



Implementing a Self-Efficacy-Based Auditory Rehabilitation Protocol: Barriers and Facilitators

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Disclaimer

- Lipika Sarangi is employed by the University of Arkansas for Medical Sciences.
- Lipika Sarangi received the UAMS Medical Endowment Research grant to complete project.
- No other financial or non-financial interests to disclose.

Person-Centered Care



What is Person-Centered Care (PCC) in Auditory Rehabilitation?

A person-centered approach to assessment and management of hearing loss that encourages the creation of a therapeutic environment conducive to a shared decision process necessary to explore and reduce the impact of hearing loss on communication, activities, and participations. (Montano 2014)

Auditory Rehabilitation

Self-efficacy

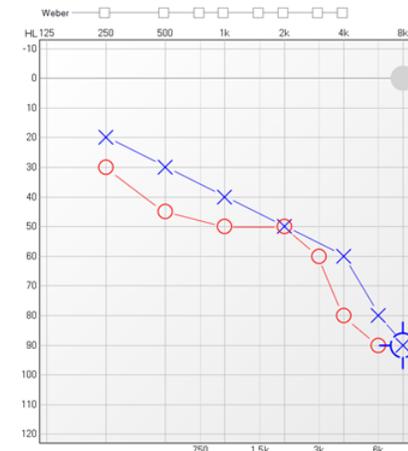
Motivation

Personality

Emotional State

Cognition

Support from others



Better
Cognition

Souza et al. 2015

More
Positive
Personality

Cox et al. 2005

Greater
Hearing
Aid Self-
Efficacy

Smith & West 2006



Support
from
others

Cox & Alexander 1992

Positive
Emotional
States

Picou et al., 2018

Greater
Motivation

Ridgway 2017

Better
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Support
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Support
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Self-Efficacy

- Individual's belief in their ability to effectively complete any task.
- Considered to be domain-specific.

If you believe, you can achieve!



Hearing Aid Self-Efficacy (HASE)

- Individual's belief in their ability to manage hearing aids effectively (West and Smith 2007).



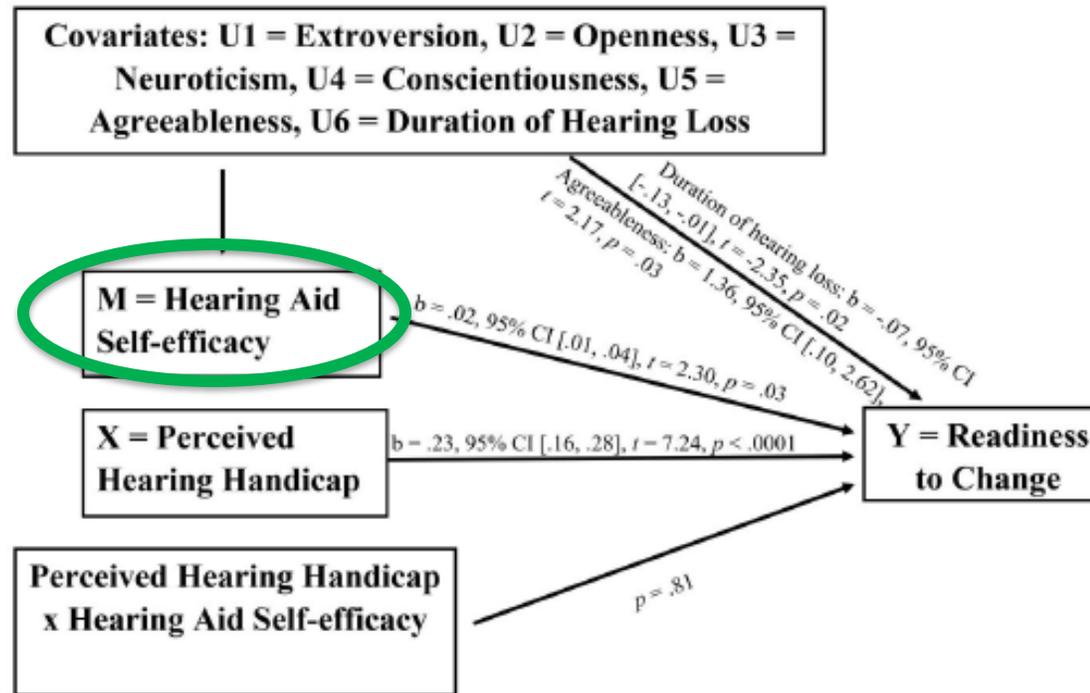
Hearing Aid and AR Success

Hearing Aid Self-Efficacy (HASE)

Higher HASE → Higher readiness to pursue HAs



Hearing Aid and AR Success



Sarang & Johnson 2024

Hearing Aid Self-Efficacy (HASE)

Higher HASE → Higher HAs adoption rate

Predicting interest in acquiring hearing aids

Predictor	Effect	P-value
Expected benefit	0.54	<0.001
Overall difficulty	0.31	<0.001
Self-efficacy	0.19	<0.001

But not: Difficulty in quiet, Hearing loss, Age, Free vs purchase, Attend with others, Number lived with, Conversations per week



Hearing Aid and
AR Success

Hearing Aid Self-Efficacy (HASE)

Higher HASE → Successful HA use

Table 3. Means and standard deviations (or counts and percentages, for categorical variables) and univariate *p*-values for independent variables (N = 160).

<i>Variable</i>	<i>Unsuccessful HA owners (n = 75)</i>	<i>Successful HA owners (n = 85)</i>	<i>NR</i>	<i>Univariate p-value</i>
MARS-HA				
Basic handling (0–100%)	91.6 (11.4)	98.2 (4.5)	2	<0.001
Adjustment (0–100%)	70.6 (23.8)	87.3 (17.3)	4	<0.001
Advanced handling (0–100%)	56.3 (26.9)	73.7 (17.7)	0	<0.001
Aided listening (0–100%)	70.3 (21.2)	80.1 (16.2)	0	<0.01



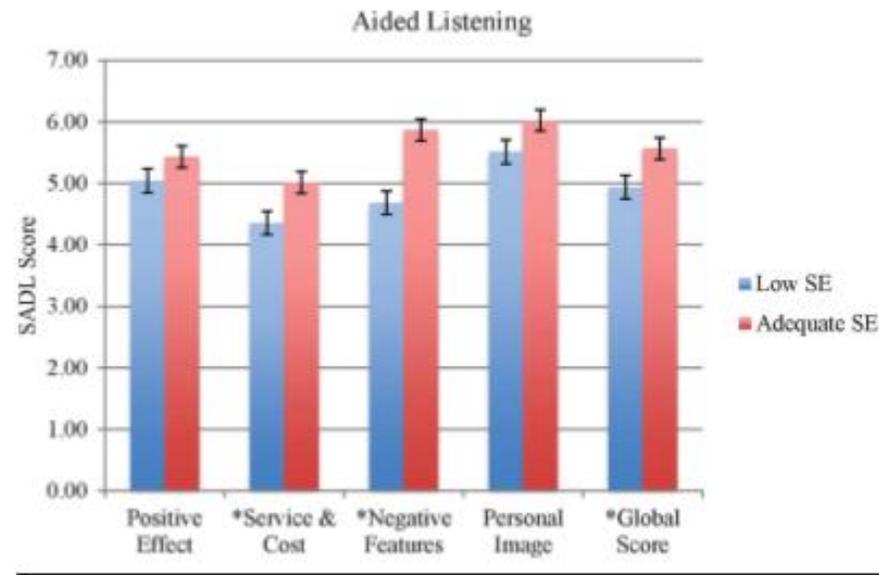
Hearing Aid and AR Success

Hickson et al, 2014

Hearing Aid Self-Efficacy (HASE)

Higher HASE → Higher HA satisfaction

Figure 1. Mean and standard errors (1 standard error from mean) for Satisfaction with Amplification in Daily Life for participants with low (<80%) and adequate (≥ 80%) self-efficacy (SE) on factor 1 of the Measure of Audiologic Rehabilitation Self-Efficacy for Hearing Aids. * $p < .05$.



