Research Project Portfolio

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Division of Psychiatry and Applied Psychology

Doctorate in Clinical Psychology

DEFINING AND MEASURING ADAPTIVE BEHAVIOUR IN DEAF ADULTS

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I would like to take this opportunity to thank my supervisors: without their critical eyes and consistency in keeping my focus this project would not have been possible. Thank you to Dr Mark Gresswell and Dr Hannah Merdian for our engaging debates and your support with the design of this research. Although there were times where I didn't believe that this would ever come together, your responsiveness and engagement with this project has made both this research, and myself as a researcher, stronger and better. I am so grateful for your time and your immense combined brain power.

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Thesis abstract

Introduction

Adaptive behaviour has become increasingly important in the assessment of intellectual disabilities (ID), but is also useful in terms of developing individual behavioural goals. Although measures of adaptive behaviour are widely used, there is little agreement on how to conceptualise the construct and how this may vary cross-culturally. Researchers have previously noted methodological and validity difficulties with the assessment of ID. This research aimed to clarify the construct of adaptive behaviour and consider how to measure this with d/Deaf[1] adults with suspected ID.

Methods

A systematic literature review, identification of critique of current measures, and gaps within the literature formed the structure of a new item pool. An expert panel (*N* = 13) were consulted about the usefulness and relevance of these items through a Delphi consensus methodology. Based on the feedback obtained throughout the research process, the design was modified from pursuing a statistics-driven approach to item refinement, to using mixed-methods to clarify issues of construct validity before the content could be further addressed. The second round of the Delphi comprised a feedback report, concluding with a working definition of adaptive behaviour. Participants were asked to comment upon the findings, and provide additional responses to develop a normal base standard of adaptability of a Deaf adult of average functioning.

[1] 'Deaf' refers to those who consider themselves part of a cultural community and use sign language (Meadow-Orlans & Erting 2000). The lower-case 'deaf' is a medical conceptualisation, often used in the context of people who have acquired deafness later in life, using spoken language and assistive technology as preferred forms of communication (Ladd 2003).

Results

The first round of the Delphi consensus yielded wide variation in item ratings. A thematic analysis of the questionnaire comments identified two overarching themes related to the way in which adaptive behaviour was conceptualised: ‘structure’ and ‘content’. The theme of structure contained sub-themes of ‘assessment’, ‘language’, and ‘repetition’ which are arguably common to all psychometric development. The ‘content’ factors pertained to ‘accessibility’, ‘developmental factors’, and ‘cultural differences’, highlighting differences in the expression of adaptive behaviour based on the unique experiences of d/Deaf people. The second round of the Delphi procedure elicited feedback on a working definition of adaptive behaviour generated from the analysis, showing that the adaptive behaviour of d/Deaf people may be conceptualised differently, particularly in hearing contexts where there are differential communication demands. These research findings have been summarised to form initial guidelines for the assessment of adaptive behaviour in Deaf people.

Discussion

This research provided some insight into how adaptive behaviour may be measured with Deaf people. Limitations of this research included not being able to generate consensus through the Delphi methodology used and, due to the newly developed understanding of adaptability for this population advanced throughout the research process, it was not possible to subject the items from the proposed scale to further psychometric testing. However, recommendations for further research were made in terms of expanding and validating this preliminary work with a sample of Deaf adults.

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Statement of Contribution

The original concept of this study arose through discussion with Dr Kevin Baker, who identified the clinical gap in assessment which led to the development of this research area. Dr Kevin Baker also provided supervision on clinical aspects of this study throughout.

Dr Louise Braham provided feedback on the initial protocol and set-up of the study, whilst Dr Mark Gresswell and Dr Hannah Merdian supported the ethics application process, continued design and execution of the study, and provided regular research supervision.

The author was responsible for recruitment of all participants, data collection and analysis, and the write-up of the thesis.

Journal Paper

Defining and measuring adaptive behaviour in deaf adults with suspected intellectual disability[2]

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[2] This journal paper is to be submitted to 'Assessment'. For full author guidelines, please see Appendix A.

1.1 Abstract

Adaptive behaviour is a commonly used construct fundamental to the assessment of intellectual disability (ID), as well as in developing individualised behavioural goals. The assessment of adaptive behaviour may be particularly complicated for Deaf[3] people, due to cultural, linguistic, and methodological issues confounding the process. This study aimed to clarify how the construct of adaptive behaviour may be transferred to the unique experiences of Deaf people. Preliminary items were developed through a process of reviewing existing measures and considering novel models in conceptualising adaptive behaviour. An expert panel (*N = 13)* was formed to establish the applicability of these items through a Delphi consensus. Through this procedure potential issues arising related to developing consensus were identified, demonstrating a hypothesised lack of construct validity. Therefore, a thematic analysis of questionnaire comments was undertaken, yielding a new working definition of adaptive behaviour and some initial guidelines for assessing adaptive behaviour.

