

# Frameworks for Change in Hearing Research: Valuing Qualitative Methods in the Real World

Frances Rapport<sup>1</sup> and Sarah E. Hughes<sup>2</sup>

In this article, we examine ecological validity in hearing science from a qualitative methodological perspective. We present an overview of qualitative methods, presenting their key characteristics and contrasting these techniques with quantitative approaches to enquiry. We argue that ecological validity sits at the heart of the qualitative paradigm and seek to clearly emphasize the methodological gap that could be effectively filled by qualitative or mixed methods. In doing so, we discuss qualitative methods that may work particularly well in enhancing ecological validity in hearing science and explore their range of applications in this field. These approaches can be applied to a wide range of hearing health research questions to present a unique understanding of people's experiences of disease and disability, indicating gradations of personal health and illness in nuanced ways. We acknowledge and commend the current expansion of qualitative methods within hearing science and present recommendations for increasing ecological validity, both in the design of future studies and in the context of the wider research cycle. We call on qualitative researchers to strive for transparency, rigor, and trustworthiness and highlight challenges to be overcome if qualitative methods are to contribute to effective, efficient research strategies. To facilitate the transference of high-quality research findings into practice, we stress the need for joined-up working to create a research culture that promotes coproduction of ecologically valid research designs, involving not only hearing researchers but also implementation scientists, hearing healthcare professionals and, most importantly, people with hearing loss for whom these efforts could make a difference.

**Key words:** Ecological validity, Hearing science research, Integrating results, Mixed methods, Qualitative methods.

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*Qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible. These practices transform the world. They turn the world into a series of representations, including field notes, interviews, conversations, recordings, and memos to the self. At this level, qualitative research involves an interpretive, naturalistic approach to the world.*

— Denzin and Lincoln

## INTRODUCTION

This article examines the relevance of qualitative research methodologies and their associated methods in the field of hearing science. We explore methodological characteristics and qualities, a range of current applications, qualitative responses

to a new definition for ecological validity, and the gap that qualitative methodologies can fill in hearing science. We describe some of the challenges of qualitative methodological embedded and ways of overcoming those challenges while suggesting that qualitative methods have their place, and a strong role to play, in hearing research. The full integration of qualitative methods in mainstream hearing research will no doubt take some time, but the advantages far outweigh any disadvantages, offering extensive opportunity for the translation of study findings to real-world hearing health concerns.

## QUALITATIVE RESEARCH: METHODOLOGICAL CHARACTERISTICS AND QUALITIES

### What Is Qualitative Research?

Qualitative research, as the quotation from Denzin and Lincoln (2005) above indicates, concentrates on the application of a variety of different data collection techniques to a wide range of research scenarios. Qualitative research commonly relies on textual, oral, or written data, and while most qualitative research still concentrates heavily on words (Denzin & Lincoln 2005), it may also include visual data in the form of photographs, videos, maps, and other visual representations (Rapport & Braithwaite 2018). In mixed methods research, a mixture of qualitative and quantitative techniques is combined within a single study (e.g., the mixing of interviews and surveys, or focus groups and chart reviews). Such studies provide a range of data which, when considered corroboratively, provide critical explanatory detail (Cresswell 2015). Mixed methods datasets can be analyzed discretely then considered relatively, or can be analyzed together, through data triangulation (Rapport et al. 2019a).

Qualitative methods are inherently flexible. Whether used as stand-alone, or as part of a mixed methods approach and irrespective of the form taken by the data (i.e., textual or visual), methods can be adapted for a particular setting to respond to a wide variety of personal and environmental factors. In the case of hearing health research, qualitative methods can be applied at primary, specialist tertiary, or community care levels and data can be collected from a range of participants, including members of the general public, patients and families, audiologists, physicians, allied healthcare professionals, service managers, and policy makers. Qualitative researchers have a valuable role to play in disclosing people's behaviors and experiences. For example, how people with hearing loss feel about their diminished hearing, how they manage their hearing loss on a daily basis, what they would see as a supportive healthcare professional, and what they want for not only themselves, but the whole of their family. Qualitative research can also examine people's emotions, relationships, decisions, and support needs, and can report on a range of difficult subjects, such as anxiety, stigma, and pain. Indeed, qualitative research can address a wide array

<sup>1</sup>Australian Institute of Health Innovation, Centre for Healthcare Resilience and Implementation Science, Macquarie University, Sydney, Australia; and <sup>2</sup>Patient and Population Health and Informatics, Swansea University Medical School, Swansea, United Kingdom.