Hearing Aid and
AR Success

Kelly-Campbell &
McMillan 2015

HASE in AR

1. Evaluate

Measure of Audiologic Rehabilitation Self-efficacy for HAs (MARS-HA) - 2007

Development of a hearing aid self-efficacy questionnaire

Robin L West ¹, Sherri L Smith

Affiliations + expand

PMID: 18049965 DOI: 10.1080/14992020701545898

- Basic Handling
- Advanced Handling
- Adjustment
- Aided Listening

6. I can identify the different components of a particular hearing aid (i.e., microphone, battery door, vent, sound outlet, etc.)

How certain are you that you can do this task? (circle a percentage)

0%	10	20	30	40	50	60	70	80	90	100%
Cannot do this at all					Moderately certain can do					I am certain I can do this

7. I can operate all the controls on a particular hearing aid (knobs, switches, and/or remote control) appropriately.

How certain are you that you can do this task? (circle a percentage)

0%	10	20	30	40	50	60	70	80	90	100%
Cannot do this at all					Moderately certain can do					I am certain I can do this

8. I can stop a hearing aid from squealing.

How certain are you that you can do this task? (circle a percentage)

0%	10	20	30	40	50	60	70	80	90	100%
Cannot do this at all					Moderately certain can do					I am certain I can do this

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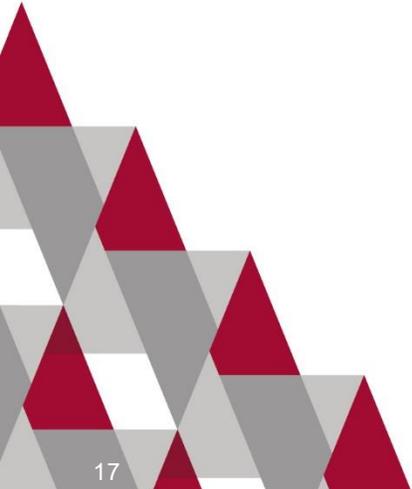
- Score of 80% or above is considered as having adequate self-efficacy.

- Basic Handling
- Advanced Handling
- Adjustment
- Aided Listening

HASE in AR

2. Incorporate in AR (Smith 2014)

Four sources that influence Self-Efficacy



HASE in AR

2. Incorporate in AR (Smith 2014)

Table 1. Self-Efficacy Enhancing Techniques Based on Each Source of Information.

Mastery Experience	Vicarious Experience	Verbal Persuasion	Physiologic/Affective States
Practice	Clinician model	Positive feedback	Determine reason for negative state
Repetition	Peer model	Constructive feedback	Supportive counseling
Parse skills into smaller subsets	Group setting	Feedback on effort	Take breaks
Role play	Cognitive rehearsal	Feedback on improvement	Redirect to simpler tasks
Real-world practice	Instructional videos	Supportive talk from significant others	Allow plenty of time
Set realistic goals	Self-observation	Pedagogic materials	Calm environment

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SEBAR (Self-efficacy-Based AR)

2. Incorporate in AR (Smith 2014)

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HASE in AR

SEBAR (Self-efficacy-Based AR)

AJA

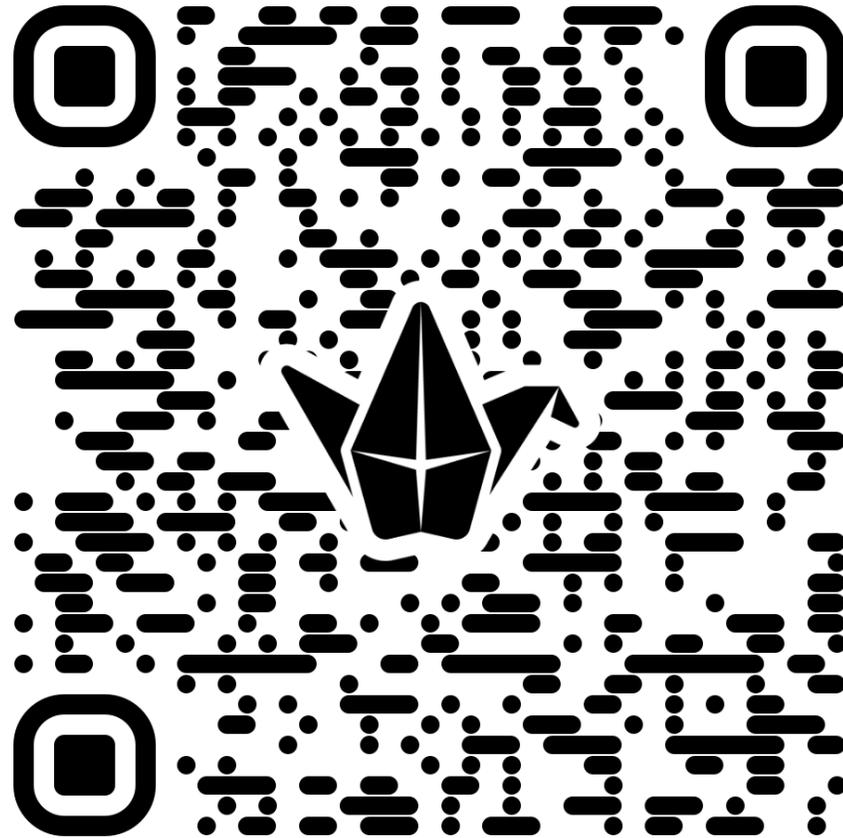
Research Article

Improving Hearing Aid Self-Efficacy and Utility Through Revising a Hearing Aid User Guide: A Pilot Study

Alexandra McMullan,^a Rebecca J. Kelly-Campbell,^a and Kim Wise^a

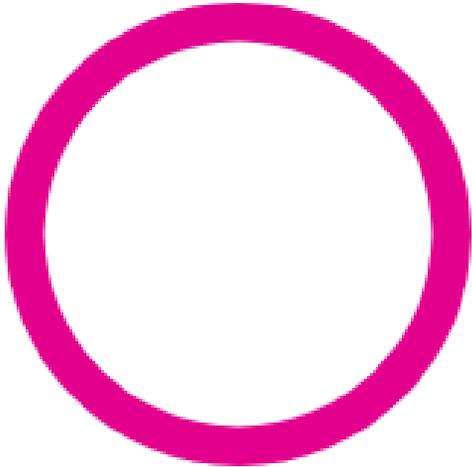
McMullan et al 2018

How important do you think HASE is in AR?



HASE in AR

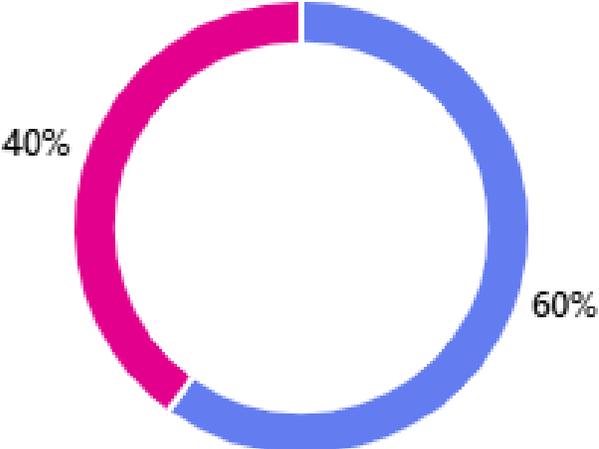
SEBAR (Self-efficacy-Based AR)



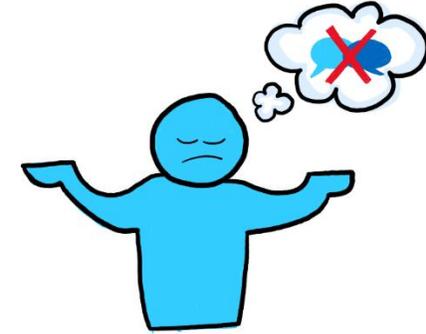
100%

Use of the MARS-HA

- Yes
- No



Use of SE-Enhancing Strategies



Qualitative Research Design: Approaches

Focuses on describing the shared lived experiences of individuals about a phenomenon.

Phenomenological Research

The single case is typically selected to illustrate an issue, and the researcher compiles a detailed description of the setting of the case.

Case Study Research

Focuses on the stories told from the individual and arranges them chronologically.

Narrative Research

Grounded Theory Research

Focuses on generating a theory about a phenomenon and not understanding existing theory.

