Expanded Matrix of Theories

Upgraded from the 2020 University of Arizona "Matrix of Theories" student project by **Ashley Reed (AR), Caroline Tuskai (CT), James Lopez (JL), Naif Alessa (NA)**

Purpose: This document rebuilds the original theory matrix into a graduate-level reference table. It preserves the spirit of the student project while correcting terminology, expanding measurement detail, and adding contemporary frameworks used in intervention design, implementation science, equity, behavioral insights, and digital health.

#	Theory / Model / Framework	Original Author(s) / Developer(s) and Year	Level of Influence	Core Constructs	Measurement Instruments / Operationalization	Best Use Cases in Public Health and Health Promotion	Strengths	Limitations	Foundational Citation
1	**Theory of Planned Behavior**	Icek Ajzen; introduced in 1985 and formalized in 1991	Individual / interpersonal	Attitude toward behavior; subjective norm; perceived behavioral control; behavioral intention; behavior; underlying behavioral, normative, and control beliefs.	Direct and indirect TPB belief questionnaires; Likert-type items for attitude, subjective norm, perceived behavioral control, and intention; behavior measured through self-report, observation, or administrative data.	Predicting and designing interventions for intentional health behaviors such as screening, vaccination, medication adherence, physical activity, and reproductive health.	Strong explanatory model for intention; clear construct structure; useful for formative research and questionnaire development.	Less effective for habitual, emotional, automatic, or highly constrained behaviors; intention-behavior gap remains common.	Ajzen, I. (1991). The theory of planned behavior. Organizational Behavior and Human Decision Processes.
2	**Theory of Reasoned Action**	Martin Fishbein and Icek Ajzen; developed across late 1960s-1970s and formalized in 1980	Individual / interpersonal	Attitude toward behavior; subjective norm; behavioral intention; behavior; behavioral beliefs; outcome evaluations; normative beliefs; motivation to comply.	Belief x evaluation measures; normative belief x motivation-to-comply measures; intention scales; behavior-specific self-report or observed behavior.	Useful for volitional behaviors where perceived control is not the main barrier.	Foundational model for later TPB; simple and useful for attitude-norm-intention pathways.	Does not adequately include perceived control, ability, environmental barriers, or structural constraints.	Fishbein, M., & Ajzen, I. (1975/1980). Belief, attitude, intention, and behavior / Understanding attitudes and predicting social behavior.
3	**Health Belief Model**	Developed in the U.S. Public Health Service in the 1950s; associated with Hochbaum, Rosenstock, Kegeles, Leventhal, Becker, and later contributors	Individual	Perceived susceptibility; perceived severity; perceived benefits; perceived barriers; cues to action; self-efficacy; modifying factors.	Disease- and behavior-specific HBM scales; perceived risk and severity items; barrier/benefit scales; cues-to-action assessment; self-efficacy measures.	Screening, vaccination, medication adherence, prevention behaviors, risk communication, and chronic disease self-management.	Practical and easy to apply; helpful for risk perception and barrier reduction.	Can be overly individualistic; limited attention to norms, environment, policy, and social inequity.	Rosenstock, I. M. (1974). Historical origins of the Health Belief Model. Health Education Monographs.
4	**Protection Motivation Theory**	R. W. Rogers, 1975; revised in 1983	Individual / risk perception	Threat appraisal: perceived severity, vulnerability, intrinsic/extrinsic rewards. Coping appraisal: response efficacy, self-efficacy, response cost. Protection motivation/intention.	PMT questionnaires assessing severity, vulnerability, rewards, response efficacy, self-efficacy, response cost, and intention; behavioral follow-up measures.	Risk communication, smoking prevention, disaster preparedness, vaccination, cybersecurity health behavior, and preventive action.	Clearly separates threat appraisal from coping appraisal; useful for fear-appeal and risk-message design.	Fear-based messages may backfire when efficacy is low; less attention to social and structural determinants.	Rogers, R. W. (1975). A protection motivation theory of fear appeals and attitude change. Journal of Psychology.
5	**Social Cognitive Theory**	Albert Bandura, 1986; expanded from earlier Social Learning Theory	Individual / interpersonal / environmental	Reciprocal determinism; self-efficacy; observational learning/modeling; outcome expectations; reinforcement; self-regulation; facilitation; collective efficacy.	Self-efficacy scales; self-monitoring logs; goal-setting records; observational learning exposure; social support measures; environmental audits; behavioral outcomes.	Diabetes self-management, physical activity, nutrition, peer-led education, digital coaching, and chronic disease behavior change.	Integrates personal, behavioral, and environmental determinants; strong emphasis on self-efficacy and modeling.	Broad and sometimes difficult to operationalize fully; interventions may select only a few constructs.	Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory.