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of research questions such as what effortful listening feels like (Hughes et al. 2018), what people's current behaviors are regarding device-use (Francis-Auton et al. 2019) and the barriers and facilitators to cochlear implant uptake (Bierbaum et al. 2020). Study findings can also be reported so they have relevance to different groups of people. These may be people interested in, or involved with, a research study, or they may be external to it, such as policy makers wishing to drive forward improvements in healthcare delivery.

### The Work of the Qualitative Researcher

Qualitative researchers delve deeply into the human condition. They most commonly examine human behavior and personal opinion, from the perspective of the 'insider' (i.e., the researcher working in participants' everyday environments), though to a degree this is dependent on the research questions being asked. They take into consideration individual and group behaviors, actions, and relationships which can be observed, recorded, and noted.

Qualitative researchers aim to get beneath the surface of people's lived-experience (van Manen 1990), examining the reasons why people act in certain ways or hold specific views and how their actions and opinions situate them in the world, both experientially and physically. This form of inquiry is known as "embodied understanding" (Galvin & Todres 2012).

Qualitative data are frequently rich and in-depth, supported by example and explanation. Qualitative researchers are encouraged to search for meaning that may be either described or inferred. Data also tend to concentrate on both a storyline and emotive expression (Wengraf et al. 2002) with researchers looking for both verbal and nonverbal cues, such as someone's body language (Denham & Onwuegbuzie 2013). Thus, in qualitative terms, meaning may be constructed from multiple nuanced sources (Merriam 2009). Data collection is "situated" with the researcher placing themselves in the world of the research participant, even working alongside them, to observe how knowledge and embodied understanding are expressed (Galvin & Todres 2012). Irrespective of the research setting, researchers

will come into contact with the participant at certain stages in a study, meeting perhaps in the workplace, the home, or the healthcare setting. By locating themselves within the world of the research participant, they are able to gain a much clearer grasp of the participant's life (Denzin & Lincoln 2005).

To achieve this degree of contact, qualitative researchers have to depend on a range of data collection methods. These include techniques to capture speech (e.g., fieldnotes, diaries, interviews, and focus groups) (Denzin & Lincoln 2005), the written word (e.g., qualitative proformas, biographies, autobiographies, and policy documents) (Bierbaum et al. 2020), and visualizations (e.g., sketches, diagrams, maps, photographs, and videos) (Rapport et al. 2019a). With these data, qualitative researchers can address straightforward and complex research questions, capture views about the past, present, or future, explore stakeholder relationships and experiences, and can gain privileged access to sensitive, difficult, or ambiguous data.

### Differences Between Qualitative and Other Research Paradigms

Qualitative research captures, analyzes, and translates data very differently to quantitative or mixed methods paradigms as it draws on a very different evidence base (see Table 1). In qualitative research, attention is given to views, experiences, performances, and predictions, and emphasizes a more holistic understanding (Rapport et al. 2018d). Qualitative methods do not look for causal relationships or correlations between variables. Nor do they report results in terms of event frequency or numbers of participants. Validation is not dependent on the degree to which findings are generalizable. Rather, qualitative findings are scrutinized to establish their rigor and trustworthiness. Qualitative methods emphasize layered meaning and variation, inductive rather than deductive analyses, and approaches to data synthesis that are inclusive and subjective. While methods may be mixed, even in studies where qualitative methods predominate, qualitative researchers most commonly move away from notions of pluralism to individual, personalized reality (Rapport et al. 2018d).