Ethnographic Research

Focuses on setting the individuals' stories within the context of their culture and culture-sharing group.

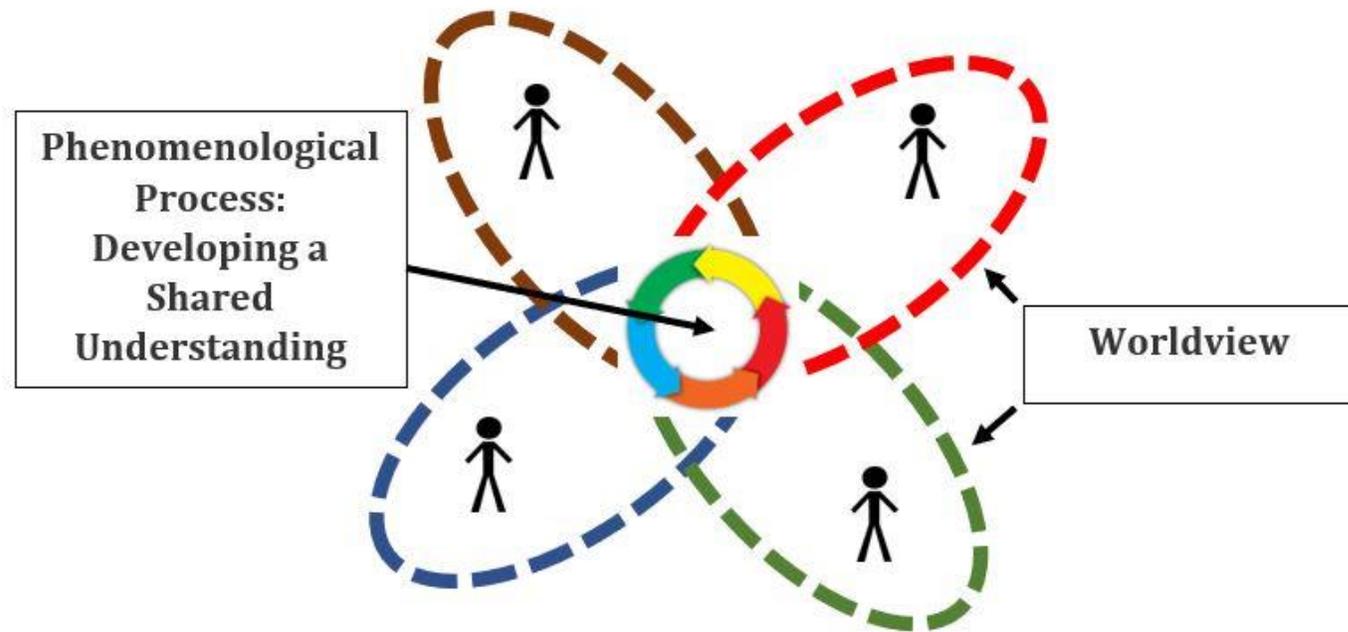


Qualitative Approaches

Phenomenological
Research



Qualitative
Approaches



Interpretive Phenomenology (IP) Approach

Incorporates the researcher's preconceptions about the phenomenon and integrates them while interpreting the research findings. Lopez & Willis 2004

Reflexivity Activity

“A qualitative researcher’s engagement of continuous examination and explanation of how they have influenced a research project” (Dowling, 2008, p. 2)

Personal Reflexivity



How are our unique perspectives influencing the research?



Reflect on:

- expectations, assumptions, and reactions to contexts, participants, and data
- how prior experiences and motivation shape decisions
- continuous reflection throughout the project

Interpersonal Reflexivity

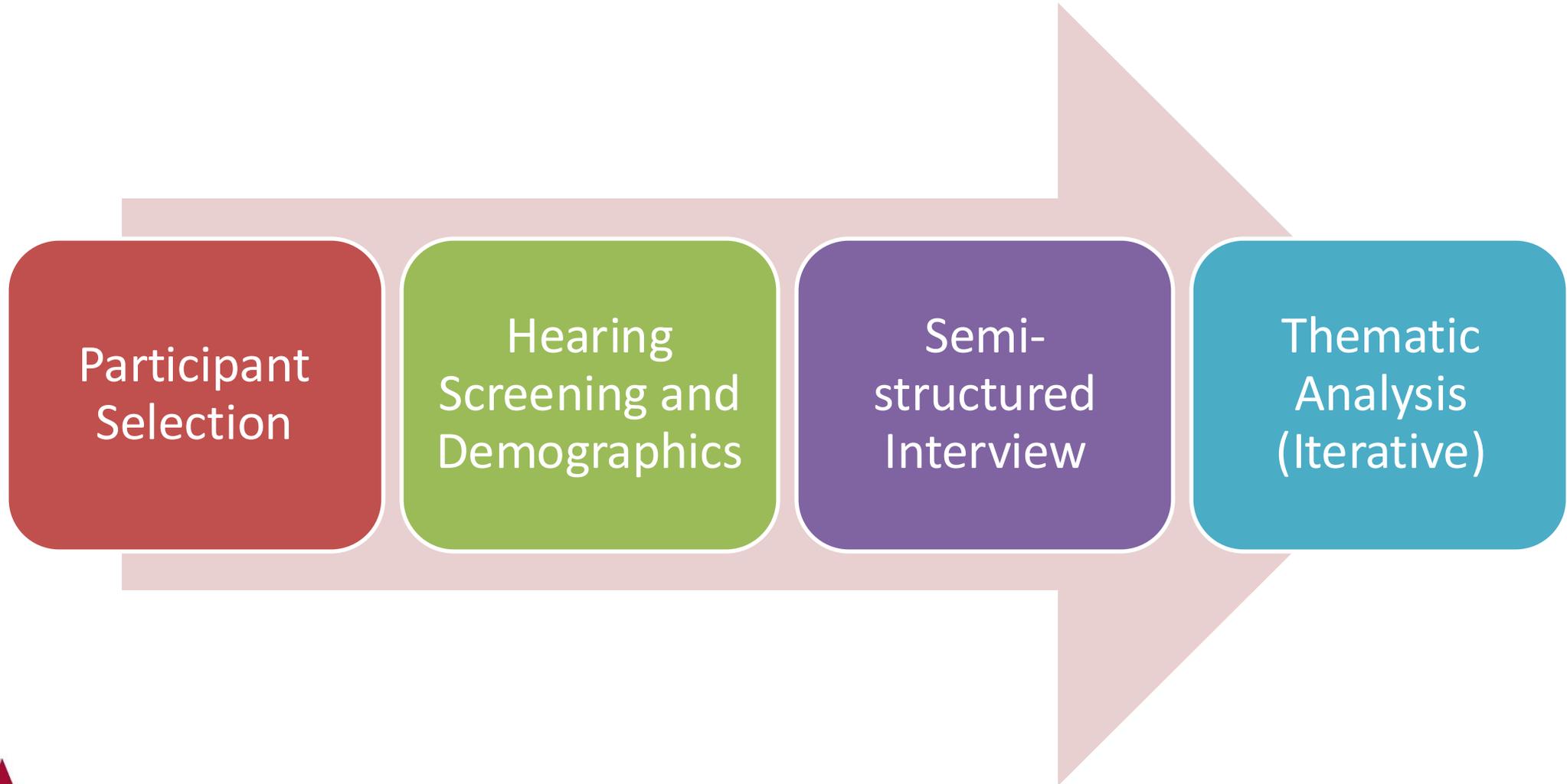
What relationships exist and how are they influencing the research and the people involved?
What power dynamics are at play?