6	**Transtheoretical Model / Stages of Change Model**	James O. Prochaska and Carlo C. DiClemente; developed from late 1970s-1980s; influential 1992 formulation	Individual	Stages of change: precontemplation, contemplation, preparation, action, maintenance, sometimes termination. Processes of change; decisional balance; self-efficacy/temptation.	Stage classification algorithms; decisional balance scales; process-of-change scales; self-efficacy/temptation measures; behavior-specific follow-up.	Smoking cessation, physical activity counseling, diet change, screening readiness, and tailored health communication.	Supports stage-tailored interventions and readiness assessment.	Stage boundaries can be unstable; less suitable for complex behaviors with repeated relapse and contextual barriers.	Prochaska, J. O., & DiClemente, C. C. (1983). Stages and processes of self-change of smoking.
7	**Information-Motivation-Behavioral Skills Model**	Jeffrey D. Fisher and William A. Fisher, 1992	Individual	Information; motivation; behavioral skills; behavior; sometimes moderating effects between skills and motivation/information.	Knowledge tests; motivation scales; perceived social support/norms; behavioral skills demonstrations; self-efficacy; adherence or preventive behavior outcomes.	HIV prevention, PrEP uptake, medication adherence, diabetes medication adherence, sexual health, and health literacy-linked interventions.	Clear intervention logic: people need accurate information, motivation, and skills.	Can underemphasize structural barriers, access, stigma, and policy context.	Fisher, J. D., & Fisher, W. A. (1992). Changing AIDS-risk behavior.
8	**Precaution Adoption Process Model**	Neil D. Weinstein and Peter M. Sandman; developed 1988-2002	Individual / risk decision-making	Seven stages: unaware, unengaged, deciding, decided not to act, decided to act, acting, maintenance.	Stage classification items; awareness and engagement items; risk perception and decision-status questions; behavior and maintenance follow-up.	Screening, vaccination, radon testing, genetic testing, disaster preparedness, and one-time precautionary actions.	Distinguishes unawareness from indecision and from deciding not to act.	Less useful for continuous lifestyle behaviors; fewer standardized instruments than some other models.	Weinstein, N. D. (1988). The precaution adoption process. Health Psychology.
9	**Ecological Systems Theory / Social Ecological Model**	Urie Bronfenbrenner, 1979; adapted in public health by McLeroy and others	Multilevel: individual, interpersonal, organizational, community, policy, temporal	Individual; microsystem; mesosystem; exosystem; macrosystem; chronosystem; public health adaptations include individual, interpersonal, organizational, community, and policy levels.	Multilevel needs assessment; surveys; environmental scans; policy analysis; organizational assessment; community mapping; geospatial and systems data.	Community health, school health, obesity prevention, health equity, workplace health promotion, environmental/policy interventions.	Captures context and upstream determinants; supports multilevel intervention design.	Less specific about psychological mechanisms and active behavior-change ingredients.	Bronfenbrenner, U. (1979). The ecology of human development.

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10	**Social Network Theory / Social Network Analysis**	Network tradition involving Moreno, Barnes, Milgram, Granovetter, Wellman, Burt, and others	Interpersonal / community / systems	Nodes/actors; ties; dyads; triads; density; centrality; betweenness; homophily; structural holes; diffusion pathways; social contagion.	Whole-network or egocentric network surveys; sociograms; centrality metrics; density; community detection; digital trace data; stakeholder mapping.	Misinformation, HIV prevention, peer influence, obesity, smoking, vaccine diffusion, opinion leaders, community engagement.	Identifies influence structures and information pathways; useful for selecting peer leaders and diffusion channels.	Requires network data and analytic capacity; privacy and ethics issues can be significant.	Granovetter, M. S. (1973). The strength of weak ties. American Journal of Sociology.
11	**Diffusion of Innovations**	Everett M. Rogers, 1962	Organizational / community / systems	Innovation; communication channels; time; social system; adopter categories; relative advantage; compatibility; complexity; trialability; observability.	Adoption rate; adopter-category analysis; perceived innovation attribute scales; implementation tracking; communication-channel mapping.	Clinical practice adoption, technology adoption, community intervention spread, health communication, public health program scaling.	Strong for adoption and spread across systems; useful for implementation planning.	Less detailed about individual motivation and structural inequities; may overemphasize adoption as linear.	Rogers, E. M. (2003). Diffusion of innovations (5th ed.).