**TABLE 1. Different Emphases of Qualitative, Quantitative, and Mixed Method Research Paradigms\***

| Main Emphasis of Methodology       | Quantitative Methodological Attributes                     | Qualitative Methodological Attributes  | Mixed Methods Attributes   |
|------------------------------------|--|--|--|
| Reason for data collection         | Classification   | Nuance and depth   | Between-method activity  |
| Type of activity                   | Statistical modeling across population data                | Individual assessment of specific datasets   | Integrated data assessment   |
| Type of analysis                   | Correlation, factor-analysis, analysis of variance (ANOVA) | Stand-alone analysis undertaken by a researcher manually or through a computer-analysis software package (such as NVivo) | Corroborative assessment between datasets  |
| Analytic method                    | Numerical  | Textual, oral, visual  | Sequential (different data types given equal consideration and considered in turn)     |
| Analytic rigor                     | Validated tools  | Groupwork activity   | Pragmatic  |
| Reason for activity                | Hypothesis testing   | Hypothesis development   | Pluralistic  |
| Type of data acquired and findings | Valid, generalizable                                       | Subjective, experiential   | Subjective and objective   |
| Strength of findings               | Transferable   | Situational, contextual  | Problem-solving (looking to trouble-shoot problems arising from the mixing of methods) |

Source: Authors' own work.

\*While an in-depth examination contrasting qualitative, quantitative and mixed-methods research paradigms is beyond the scope of this article further information can be found in Cresswell (2015) and Denzin and Lincoln (2005).

The intense nature of using qualitative methods to address research questions equates to a dependency on smaller samples than in quantitative research (Rapport et al. 2019c), where what is valued is subjective understanding not objective representation and replicability. Qualitative researchers concentrate on social, cultural and situational examinations of others' health and well-being, and can utilize case studies that are exploratory, respecting "n = 1" as much as, say, "n = 100." The difference, then, between quantitative and qualitative research, not only lies in the different methods used and their applications, but on the purpose of their use. What a researcher hopes to achieve through their investigation is played out through the methods they choose. Ultimately, a qualitative researcher should respond thoughtfully to the questions they are asking, with explanations of a phenomenon, endeavoring to satisfy the twin scientific standards of elegance and empiricism (Toumey 2010).

### QUALITATIVE METHODS AND ECOLOGICAL VALIDITY IN HEARING SCIENCE RESEARCH

At the 6th Eriksholm Workshop on ecologically valid assessments of hearing and hearing devices, invited speakers discussed the importance of ecological validity in hearing science research. Together they formulated a definition of the term: "In hearing science, ecological validity refers to the degree to which research or clinical findings reflect real-life hearing-related function, activity, or participation." (Keidser et al. 2020).

The working group further identified four specific purposes of striving for ecological validity that broadly encompass:

- A. To better understand the role of hearing in everyday life.
- B. To support the development of improved hearing-related procedures and interventions.
- C. To facilitate improved methods for assessing and predicting the ability of people and systems to accomplish specific real-world hearing-related tasks.
- D. To enable more integrated and individualized hearing healthcare.

Both the definition of ecological validity and its scope of purpose, as outcomes from this workshop, should inform new research in hearing science. Importantly, consideration should be given to the value of qualitative research and its methods in pursuing greater ecological validity in hearing research.

Reflecting on the potential role qualitative methods have to play, we offer a number of our own observations on their application:

- First, to better understand hearing in real life (Purpose A) through investigations of patients' and families' needs and experiences, we must clarify real-life situations. This clarification should not only come from the researcher perspective but the views of the people with the hearing impairment themselves, their families, and carers.
- Second, to improve healthcare delivery through an individualized care approach (Purpose D), we should work toward a clearer understanding of the quality of life of individuals with hearing impairment, gathered through a wide range of qualitative techniques that evaluate costs and benefits to patients.
- Third, if we wish to assess or predict people's ability to accomplish hearing-related tasks (Purpose C), we need to apply research methods that not only examine physical

and mental function but also contextualize it to clarify emotional and psychological well-being.