Focus on:

- relationships between researcher and participants
- power dynamics (e.g. researcher as insider, authority figure)
- team dynamics and disagreements

Methods



Methods



Participant Selection

- A criterion sample of 5 audiologists, aged 18 years and older, using purposeful and convenient sampling techniques
- Typical hearing
- Provide adult AR services
- Fluent in English
- Good self-rated health

Methods

Hearing Screening and Demographics

- Age: 26 – 36 years old, all females
- Typical hearing: Passed hearing screening at 20 dB HL across frequencies (250 – 8000 Hz)
- Experience providing adult AR services: 4 months – 10 years
- Place of work: Private clinic (2), University clinic (2), VA hospital (1)

Methods

Semi-
structured
Interview

Researchers Discussed:

- Self-efficacy and HASE
- Four influencers of self-efficacy (Mastery experience, Vicarious experience, Verbal persuasion, and Physical & emotional states)
- Overview of the SEBAR (evaluation of HASE; use of self-efficacy-enhancing strategies in AR)

Methods

Semi-
structured
Interview

Preliminary Questions:

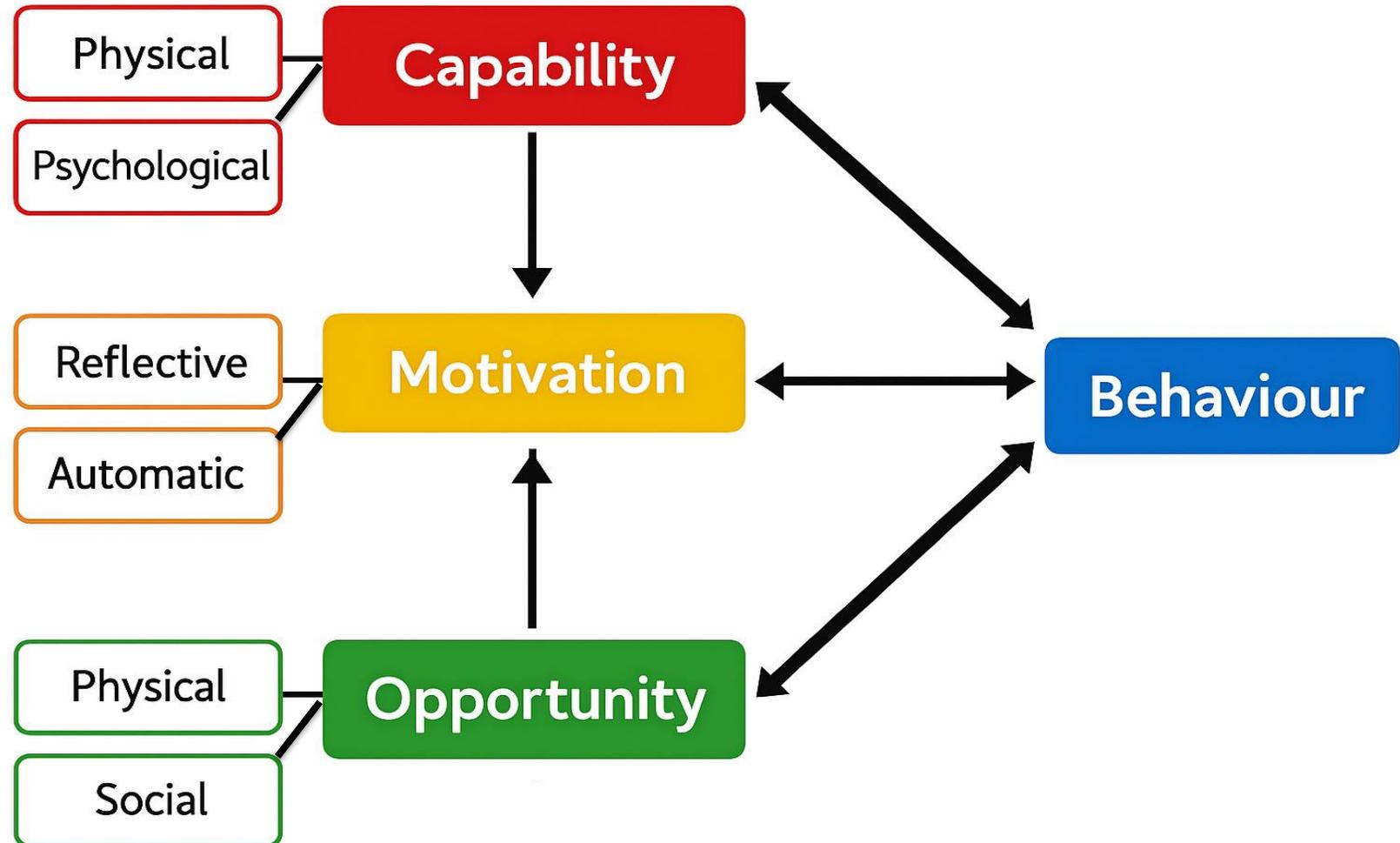
- Perceptions on the importance of HASE in AR
- Their knowledge and perceptions on the available methods to incorporate HASE in AR
- Any suggested changes to the MARS-HA

Methods

Primary Interview Questions:

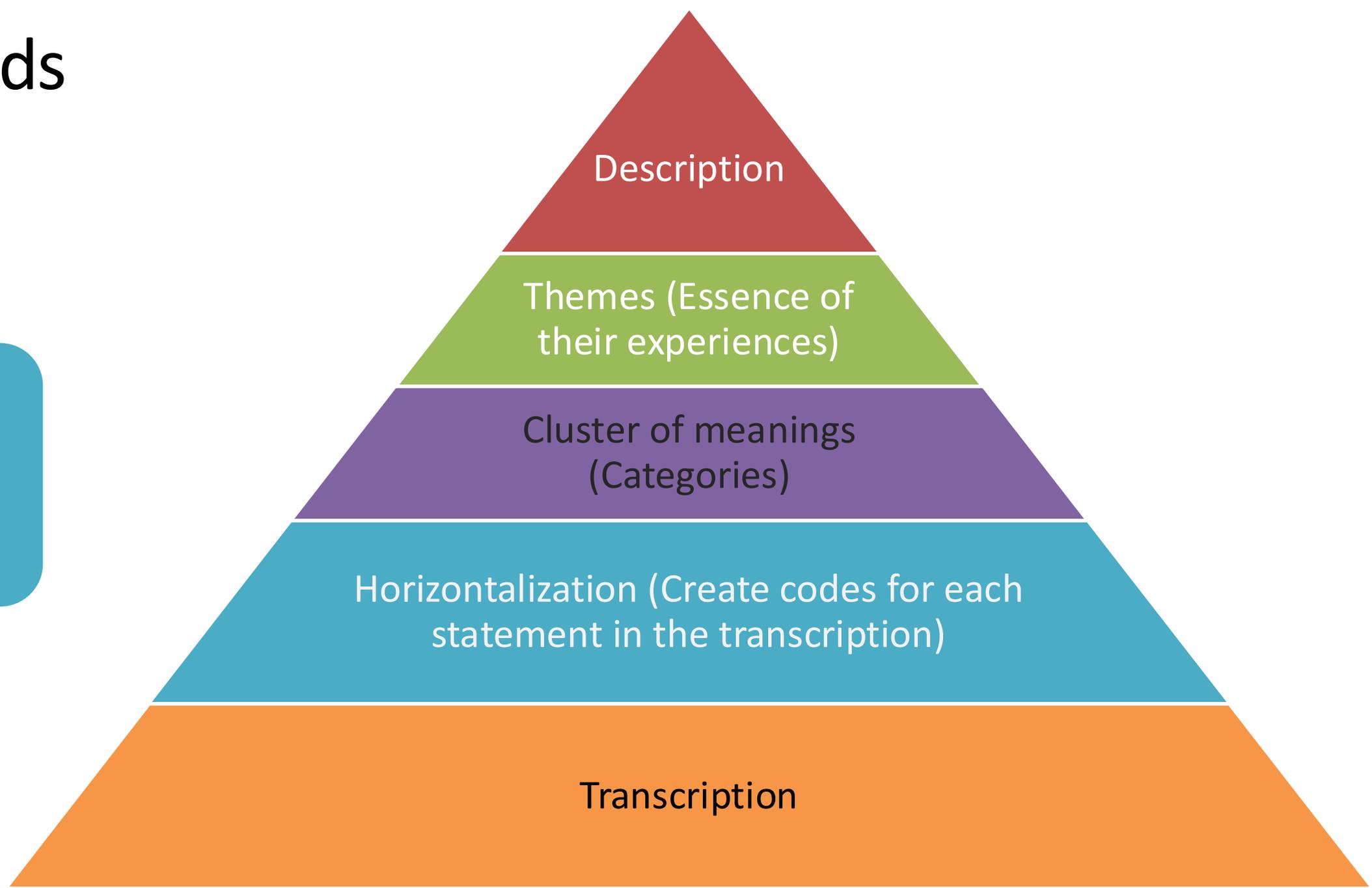
Designed using the Capability Opportunity Motivation – Behavior (COM-B) model of behavioral change