Keywords: deaf, adaptive behaviour, construct validity, Delphi methodology, thematic analysis, ID

Word count: 148

[3] 'Deaf' refers to those who consider themselves part of a cultural community and use sign language (Meadow-Orlans & Erting 2000). The lower-case 'deaf' is a medical conceptualisation, often used in the context of people who have acquired deafness later in life, using spoken language and assistive technology as preferred forms of communication (Ladd 2003). The term 'd/Deaf' is used to denote situations in which both groups are being referred to, or the identity of the individual or group is unknown or mixed.

1.2 Introduction

A diagnosis of Intellectual Disability (ID) is considered if three criteria are satisfied: 1) “a significantly reduced ability to understand complex new information, to learn new skills” (impaired intelligence, assessed through measures of global cognitive ability); 2) “a reduced ability to cope independently” (impaired social functioning, assessed by adaptive behaviour scales); and 3) “which started before adulthood, with a lasting effect on development” (Department of Health 2001, p. 14)[4]. The impact of a diagnosis can be instrumental in accessing appropriate services, education, and housing (Baker & Baker, 2011). Clear consequences to both wellbeing and resources available to individuals are therefore associated with reliable and valid assessment.

Gentili and Holwell (2011) suggested that deafness is often associated with ID due to concomitant causes (e.g., meningitis, rubella)[5]. However, the prevalence of ID in Deaf people is difficult to estimate due to biases that may exist within testing procedure, and lack of knowledge about deafness and Deaf culture when interpreting assessments. Landsberger and Diaz (2010) noted that although it is assumed that the aetiology of deafness may be associated with greater prevalence of ID, this has not been empirically tested. Whilst within the general population prevalence of ID is around 1-3% (Harris, 2006; Maulik, Mascarenhas, Mathers, Dua, & Saxena, 2011), Morgan and Vernon (1994) reported prevalence estimates of ID in Deaf people as between 3-16%. However, they also identified studies with prevalence rates as high as 75% and concluded that clinicians unfamiliar with deafness may grossly over-estimate the prevalence of ID. In

[4] For further discussion of the conceptualisation of ID and adaptive behaviour, see section 2.1
[5] For further discussion of epidemiology of ID, see section 2.2

addition, issues around terminology and definitions of ID may contribute to variance in reported figures.

Although diagnosis of ID is often the primary reason for assessment of adaptive behaviour, this process can also be used to establish educational and rehabilitative programmes for individuals (Tassé et al., 2012). Adaptive behaviour assessment has taken on an increasingly important role given noted flaws in intelligence testing, including the definition and construction of intelligence (Snyderman & Rothman, 1987)[6]. The Diagnostic and Statistical Manual of Mental Disorders (DSM-V) recommends that best practice in measurement of adaptive behaviour should be achieved through "individualised, culturally appropriate, and psychometrically sound" tests with less emphasis on intelligence quotient as the defining feature of an individual's ability (American Psychiatric Association [APA], 2013, p. 37). However, concerns about construct validity and methodological issues in assessment may mean that this process is not presently suitable for d/Deaf people[7].

Adaptive behaviour is a construct that has evolved over several decades, with research still emerging regarding how best to conceptualise it and its relationship to other constructs such as intelligence (National Research Council, 2002)[8]. Adaptive behaviour refers to "the collection of conceptual, social, and practical skills that people have learned to be able to function in their daily lives" (Schalock et al., 2010, p. 15). However, this loses an important cultural determination made in an earlier definition: the "effectiveness and degree to which people meet the

[6] For further discussion of the history of intelligence testing and methodological issues, please see section 2.3
[7] For further discussion of deafness as a psychological construct, see section 2.4
[8] For further discussion of the interaction between cognitive ability, adaptability, and deafness, see section 2.5

standard of personal independence and social responsibility expected of their age and cultural group" (Schalock, 2004, p. 370). Adaptive behaviour is likely to be influenced by culture, yet this element is often under-emphasised in existing conceptualisations and measures. For example, it is necessary that people perform particular acts both for survival and to live to their fullest potential (e.g., eating, sleeping, or interacting within a community), but the way in which this is achieved (e.g., by using particular strategies or completing tasks at specified times) may be different depending on the cultural context (Taverna, Bornstein, Putnick, & Axia, 2011)[9]. Webber, Jenkinson, and McGillivray (2002) suggested that many current measures of adaptive behaviour do not capture skills that are 'essential' for living, and that existing items assess behaviours which are considered desirable to specific cultures. Within their study, skills such as 'being able to prepare meals' were found to be considered amongst the most useful indicators of adaptability, whilst advanced skills (e.g., communication and socialisation) which may be more contextual and harder to assess, were ranked less favourably. The complexity in assessing these skills may make it difficult to determine ID by measuring adaptive behaviour, but understanding an individual's ability to perform advanced skills is useful information in planning programmes of skills development.