- Finally, to understand more about individual need, we need to observe the challenges people face in their own natural environments. Some of these challenges people may be aware of, but some may be less obvious, such as the gradual behavior changes or changes to social networks and work opportunities that result from diminished hearing.

### The Value of Using Qualitative Methods in Hearing Science Research

In hearing science research, we need methods, such as those used by qualitative researchers, that highlight people's lived experience. These methods not only enhance our understanding of how people manage their lives but provide insight into individuals' perceptions of hearing impairment and quality of life. As we have mentioned earlier, in discussing the work of the qualitative researcher, data can take the form of observations, interviews, focus groups, photographs, narratives, biographies, open-ended surveys, personal journals, and other written testimonials (Rapport et al. 2018d). When used in combination with quantitative methods, mixed methods' investigations can enable a fuller understanding of complex phenomena such as individual and group coping strategies around hearing loss or expressions of vulnerability and lack of control (Hogan et al. 2015). They do this by examining a wider range of aspects of experience, actions, and relationships than can be achieved by a single method alone. This is important and if the hearing science research community neglects to consider the full spectrum of methods and methodologies at their disposal, the opportunity to fully appreciate people's experiences of healthcare, communication problems, and the wider sequelae of hearing loss may be overlooked.

The conduct of qualitative and mixed methods hearing research can also ensure greater clarity in the provision of evidence-based hearing rehabilitation interventions and services. Qualitative methods can support inquiry into how best to support people's adoption of, and acclimatization to, a new hearing device(s) and how to ensure that they enjoy good hearing-related quality of life including emotional, physical, psychological, and social well-being. In the hearing clinic, this also equates to the development of new, coproduced interventions based on patients' accounts that are proven in ecologically valid intervention studies (Preminger et al. 2015b; Hanssen & Dahl 2016).

### Applying Qualitative Methods to Strive for Ecological Validity

In respect of striving for ecological validity, through better integration and acceptance of a range of qualitative methods in hearing science, we already have examples from our own work that employ interviews, surveys, focus groups, and observations where we have undertaken studies on social connectedness and listening effort (Hughes et al. 2018), assessment of patient-reported outcome measures for listening effort (Hughes et al. 2019), behavioral attitudes of people with hearing aids and cochlear implants (Rapport et al. 2018a, 2018b; Bierbaum et al. 2020), and clinical equipoise for hearing devices (Auton et al. 2019; Rapport et al. 2019b). Our work has also encouraged teams of qualitative and quantitative researchers to support one another through consensus-building activities. From the

moment these studies commenced, methodologists coalesced around group-working activities (Hogden et al. 2018) to agree, for example, on the acceptability of a study's design, a data coding strategy, and, at the qualitative data analysis stage, identification of key themes arising (Rapport et al. 2019c). We have discovered that groupwork maximizes rigor and offers greater opportunity for translation of findings into hearing interventions (Hogden et al. 2018).

Qualitative research also supports the development, assessment, and testing of hearing devices, through in-depth evaluations of the quality of devices and device-use from multiple stakeholder perspectives. It employs qualifiers to identify and describe strengths and deficits in devices and enables revelations to surface around changes to device-use over time (Timmer et al. 2018). In the development of new tools and assessments, qualitative methods offer insight into the target construct from the perspective of the participant population thus ensuring new tools measure those aspects of a construct that hold meaning for individuals with hearing loss (McRackan et al. 2017; Hughes et al. 2018). Qualitative research methods also have a significant role to play in the development of new interventions, as evidenced by Cleveland Nielsen and colleagues' work to cocreate, in partnership with service users, eHealth solutions for the delivery of hearing healthcare (Nielsen et al. 2018). Lastly, qualitative methods have been shown to be appropriate for studying how to best deliver safe and effective, person-centered hearing healthcare (Coleman et al. 2018).