Semi-structured Interview



Methods

Thematic
Analysis
(Iterative)



Methods

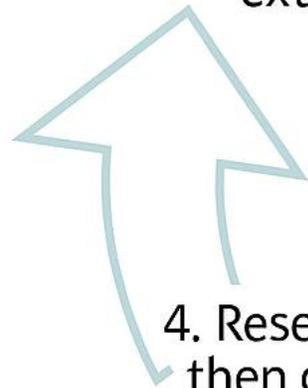
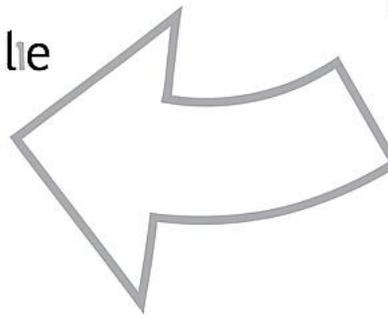
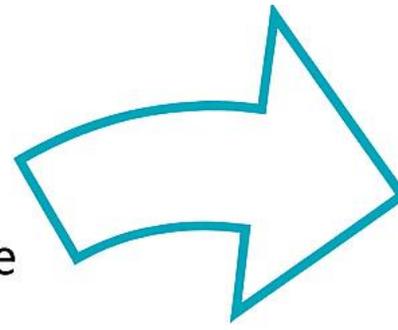
Thematic Analysis (Iterative)

1. Individual transcripts are read and significant phrases extracted

2. Researcher identifies emergent themes from these phrases

3. Themes from all transcripts are collected together and possible connections between themes are noted

4. Researcher then checks original transcripts to assess whether there is sufficient evidence in participants' discourse



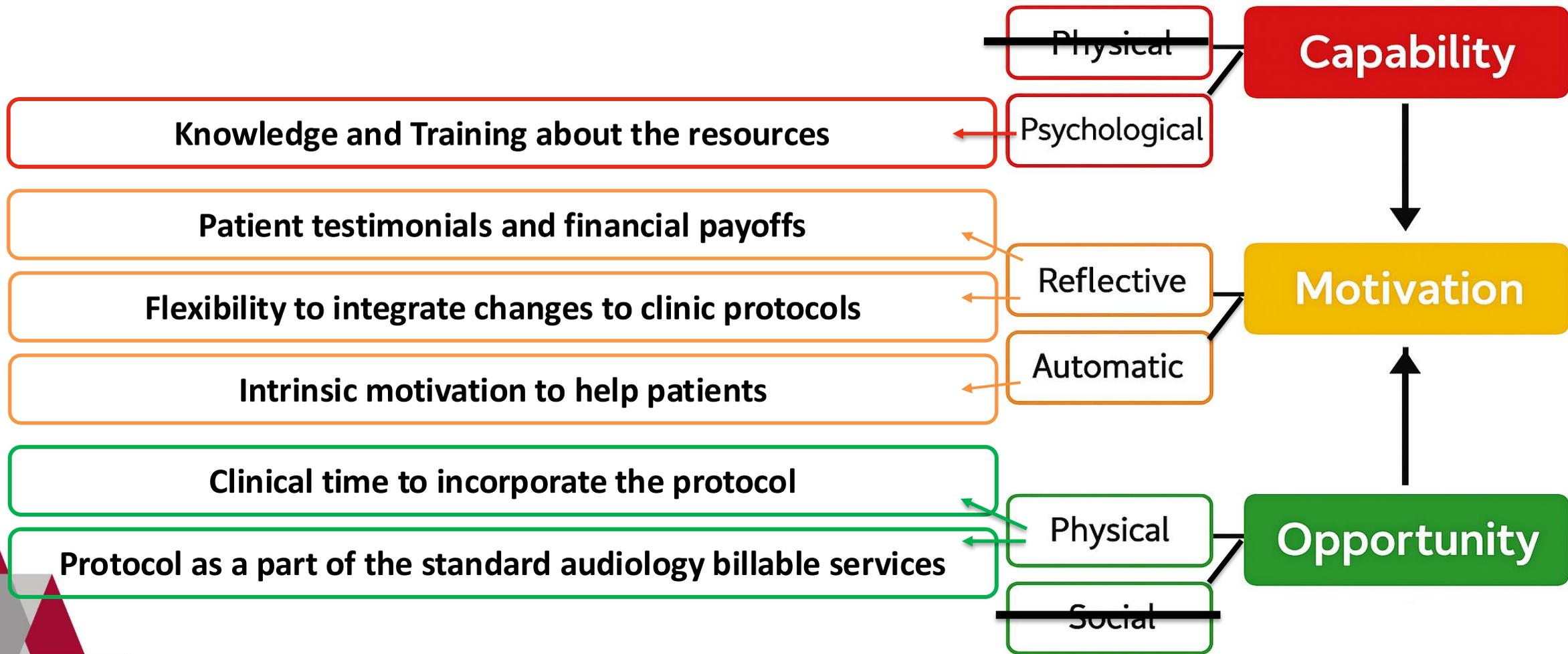


RESULTS

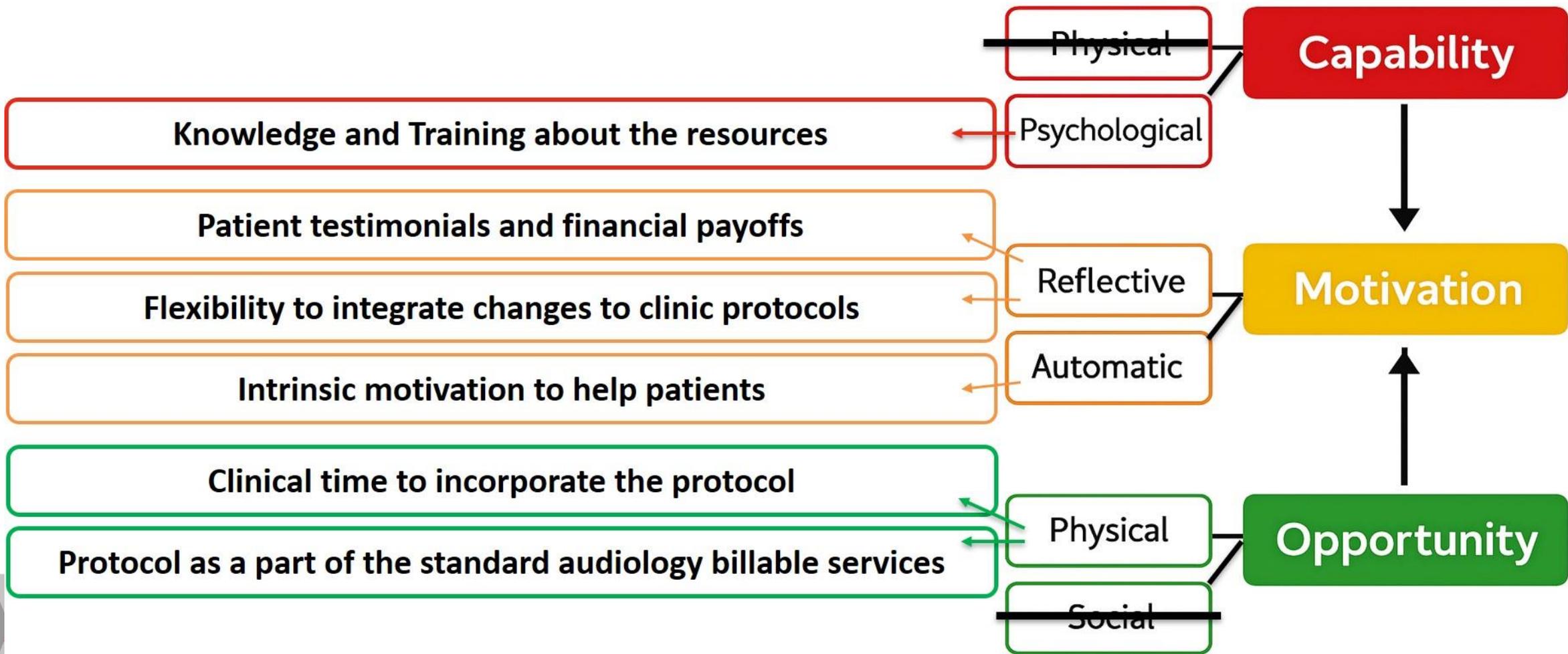
Preliminary Questions

- Perceptions on the importance of HASE in AR → HASE is crucial to individualized AR
- Available methods to incorporate HASE in AR → Informal interview and questions during the appointment
- Any suggested changes to the MARS-HA → Revise to incorporate current HA technology

Target Behavior: Implement the SEBAR Protocol



Target Behavior: Implement the SEBAR Protocol



Target Behavior: Implement the SEBAR Protocol

Knowledge and Training about the resources

Psychological

“Probably knowledge, because this is the first time I've seen this [MARS-HA]. So I think that's interesting. So just not being aware that this is out there that could be used. And I think it's that knowledge piece of connecting it to what are we actually doing [training on the techniques] deep down under the surface? What are we doing with our patient? And it's, you know, building that self-efficacy.” (Mirabelle).