12	**Minority Stress Theory**	Ilan H. Meyer, 2003; building on earlier stress and stigma research	Structural / psychosocial / equity	Distal stressors; proximal stressors; discrimination; victimization; expectations of rejection; concealment; internalized stigma; coping; social support; mental health outcomes.	Discrimination and stigma scales; internalized stigma measures; concealment measures; mental health scales; intersectional stress assessments.	LGBTQ+ health, racism and discrimination, stigma-related disparities, mental health, substance use, sexual health.	Connects social marginalization and structural stigma to health outcomes.	Often studied cross-sectionally; must be expanded intersectionally and structurally to avoid individualizing oppression.	Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations.
13	**Self-Determination Theory**	Edward L. Deci and Richard M. Ryan; 1985 and later major formulations	Individual / motivational / interpersonal context	Autonomy; competence; relatedness; intrinsic motivation; extrinsic motivation; internalization; autonomy support.	Basic Psychological Need Satisfaction scales; Treatment Self-Regulation Questionnaire; Intrinsic Motivation Inventory; perceived autonomy support scales.	Physical activity, diet, medication adherence, chronic disease self-management, education, coaching, patient-centered counseling.	Strong theory of motivation quality, autonomy, and sustained behavior change.	Requires careful distinction between motivation types; autonomy support can be difficult to implement in controlling systems.	Deci, E. L., & Ryan, R. M. (1985). Intrinsic motivation and self-determination in human behavior.
14	**Social Norms Theory**	Perkins and Berkowitz, 1986 in college alcohol prevention; broader norms literature extends beyond this	Interpersonal / social influence / community	Descriptive norms; injunctive norms; perceived norms; actual norms; reference group; pluralistic ignorance; empirical and normative expectations.	Norm perception surveys; actual-vs-perceived norm comparisons; reference group assessment; exposure to normative feedback; behavior outcomes.	Alcohol prevention, tobacco, adolescent risk behavior, vaccination, sexual health, sanitation, gender norms, child marriage prevention.	Useful for correcting misperceptions and designing normative feedback.	Can fail if harmful norms are accurate, strongly enforced, or supported by structural incentives.	Perkins, H. W., & Berkowitz, A. D. (1986). Perceiving the community norms of alcohol use.
15	**COM-B Model**	Susan Michie, Maartje van Stralen, and Robert West, 2011	Individual / social / environmental diagnostic model	Capability: physical and psychological; opportunity: physical and social; motivation: reflective and automatic; behavior.	Behavioral diagnosis using COM-B interviews, surveys, observation, and barrier/facilitator mapping.	Diagnosing why a behavior is or is not occurring before selecting intervention functions.	Simple, comprehensive, and practical bridge between theory and intervention design.	Needs Behavior Change Wheel and BCT mapping for full intervention specification.	Michie, S., van Stralen, M. M., & West, R. (2011). The behaviour change wheel.
16	**Behavior Change Wheel**	Susan Michie, Maartje van Stralen, and Robert West, 2011	Intervention design / policy	COM-B at the hub; intervention functions; policy categories; links to behavior change techniques.	COM-B diagnosis; BCW mapping; APEASE criteria: affordability, practicability, effectiveness/cost-effectiveness, acceptability, side-effects/safety, equity.	Designing complex behavior-change interventions and selecting intervention functions and policy supports.	Connects behavioral diagnosis to intervention functions and policy categories.	Requires training and careful application; mapping can be subjective if poorly documented.	Michie, S., van Stralen, M. M., & West, R. (2011). The behaviour change wheel.
17	**Theoretical Domains Framework**	Originally synthesized by Michie and colleagues; refined by Cane, O'Connor, and Michie in 2012	Implementation / behavior diagnosis	Knowledge; skills; social/professional role and identity; beliefs about capabilities; optimism; beliefs about consequences; reinforcement; intentions; goals; memory/attention/decision processes; environmental context/resources; social influences; emotion; behavioral regulation.	TDF-based interview guides; surveys; qualitative framework analysis; barrier/facilitator coding.	Diagnosing barriers and enablers to evidence-based practice among clinicians, patients, and organizations.	Integrates constructs from many theories; strong for implementation research.	Large domain set can be complex; does not itself prescribe interventions unless linked to BCTs or BCW.	Cane, J., O'Connor, D., & Michie, S. (2012). Validation of the theoretical domains framework.