Methods employed for this kind of fine-grained investigation can include mobile or "walking" methods (Rapport & Braithwaite 2018), whereby researchers move through the world of the researched alongside them on an equal footing and in real time. In keeping with current trends such as the use of ecological momentary assessment to explore the effects of hearing loss (see Holube et al. 2020), mobile methods can also be used to observe what participants see, examine what they experience, and explore activities as they play out. Data translation from mobile methods can be wide-ranging, imparting information to relevant agencies interested in, for example, the need for service or system improvement. In addition, mobile methods, when

rigorously applied, can ensure the delivery of ecologically and theoretically valid research findings. These have the potential to offer new understandings around device-use, care processes, treatments and services for hearing loss, and the nature of hearing loss in a manner that has been coconstructed and codelivered with various stakeholder groups.

### The Role to Date of Qualitative Methods in Hearing Research

To better appreciate the role of qualitative methods in enhancing the ecological validity of hearing research, it can be helpful to consider the role qualitative methods have played in hearing research to date. Hearing science has a long tradition of quantitative research. However, despite this emphasis, there is growing recognition that qualitative studies are necessary if a more holistic understanding of the complex, biopsychosocial determinants of hearing health and hearing healthcare is to be gained (Knudsen et al. 2012). Accordingly, the number of qualitative hearing research publications is increasing yearly (Fig. 1). From an examination of published qualitative hearing research studies, we discovered that this body of research is cross-disciplinary, reflecting the complex relationship that exists among hearing, human communication, and behavior. Publications span the domains of health, social care, and education and, to date, have focused largely on exploring the lived experience of hearing loss (Hallberg & Ringdahl 2004; Rich et al. 2013; Ferndale et al. 2016), hearing devices and hearing device use (Laplante-Lévesque et al. 2010; Lockey et al. 2010; Bennett et al. 2018), the development of new hearing-related assessments and interventions (Allen et al. 2017, Heffernan et al. 2018), the implementation and evaluation of hearing healthcare service delivery (Pryce et al. 2018), and adaptation to new technologies (Ng et al. 2017; Keidser et al. 2019). Qualitative studies have been conducted with various participant groups including adults with hearing loss and their significant others (Preminger et al. 2015a; Bell et al. 2016), children with hearing loss and their carers (Preisler et al. 2005), educators (Rabinsky 2013), and healthcare providers (Prain et al. 2012).

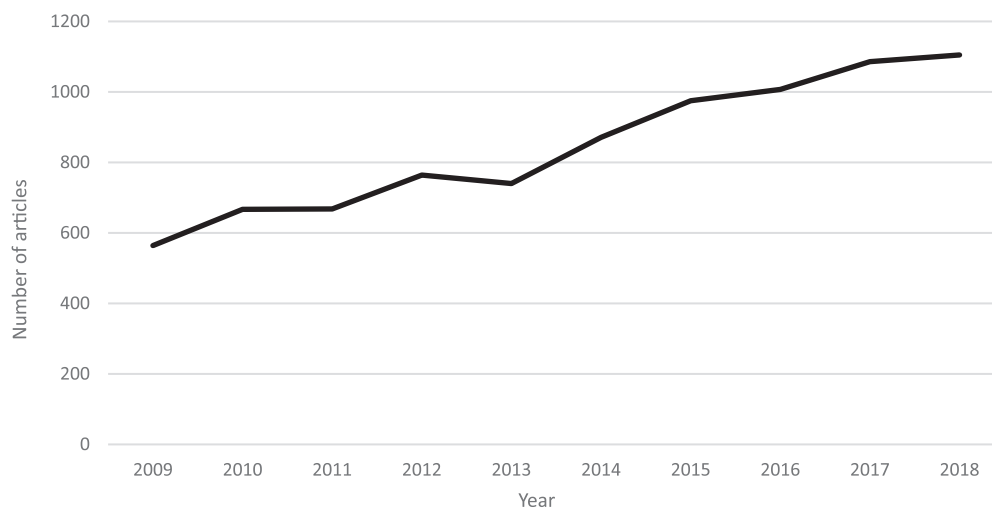


Fig. 1. Number of qualitative hearing research articles published per year from the 10-year period 2009 to 2018. Articles were located through searches on Medline, CINAHL, Web of Science, and PsycInfo when using the search strategy: [qualitative research] AND [hearing science] (N = 8447). Relevant synonyms and related terms were identified and combined within each construct using the Boolean operator 'OR' and then together using the 'AND' operator. Source: Authors' own work.



