generalisable, mid-range programme theories capable of informing future

intervention design, implementation protocols, and evaluation architectures across broader areas of digital public health.

In this way, the doctoral research represents the direct empirical continuation of the integrated programme of scholarship rather than an independent or isolated research project.

Knowledge Translation and Future Research Programme

A central objective of this programme of scholarship is to reduce the longstanding gap between epidemiological evidence and public action. While substantial advances have been made in identifying modifiable dementia risk factors, the translation of this knowledge into widespread behavioural change remains inconsistent. Knowledge translation therefore becomes an essential component of the conceptual framework rather than a separate activity undertaken after research has been completed.

Traditional models of dissemination frequently conceptualise knowledge transfer as a linear process in which research findings are published in academic journals and subsequently adopted by clinicians, policymakers, or the public. Contemporary implementation science increasingly recognises that knowledge translation is a dynamic, iterative process involving continuous interaction between researchers, practitioners, policymakers, and communities. Within this perspective, dissemination is not simply the communication of findings but an ongoing process of engagement, feedback, and refinement.

The Realist-Informed Conceptual Framework aligns with this contemporary understanding by conceptualising knowledge translation as an extension of the Context-Mechanism-Outcome process. Dissemination activities constitute additional contextual resources that may activate new mechanisms of engagement among different stakeholder groups. Feedback generated through these interactions contributes to refinement of programme theory and supports the continuing evolution of both conceptual understanding and intervention design.

Accordingly, the proposed doctoral programme incorporates an integrated knowledge translation strategy designed to promote continuous interaction between research, policy, and practice. While traditional peer-reviewed academic publications remain central to scholarly dissemination, this programme actively operationalises translation through diversified engagement pathways:

Integrated Knowledge Translation Channels:

Academic Dissemination: Peer-reviewed publications in high-impact journals and international conference presentations to engage the broader scientific community.

Digital & Professional Networking: Strategic utilisation of professional networking platforms and open-access repositories to bridge the academic-practice divide and ensure rapid data accessibility.

Stakeholder Collaboration: Direct, participatory engagement with clinicians, public health policymakers, and community organisations to iteratively refine the programme theory based on real-world implementation feedback.

Together, these translation activities provide multiple, structured opportunities for refining the underlying programme theory through engagement with diverse stakeholders while simultaneously increasing the accessibility, equity, and practical relevance of digital dementia prevention research.

DISCUSSION

This paper has presented an integrated programme of conceptual scholarship culminating in the development of a Realist-Informed Conceptual Framework for Digital Dementia Risk-Reduction Education. Rather than functioning as a conventional literature review, the manuscript demonstrates how successive conceptual investigations can progressively generate a coherent explanatory framework capable of informing future empirical research.

The framework addresses a persistent challenge within dementia prevention: despite increasingly robust epidemiological evidence identifying modifiable risk factors, improvements in public awareness have not consistently translated into sustained behavioural change (Livingston et al., 2024; Sambou et al., 2026). Existing theoretical approaches provide valuable but partial explanations. Epidemiology identifies risk factors; health literacy explains how information is accessed and understood; behaviour change theory identifies determinants of behavioural adoption; implementation science explains contextual influences; and realist evaluation provides an explanatory methodology for understanding intervention effectiveness. However, these perspectives have rarely been integrated into a single conceptual architecture specifically addressing digital dementia risk-reduction education.

The principal contribution of this framework is the identification of interpretative engagement as the central generative mechanism linking educational resources with behavioural readiness. This concept extends traditional information-deficit approaches by recognising that individuals actively construct meaning from health information within their personal, social, and cultural contexts. Information alone is therefore insufficient to generate behaviour change. Instead, behavioural readiness emerges through the interaction of contextual conditions, educational resources, and interpretative processes. This conceptualisation is consistent with realist philosophy, which argues that interventions work not because of the resources they provide alone but because of the mechanisms those resources activate within particular contexts [20,21]. Consequently, variation in intervention effectiveness should not be interpreted as evidence of intervention failure but as an indication that different contextual conditions activate different mechanisms across different populations. This perspective has important implications for the design and evaluation of digital public health interventions, suggesting that future research should prioritise explanation rather than simple measures of effectiveness. The framework also contributes methodologically by illustrating how iterative conceptual scholarship can evolve into an empirically testable programme theory. Rather than presenting isolated conceptual publications, this manuscript demonstrates how successive theoretical developments collectively establish a coherent research agenda.