Increase knowledge about the resources through training at different levels (AuD, Clinical training)

“I think the knowledge piece is just going to start at the AuD education level” - Mirabelle

“So I think if we were to change educational practices, but then also modeling it in clinic too, and using it and informing others in the field about the importance of self-efficacy.” - Riley

Target Behavior: Implement the SEBAR Protocol

Patient testimonials and financial payoffs

Reflective

Presence of patient testimonials and better financial payoffs

"I think data of patient performance is a very motivating factor to see....They're more likely to tell their friends to send them to me to generate more business and more revenue for my clinic." - Abby

"I think motivation is going to come from good outcomes. Like if I am going to use it and I see good outcomes, that is going to motivate me to further use it again." - Stanley

Target Behavior: Implement the SEBAR Protocol

Flexibility to integrate changes to clinic protocols

Reflective

“People are set in their ways and they even if they are aware that there is a new tool or rating scale out there that could be used, they don't want to take the time to learn it. People are resistant to change. They are hesitant to even try and implement it.” - Mirabelle

Flexibility to integrate changes to clinic protocols

“Maybe some audiologists who have been working for a long time, it would take some warming up to kind of be able to be comfortable with implementing this on a daily basis.” - Stanley

Target Behavior: Implement the SEBAR Protocol

Intrinsic motivation to help patients

Automatic

Intrinsic motivation to incorporate the protocol into their practice

"I think potentially the vast majority audiologists get into this field because we want to help our patients. So I think that for most people, just knowing that this can help their patients and advance their potential treatment outcomes would be sufficient." - Riley

Target Behavior: Implement the SEBAR Protocol

Clinical time to incorporate the protocol

Physical

More clinical time to incorporate the protocol

"It doesn't seem like it would take that much time but probably the perception of that's just going to add more time to the appointment and take away from the time with the patient. If you're in a fast-paced clinic and you're just trying to get through patients, you don't want to spend as much time as needed in that counseling portion, which is a shame." - Mirabelle

"I've always had the luxury of working in clinics where there's plenty of time and appointments, but that's not the case for every clinician. They may have a very limited amount of time and adding another piece of paperwork for a patient to complete may be burdensome" -Riley