**Ecological Validity in Quantitative and Qualitative Research**

Despite the growing number of hearing-related qualitative publications, published hearing research studies claiming to explicitly address issues of ecological validity or maintain to study real-world listening are predominantly quantitative (e.g., see Lunner et al. 2016; Grange et al. 2018; Wu et al. 2018). Conducted with the knowledge that increased experimental controls threaten ecological validity, these exemplar studies represent an interest by the hearing research community to ensure studies reflect real-life hearing-related function, activity, or participation. By contrast, few qualitative hearing-related studies mention ecological validity explicitly. By definition, as we mentioned at the beginning of this article, qualitative research seeks to acquire a richer understanding of real-world phenomena from the perspective of individuals and cultural groups for whom it is relevant. As a consequence,

ecological validity lies at the heart of the qualitative paradigm. The aims of most qualitative hearing studies align naturally and give support to the rationale for greater ecological validity set out in the introductory article of this special supplement.

**Designing Ecologically Valid Research Studies**

If qualitative methods are fundamental to ensuring ecological validity within the discipline of hearing research, it follows that qualitative methods and their application must be given consideration from the outset, in the early phases of designing a research study. Figure 2 is a proposed model that locates qualitative methods at multiple timepoints in a potential research cycle, together with examples of their application. The timepoints represent junctures at which the deployment of qualitative methods could be used to promote ecological validity within hearing research studies.