The different definitions existing and lack of agreement with regards to underlying theoretical concepts means that measurement of adaptive behaviour are likely to be flawed, and it has been repeatedly noted that "adaptive behaviour lacks a unifying theoretical foundation" (National Research Council, 2002, p. 150). Factor analyses of the core dimensions of adaptive behaviour have shown evidence of

[9] For further discussion of cultural aspects of adaptive behaviour, see section 2.6

four underlying areas: motor/ physical competence, conceptual skills, social skills, and practical skills (McGrew & Bruininks, 1990). However, more recently a five-domain structure has been proposed based on what scales currently measure ("personal independence, responsibility, cognitive/ academic, physical/ developmental, and vocational community"; Thompson, McGrew, & Bruininks, 2002, p. 29). This retrospective approach to conceptualising adaptive behaviour may represent a significant flaw in the development of a coherent understanding of the construct.

The importance of factors associated with adaptive behaviour appear to be emphasised differently within assessments.[10] The National Research Council (2002) identified four factors that may impact on individual performance in testing: examinee characteristics, examiner characteristics, environmental influences, and psychometric characteristics of tests. Each may alter the extent to which test scores are considered accurate and valid measures of a construct and it has been shown that the influence of culture and language may be a significant source of measurement error in psychometric testing (Solano-Flores, 2011)[11]. In terms of the relationship of these factors to deafness, there may be considerable differences in how assessors approach testing which can influence the psychometric properties of the test. For example, a range of adaptations to testing may be made, such as: translation of test instructions or test materials (British Psychological Society; BPS, 2010), or redacting tests to exclude measures that may introduce confounding variables (Baker & Baker, 2011). However, a systematic literature review undertaken prior to this study indicated that these

[10] For further critique of current measures of adaptive behaviour, see section 2.7
[11] For further discussion of assessment issues, see section 2.8

adaptations may be made idiosyncratically and are often not reported with clarity (Moore, Merdian, Gresswell, & Baker, 2016). This means that the construct in question may not be measured in the way in which it was designed.

Measures of adaptive behaviour tend to assess adaptability based on a collection of skill areas as operationalised by the American Association on Intellectual and Developmental Disabilities (AAIDD). These are: communication, community use, functional academics, health and safety, home or school living, leisure, self-care, self-direction, social, and work (Luckasson et al., 1992). However, researchers have noted that these domains are not grounded within understanding of psychometric theory, and may not represent current thinking on the conceptualisation of adaptive behaviour (Tassé, 2009). More recent revisions of both the AAIDD and DSM guidelines have since emerged, no longer requiring specific measurement of these areas (Schalock et al., 2010; APA, 2013). Although a conceptual shift towards assessing practical, conceptual, and social skills has been seen in more recently developed measures (e.g., the Adaptive Behaviour Assessment System- Third Edition [ABAS-III]; Harrison & Oakland, 2015), many of the skill areas have been retained in revised editions of existing scales. Although there are many scales from which clinicians can select to assess adaptive behaviour, nothing has been developed for Deaf people.

Current measures of adaptive behaviour may identify ‘deficits’ in skills due to failure to respond to environmental cues or communicate effectively with hearing people, rather than accurately discriminating between deafness and ID. Existing scales may highlight that the Deaf person does not engage fully in mainstream culture (Jones, 2002) yet Lane (2006) noted that seeing Deaf people as disabled as a result of not integrating with hearing society does not account for the fact

that the individual may function at a high level within their own cultural context. However, little is known about how the developmental trajectories of Deaf people influence their cognition and adaptability. Language may be fundamental to developing adaptive behaviour and independent functioning due to the strategies individuals adopt to meet their needs, yet prelingually Deaf individuals may not have as ready access to developing adaptive behaviours that load on language (e.g., communication, socialisation; Szatmari, Archer, Fisman, Streiner, & Wilson, 1995).

A systematic literature review conducted in preparation for this research showed that adapting or re-norming tests are both common solutions to difficulties in psychological testing as described above (Moore et al., 2016). Although norm-referencing adaptive behaviour scales with a sample of Deaf people may provide useful information about the skills of this population, issues in assessment of adaptive behaviour (e.g., face validity, cultural validity, and procedural biases) mean that this may have limited utility. Within IQ assessment it may be reasonable to use different norms based on age or gender, yet this is less appropriate when attempting to apply Western values to individuals from markedly different cultural backgrounds. In this sense, new test questions which acknowledge Deaf culture as distinct to mainstream values may improve the likelihood that the target construct is being measured in the way in which it claims. Differences in adaptive behaviour captured by existing measures may not adequately discriminate between differences associated with being d/Deaf and those that are resultant from ID because of the under-emphasis on developmental and cultural factors. However, this is not critically considered in current research in the area.