Target Behavior: Implement the SEBAR Protocol

Protocol as a part of the standard audiology billable services

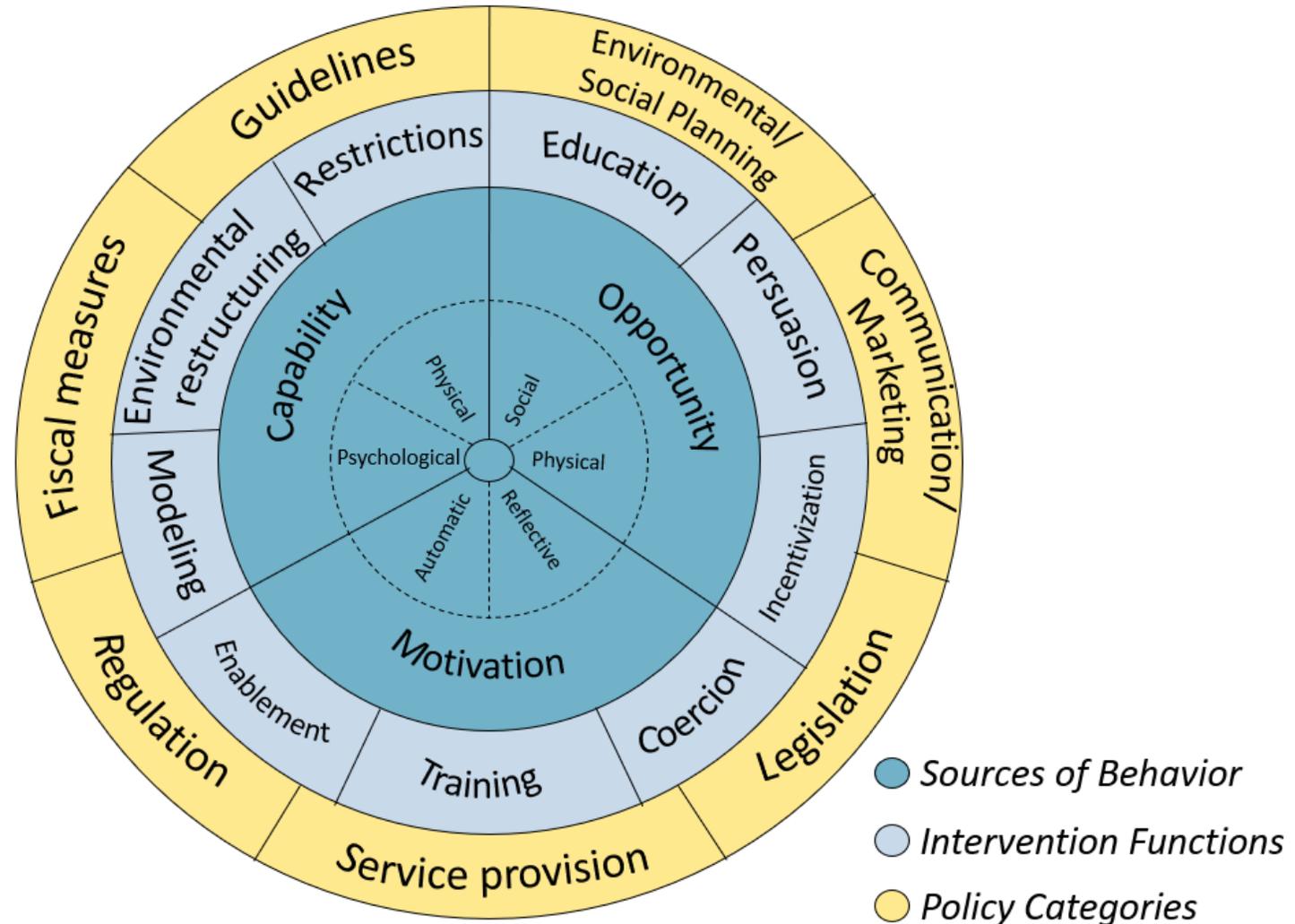
Physical

Make it a part of our routine clinical process and make it billable

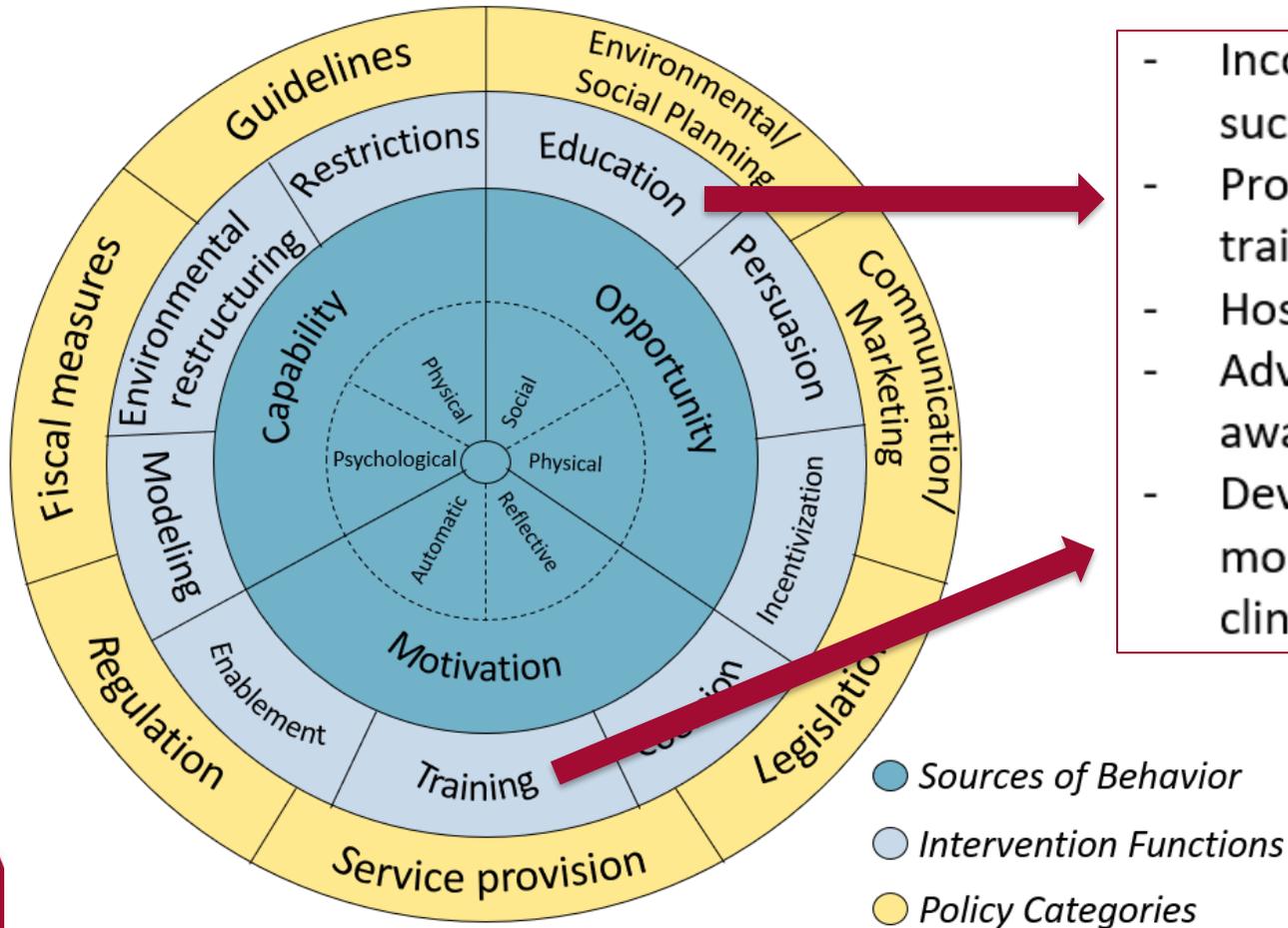
“But if we built that into our standard of care, I think people would be more encouraged to use it. if we actually use that as an assessment and billable, and so realizing okay I can bill for this, it's revenue generating, checking in on them rather than just like a quick 15 minute in and out appointment. Yeah. I think that if you applied it that way, it could definitely open the eyes and willingness to perform self-efficacy evaluations.” -Abby

“But advocating and figuring out how we can wrap in counseling into our insurance billing, because I think more people would do it if it was reimbursable”. -Mirabelle

The Behavior Change Wheel (BCW)

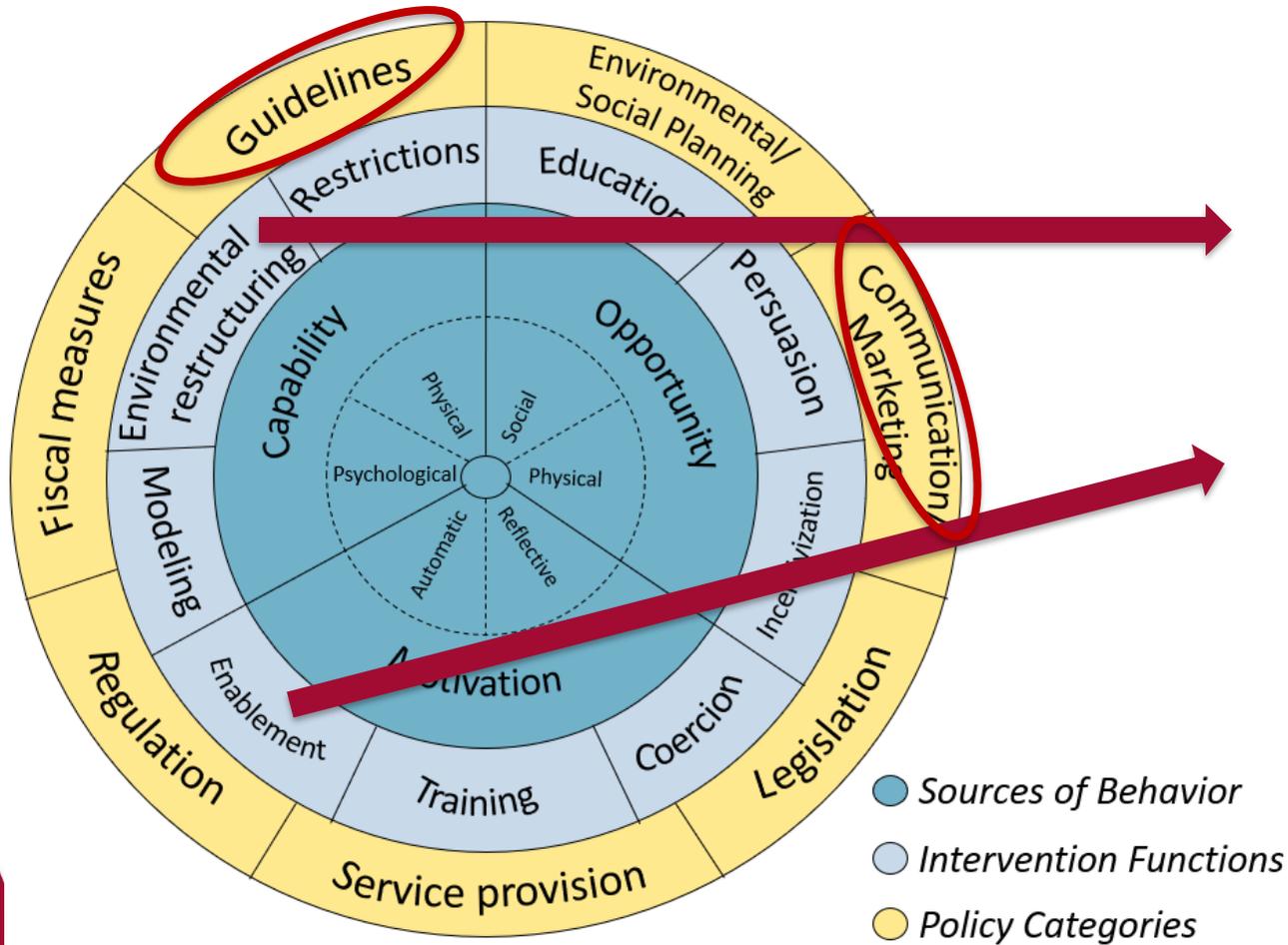


The Behavior Change Wheel (BCW)