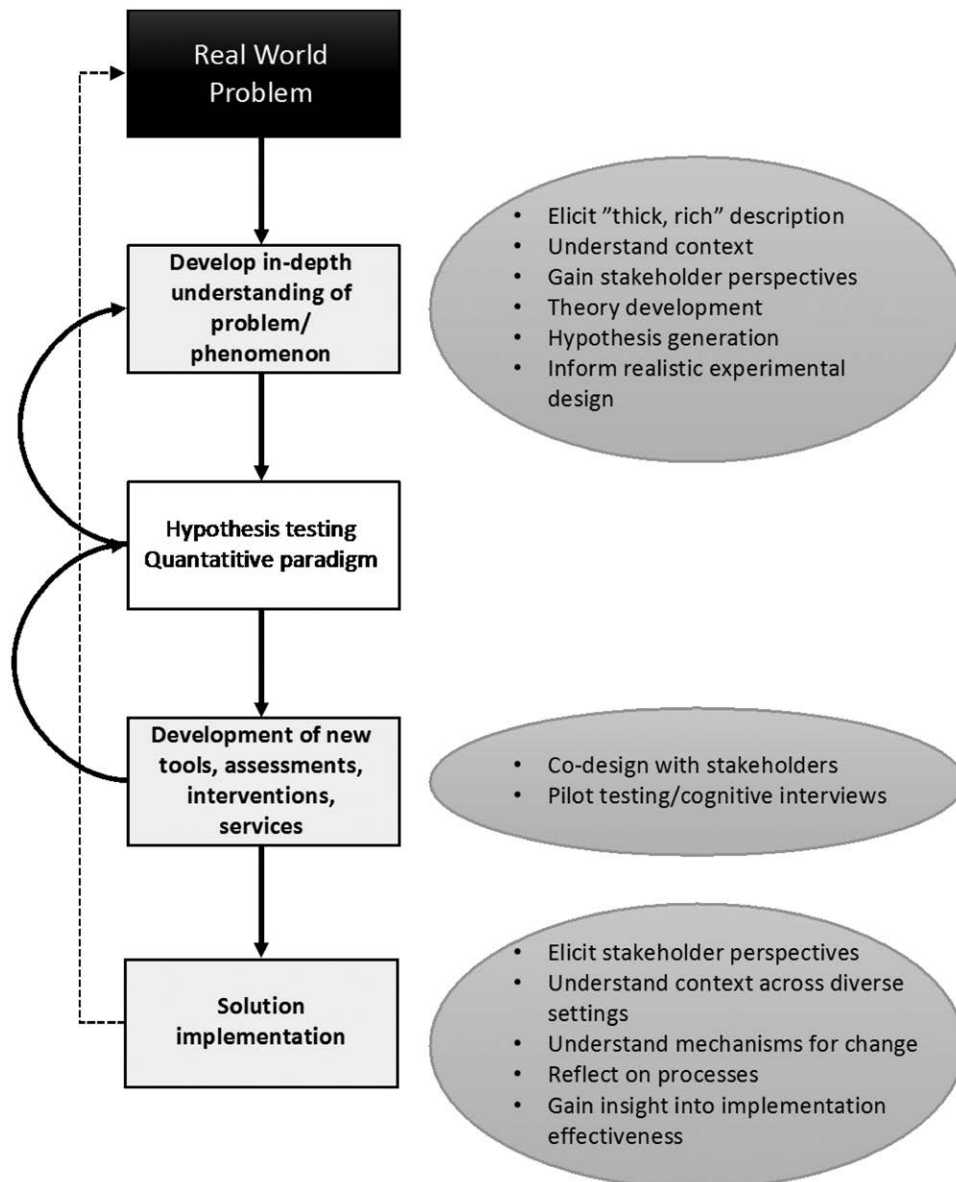


Fig. 2. Proposed model locating qualitative methods at multiple timepoints within the research process. The boxes with bold text represent phases of the research process when qualitative methods could be deployed to establish ecological validity. The ovals present potential qualitative research objectives and activities for each phase. Source: Authors' own work.

However, to enhance ecological validity using qualitative methods, several barriers will need to be overcome. First, and most importantly, qualitative studies must be carried out effectively. Designs must be robust and methodologically sound. Findings must be trustworthy and reliable. Researchers undertaking qualitative work must do so with the understanding that qualitative research brings unique challenges. It is often a complex, messy, and time-consuming undertaking. If done well, qualitative methods look beyond superficial description enabling researchers to delve deeply, exposing how the world manifests and operates (Rapport et al. 2018d). It is in this space, of trying to make sense of the world of the participant, that qualitative methods bring ecological validity to the heart of the hearing research process.

Second, if qualitative methods are to enhance the ecological validity of hearing research, positivist perspectives and quantitative data must not be privileged over qualitative, interpretivist approaches. Instead, the complementarity and the strengths of each paradigm must be both recognized and appreciated (Pope & Mays 1995; Rapport et al. 2018d). By welcoming the “subjective and all its nuances” (Rapport et al. 2018d, p. 3), qualitative methods support and enhance quantitative inquiry and, in this way, bring greater ecological validity to the field.

### **Filling a Gap in Hearing Science Research**

The quantitative emphasis of hearing science, when coupled with the hearing research community’s aspiration for greater ecological validity, highlights a gap that could be effectively filled by qualitative or mixed methods applications. Qualitative accounts [such as our own recent multi-country study identifying barriers and facilitators to cochlear implantation (Bierbaum et al. 2020)] provide findings that can be compared and contrasted in future studies across different population groups, different settings, and different global contexts. In this example, having first identified a range of barriers to cochlear implantation, we could conceptualize a range of evidence-informed, measurable solutions to support the development and implementation of resources, standards, and pathways to increased cochlear implant uptake (Bierbaum et al. 2020). As such, qualitative approaches can act as a road map to the delivery of ecologically valid hearing research.

### **Overcoming Ongoing Challenges in the Transference of High-Quality Research Data into Practice**

In this article, we have recommended greater integration of qualitative methods and mixed methods within hearing science studies at design, development, conduct, and reporting stages. We have described the opportunities that integration offers for greater clarity of study results, greater nuance in understanding, and greater insights into people’s hearing health needs and experiences. We believe this will lead to more rigorous, corroborative and detailed data about care provision, care pathways, shared decision-making, patient-centered healthcare, professional autonomy, and patient safety and care quality (to name but a few of the areas currently of interest in this field).