18	**Behavior Change Technique Taxonomy**	Susan Michie and colleagues, 2013	Intervention content specification	93 behavior change techniques grouped into 16 clusters, such as goals/planning, feedback/monitoring, social support, shaping knowledge, comparison of behavior, repetition/substitution, and reward/threat.	Coding manuals; BCTTv1 coding of intervention descriptions; fidelity checklists; intervention reporting templates.	Specifying, reporting, replicating, and synthesizing behavior-change intervention content.	Improves precision and reproducibility of intervention descriptions.	Taxonomy identifies techniques but does not explain mechanisms alone.	Michie, S., et al. (2013). The Behavior Change Technique Taxonomy (v1). Annals of Behavioral Medicine.
19	**Intervention Mapping**	Bartholomew, Parcel, Kok, Gottlieb, and colleagues; 1998 onward	Program planning / multilevel intervention development	Needs assessment; matrices of change objectives; theory-based methods; practical applications; program production; implementation planning; evaluation planning.	Planning matrices; logic models; performance objectives; determinants; change objectives; process and outcome evaluation indicators.	Designing comprehensive health promotion programs with explicit theory-method-application links.	Systematic, transparent, and theory-driven planning process.	Time-intensive and can be demanding for small teams or rapid projects.	Bartholomew Eldredge, L. K., et al. (2016). Planning health promotion programs: An Intervention Mapping approach.
20	**RE-AIM Framework**	Russell E. Glasgow, Thomas M. Vogt, and Shawn M. Boles, 1999	Evaluation / implementation / public health impact	Reach; effectiveness/efficacy; adoption; implementation; maintenance.	RE-AIM indicators at individual and setting levels; adoption rates; fidelity; cost; maintenance over time.	Evaluating translational and real-world public health impact of interventions.	Balances internal and external validity; emphasizes reach, adoption, and sustainability.	Not a causal theory of behavior; requires careful indicator selection.	Glasgow, R. E., Vogt, T. M., & Boles, S. M. (1999). Evaluating the public health impact of health promotion interventions.

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21	**PRECEDE-PROCEED Model**	Lawrence W. Green and Marshall W. Kreuter; 1970s-1990s development	Planning / ecological / evaluation	PRECEDE: social, epidemiological, behavioral/environmental, educational/ecological, administrative/policy assessment. PROCEED: implementation, process evaluation, impact evaluation, outcome evaluation.	Community needs assessment; determinant mapping; administrative/policy assessment; process, impact, and outcome evaluation measures.	Comprehensive health promotion planning, community interventions, policy-linked programs.	Strong planning and evaluation logic; emphasizes community and ecological diagnosis.	Can be complex and resource-intensive.	Green, L. W., & Kreuter, M. W. (2005). Health program planning: An educational and ecological approach.
22	**Social Determinants of Health Framework**	WHO Commission on Social Determinants of Health and related public health traditions	Structural / systems / policy	Income; education; employment; housing; food security; social protection; discrimination; neighborhood environment; health care access; political and economic context.	Population health indicators; equity stratification; deprivation indices; policy analysis; geospatial data; qualitative community assessment.	Health equity, chronic disease prevention, maternal-child health, mental health, community health assessment, policy advocacy.	Centers upstream causes of health inequities.	Broad framework; not a specific behavior-change theory or intervention recipe.	World Health Organization Commission on Social Determinants of Health. (2008). Closing the gap in a generation.
23	**Health Literacy Frameworks**	Nutbeam; Sørensen and colleagues; evolving 1990s-2010s	Individual / organizational / system	Accessing, understanding, appraising, and applying health information; functional, interactive, and critical health literacy; organizational health literacy.	Health literacy scales such as HLS-EU-Q, REALM, TOFHLA, Newest Vital Sign; readability and plain-language assessment; organizational health literacy audits.	Patient education, navigation, chronic disease management, informed decision-making, communication equity.	Connects communication, empowerment, and system complexity.	Measurement varies across tools and languages; must avoid blaming individuals for system communication failures.	Nutbeam, D. (2000). Health literacy as a public health goal.
24	**Nudge Theory / Choice Architecture**	Richard Thaler and Cass Sunstein, 2008; rooted in behavioral economics	Environmental / policy / behavioral economics	Defaults; salience; framing; incentives; feedback; friction; simplification; social comparison; commitment devices.	Choice environment audits; A/B tests; uptake rates; sales or selection data; behavioral outcome metrics; process evaluation.	Nutrition labeling, cafeteria design, vaccination appointment defaults, medication adherence, screening reminders, active choice designs.	Scalable and practical; targets real-world decision environments.	Ethical concerns about autonomy; may be insufficient for structural inequities or complex sustained behavior change.	Thaler, R. H., & Sunstein, C. R. (2008). Nudge.