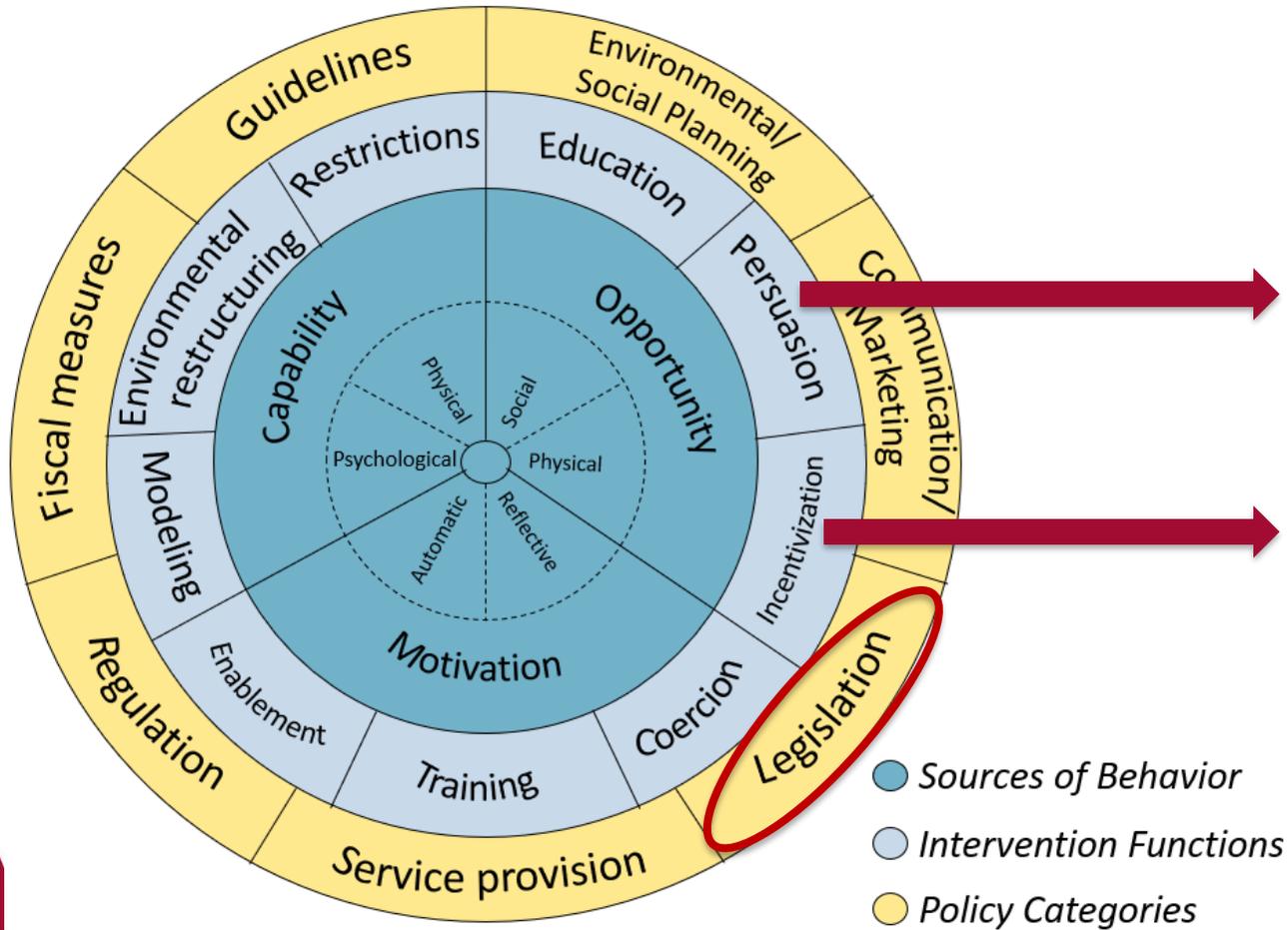
- Incorporate the resources in AuD courses such as Amplification, AR, Counseling
- Provide hands-on training during clinical training
- Host regular CEU workshops/webinars
- Advertise the resources to promote awareness
- Develop and distribute standardized training modules (guidelines) for AuD programs and clinical preceptors

The Behavior Change Wheel (BCW)



- Publish more high-quality research
- Publish shorter, simpler articles on ASHA Leader, Hearing review, etc.
- Share on social media platforms
- Make changes in the clinic workflow and provide resources so all clinicians can adapt
- Integrate the protocol steps into the clinic's electronic medical system
- Efforts to create computer-based applications to automatize the provision for clinicians
- Ensure compatibility with mobile devices and tablets
- Invest in user-friendly app or web-based portal design

The Behavior Change Wheel (BCW)



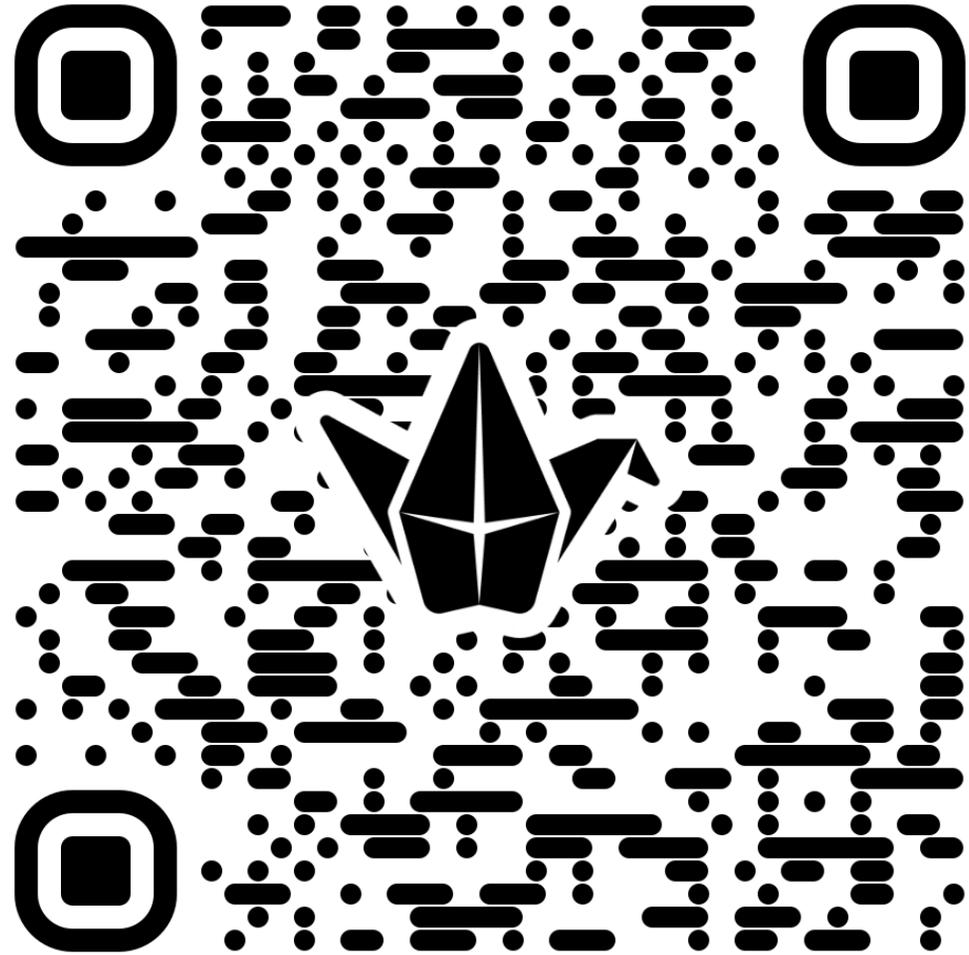
- Collect patient testimonials
- Routine review of clinic data to reflect on patient performance
- Include real-life success stories in training
- Share your success stories with others
- Advocate for financial reimbursements or incentives linked to protocol use
- Recognize clinicians who adopt protocols

What's next?

- Large scale survey to identify the awareness of HASE resources
- Revise the MARS-HA to align with current HA technology
- Start working on some of the action steps



What are your suggested action items?

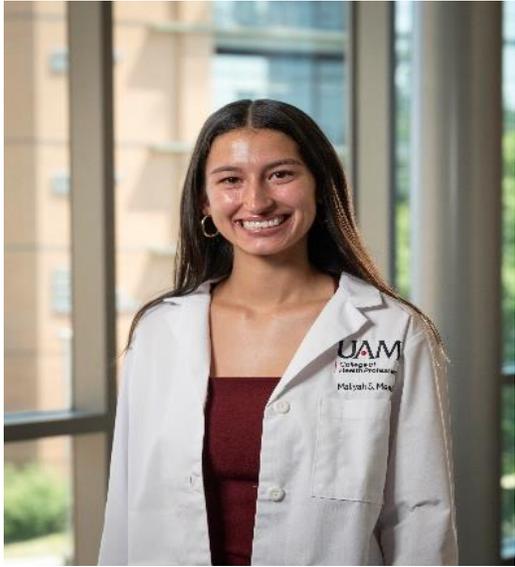


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