However, despite these aspirations, greater methodological integrity and integration demands clear translation strategies to ensure the successful implementation of interventions and new ideas at system and service levels (Moodie et al. 2011). We know that hearing research outcomes do not necessarily lead to

safer care, consistently applied across settings. Across health-care domains only 14% of new scientific discoveries actually enter day-to-day clinical practice and take, on average, 17 years to do so (Morris et al. 2011). Hearing healthcare appears to be no exception. It lacks the joined-up working strategies and coordinated care delivery necessary for multi-disciplinary providers to work together consistently and to share care (Bierbaum et al. 2020). To support quicker integration of study findings and to overcome challenges of multi-disciplinary working, researchers will need to strive for ecological validity from the outset. Qualitative researchers can embed ecological validity into hearing research studies through their ability to bring groups of people together and their capacity to conceptualize group expressions of health and illness in a context-laden way. They can reveal what lies beneath the words and actions of multi-disciplinary teams and reveal patients’ whole-care journeys. Recently, the World Health Organization (2017) identified the need to improve ear and hearing care through better evidence as a priority. Qualitative researchers can help to support best practice by ensuring data are impactful and meaningful for both care and policy. Finally, they can assist in the dissemination of findings to a range of stakeholder groups for maximum impact. However, ensuring ecological validity in hearing research and clinical practice is not the sole purview of qualitative researchers. Rather, it is a shared responsibility. Other researchers and interested parties will also need to strive for ecologically valid ways of understanding and some examples are provided elsewhere in this special issue (e.g., Carpenter & Campos 107S-119S; Hohmann et al. 31S-28S; Smeds et al. 20S-30S). In this way, with a shared focus and common aim, studies can develop more meaningfully with greater expectation of opportunities for translation.

Ecological validity in hearing science can be further enhanced through conversations with Implementation Scientists who specialize in conducting research aimed at promoting the uptake of interventions into routine clinical practice. Such dialog will enable hearing researchers to integrate the best models of implementation in their studies from design stages onwards (Braithwaite et al. 2014; Rapport et al. 2018c), and gain the support of others “on the ground” to understand what is needed in clinical practice. Enhancing ecological validity through “on the ground” support involves working with professionals willing to champion change. These are the people who straddle disciplines, or who sit outside disciplinary silos, working across parties. Implementation scientists are also individuals with specialist expertise such as “Translational Effectors” who know the evidence-base, “Engagement Brokers” who know the stakeholder groups, and “Purveyors of Change” who have influence over organizations to affect the bigger picture (Rapport et al. 2018c). All these individuals have an integral role to play in enhancing ecological validity in hearing research and clinical practice. By ensuring local support, as ideas, interventions and new tools bed in, opportunities arise for more successful integration of research into system-change. This leads to interventions that have a greater chance of dissemination to communities with hearing loss and the possibility of convincing the general public, policy developers, hearing health-care managers, and government agencies of the value of these interventions. This integration inevitably heightens the ecological validity of new initiatives and interventions with positive outcomes in the form of better access to hearing healthcare and improved hearing screening and hearing loss prevention, as well

as the uptake of sustainable hearing healthcare initiatives (Rapport et al. 2017).

## CONCLUSION

Ecological validity is a key component in the delivery of relevant and impactful hearing research and clinical practice. The utilization of qualitative research methodologies can help to ensure the findings of hearing research reflect real-life hearing-related functioning, activity, or participation. However, achieving greater ecological validity will necessitate change—change that can be conceptualized as a new hearing science research framework that acknowledges and respects the contribution of both quantitative and qualitative research traditions. Such recognition will help ensure the delivery of robust, ecologically valid research studies that make a difference to the lives of people living with hearing loss.

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Address for correspondence: Frances Rapport, Australian Institute of Health Innovation, Macquarie University, Level 6, 75 Talavera Road, Macquarie University NSW 2109, Australia. E-mail: frances.rapport@mq.edu.au

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