25	**Behavioral Economics Approaches to Health Behavior**	Kahneman, Tversky, Thaler, Loewenstein, and others	Individual / environmental / policy	Bounded rationality; present bias; loss aversion; defaults; incentives; mental accounting; heuristics; framing; commitment.	Experimental trials; discrete choice experiments; behavioral outcome data; incentive response; decision process measures.	Medication adherence, preventive care, insurance decisions, healthy eating, physical activity, smoking cessation.	Explains why people do not always act according to knowledge or intention.	Can overemphasize individual decision architecture without addressing power, access, or material constraints.	Kahneman, D., & Tversky, A. (1979). Prospect theory.
26	**Behavioral and Cultural Insights**	WHO and applied behavioral science/public health traditions; expanded in 2010s-2020s	Policy / systems / culture / community	Behavioral barriers and facilitators; trust; norms; culture; service experience; communication context; local meaning; acceptability.	Mixed-methods behavioral diagnosis; rapid qualitative assessment; surveys; journey mapping; service design; implementation feedback.	Vaccination, emergency response, health communication, service uptake, policy design, community engagement.	Context-sensitive and practical for real-world public health policy and communication.	Requires local data; can be misused if reduced to messaging without addressing structural barriers.	WHO Regional Office for Europe. Behavioural and cultural insights resources.
27	**Digital Behavior Change Intervention Frameworks**	Yardley, Michie, Morrison, and digital health behavior change scholars; 2010s onward	Digital / individual / system	Engagement; usability; acceptability; tailoring; persuasive design; interactivity; therapeutic alliance; adherence; digital equity.	Usage analytics; engagement metrics; attrition; usability testing; acceptability scales; qualitative user feedback; behavioral and clinical outcomes.	Mobile apps, web interventions, SMS programs, telehealth coaching, digital chronic disease management.	Fits modern delivery channels and supports scalable, tailored interventions.	High attrition, digital divide, privacy issues, and uncertain sustained engagement.	Yardley, L., et al. (2015/2016). Person-based approach and digital intervention development literature.
28	**Just-in-Time Adaptive Interventions**	Nahum-Shani, Almirall, Murphy, and colleagues; 2010s, major 2018 formulation	Digital / adaptive / personalized	Decision points; tailoring variables; intervention options; decision rules; proximal outcomes; distal outcomes; adaptation over time.	Ecological momentary assessment; sensor data; mobile analytics; micro-randomized trials; proximal outcome tracking.	Physical activity prompts, smoking cessation support, medication reminders, substance use prevention, mental health support.	Highly personalized and context-aware; supports real-time intervention delivery.	Technically complex; requires data governance, ethics, and careful burden management.	Nahum-Shani, I., et al. (2018). Just-in-time adaptive interventions in mobile health.
29	**Consolidated Framework for Implementation Research**	Laura Damschroder and colleagues, 2009; updated 2022	Implementation context	Innovation; outer setting; inner setting; individuals; implementation process; updated constructs and outcomes.	CFIR interview guides; surveys; qualitative coding templates; barrier/facilitator analysis.	Understanding implementation barriers and facilitators in health systems, clinics, and community organizations.	Comprehensive implementation determinant framework; widely used.	Not designed to explain individual health behavior directly; can be complex.	Damschroder, L. J., et al. (2009). Fostering implementation of health services research findings into practice.
30	**EPIS Framework**	Aarons, Hurlburt, and Horwitz, 2011	Implementation process / systems	Exploration; preparation; implementation; sustainment; outer context; inner context; bridging factors; innovation factors.	Phase-based implementation assessment; stakeholder interviews; implementation milestones; sustainment indicators.	Implementing evidence-based practices in public systems, behavioral health, social services, and health care.	Strong temporal lens from exploration to sustainment.	Less focused on individual behavior-change mechanisms.	Aarons, G. A., Hurlburt, M., & Horwitz, S. M. (2011). Advancing a conceptual model of evidence-based practice implementation.
31	**Normalization Process Theory**	Carl May, Tracy Finch, and colleagues; 2009 onward	Implementation / routine practice	Coherence; cognitive participation; collective action; reflexive monitoring.	NPT interview guides; NoMAD survey; workflow integration assessment; routine practice indicators.	Embedding new practices into routine care, digital health implementation, clinical workflow change.	Explains how innovations become normalized in everyday practice.	Less useful for early behavior diagnosis or population-level determinants.	May, C., & Finch, T. (2009). Implementing, embedding, and integrating practices.

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