In doing so, it provides a model for integrating conceptual and empirical research within public health scholarship.

STRENGTHS AND LIMITATIONS

The principal strength of this paper lies in its systematic integration of multiple complementary theoretical traditions into a unified explanatory framework. By synthesising concepts from dementia prevention literacy, health literacy, behaviour change theory, implementation science, and realist evaluation, the framework provides a broader theoretical perspective than would be possible through reliance upon any individual discipline.

A second strength is that the framework has been explicitly developed to support empirical investigation. Unlike many conceptual models that remain descriptive, the present framework functions as an initial programme theory that can be refined through mixed-methods realist evaluation.

Several limitations should also be acknowledged. First, the framework remains conceptual and has not yet undergone empirical testing. The proposed mechanisms and Context-Mechanism-Outcome configurations therefore represent theoretically informed propositions requiring empirical refinement. Second, the framework has been developed primarily within the context of digital dementia risk-reduction education and may require adaptation before application to other public health domains. Finally, while the framework integrates multiple theoretical perspectives, additional concepts may emerge during empirical investigation that further refine or extend the programme theory. These limitations should be regarded not as weaknesses but as opportunities for continued theoretical development through realist inquiry.

IMPLICATIONS FOR RESEARCH AND PRACTICE

The framework has several implications for future research. For researchers, it provides an explanatory model capable of guiding realist evaluations of digital dementia prevention interventions. For intervention developers, it highlights the importance of designing educational resources that actively facilitate interpretative engagement rather than simply increasing information exposure. For policymakers and public health practitioners, the framework reinforces the importance of considering contextual influences when implementing digital prevention strategies across diverse populations.

More generally, by producing theoretically grounded program theories that facilitate the production of cumulative knowledge, the program demonstrates how conceptual scholarship may directly contribute to implementation science.

CONCLUSION

This paper has synthesised five interconnected conceptual publications into an integrated programme of scholarship culminating in the development of a Realist-Informed Conceptual Framework for Digital Dementia Risk-Reduction Education. Rather than presenting another narrative review of dementia prevention, the manuscript demonstrates how iterative

conceptual development can generate a coherent explanatory framework capable of supporting future empirical investigation.

The framework advances current understanding by integrating dementia prevention literacy, health literacy, behaviour change theory, implementation science, and realist evaluation within a unified conceptual architecture. Central to this integration is the proposition that exposure to information alone is insufficient to produce behavioural change. Instead, behavioural readiness emerges through interpretative engagement, a context-sensitive generative mechanism through which individuals actively construct meaning from dementia prevention information.

The framework therefore represents both the culmination of an integrated programme of scholarship and the conceptual foundation for the next stage of research. Operationalised through mixed-methods realist evaluation, it provides an initial programme theory that can be systematically refined through empirical investigation. In doing so, it offers a structured pathway for understanding how digital dementia risk-reduction education works, for whom it works, under what contextual conditions, and why.

Beyond its contribution to dementia prevention, the framework demonstrates the value of sustained conceptual scholarship as a precursor to empirical research. It illustrates how iterative theoretical integration can establish coherent research programmes capable of informing intervention design, implementation, evaluation, and knowledge translation across complex public health settings.

Ultimately, the Realist-Informed Conceptual Framework provides a foundation for reducing the persistent evidence-to-action gap in dementia prevention and contributes to the broader advancement of digital health promotion by offering a scalable, theoretically rigorous methodology to transform public health information into lasting behavioural change.

DECLARATIONS

CONFLICT OF INTEREST

The author declares no conflicts of interest.

AUTHOR CONTRIBUTIONS

Sole author conceptualisation and manuscript development.

FUNDING STATEMENT

This research received no external financial funding.

DATA AVAILABILITY

No datasets were generated or analysed during this conceptual review.

ETHICAL APPROVAL

Not required for this conceptual scholarship and theoretical framework study.

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