Measures of adaptive behaviour have also been criticised for their focus on low-level skills (e.g., self-care; National Research Council, 2002). However, measures of adaptive behaviour need to capture a range of abilities in order to accurately discriminate between the relative impact of possible ID and other disabilities. This research aimed to analyse current conceptualisations of adaptive behaviour and consider how deafness may mediate the construct of adaptability[12], and therefore how assessment may best discriminate between those who are fully adapted within a Deaf community, those developmentally delayed because of factors associated with deafness, and individuals with mild ID.

Aims[13]

Given the limited information available from the literature and existing theory, this research aimed to develop an understanding of adaptive behaviour and its application to Deaf people. As such, two main aims guided the study:

1. To develop a working definition, through collation of existing theory, generation of theoretically coherent items, and subsequent expert input, of adaptive behaviour for Deaf people
2. To develop empirically-derived guidelines for standardised practice in the assessment of adaptive behaviour in Deaf people

These aims were explored and developed concurrently, guiding each other throughout the research process. In order to achieve the first aim, development

[12] For further discussion of the application of different models to adaptive behaviour, see section 2.9
[13] For further discussion of the rationale ~~and aims of~~for this study, see section 2.10

work to critique existing definitions of adaptive behaviour was undertaken, resulting in a comprehensive set of items to guide experts' decision making as part of a Delphi consensus methodology. The second aim was derived from the synthesis of a thematic analysis (TA) of the results with the theory used to develop the items, allowing for generation of recommendations for practice.

1.3 Methodology

The construct of adaptive behaviour was subject to an extensive literature review, considering different theoretical models of adaptive behaviour and how these may be integrated to effectively capture the adaptability of Deaf adults[14]. Items were generated by selecting from measures generally accepted as best practice in measurement of adaptive behaviour (e.g., the Adaptive Behaviour Assessment System – Second Edition [ABAS-II, Harrison & Oakland, 2003], the Vineland-II Adaptive Behaviour Scale [Sparrow, Cicchetti, & Balla, 2005]; Tassé et al., 2012). Additionally, in order to account for some of the failings in the conceptualisation of adaptive behaviour as described above, theoretical models capturing competence, values, and executive planning ideas were incorporated (i.e., the Good Lives Model [Purvis, Willis, & Ward, 2011]; a model of executive functioning [Sbordone, 2000]). These items were subsequently sent to a Delphi consensus panel for review (Appendix B)[15]. Delphi procedures are designed to build agreement between professionals on a specific topic by polling participants, usually across 3-5 rounds. Feedback is provided between each round before re-

[14] For a review of the construct of adaptive behaviour, see section 3.1
[15] For further information about the item generation process, see section 3.2

ranking, and justifications of decisions are made (Herdman et al., 2002)[16]. However, this study proceeded for only two rounds as it was hypothesised, on the basis of the initial results, that consensus would not be reached based on the lack of clarity about what was being measured[17].

Delphi Consensus

Participants[18]

Experts in the field of mental health and deafness were invited to participate through a special interest group. The decision to sample participants under the broader area of mental health rather than specifically deafness and ID was made due to the very small number of psychologists within the UK who specialise in both ID and deafness. 63 members of the Applied Psychologists in Deafness Special Interest Group (APDSIG) were emailed prospectively to invite them to participate in this research. Of these 63, 12 emails were undeliverable or the prospective participant was unavailable (e.g., maternity leave, out-of-date contact information). A total of 13 participants consented to take part (25.5% of the overall sample of 51[19]). Retention across the Delphi consensus fell in the second round; eight participants provided further rankings and four participants made comment on the findings of the TA, meaning there was an attrition of 38.5% and 69.2% for

[16] For further information about the rationale for a Delphi consensus, see section 3.3
[17] For further information about the design of the Delphi and ethics approval for this study, see sections 3.3.2 and 3.3.3
[18] For further information about sample characteristics, inclusion criteria, and exclusion criteria please see sections 3.3.4, 3.3.5, and 3.3.6
[19] For information about sample size, see section 3.3.7

the respective tasks. Characteristics of the 13 participants who consented to take part in the study are shown in Table 1.

Table 12

Participant demographic information

Demographics	***N*(%)**
Role	
Clinical Psychologist	8(61.5)
Clinical Neuropsychologist	1(7.6)
Assistant Psychologist	1(7.6)
Trainee Clinical Psychologist	1(7.6)
Psychological Therapist	1(7.6)
Counselling Psychologist	1(7.6)
Total Participants	**13**
Hearing Status	
Deaf	4(30.7)
Hearing	9(69.2)
Experience of working in the field of deafness and mental health (years) [mean(SD)]	14.3(8.9)

Procedure

Two rounds were undertaken in this Delphi procedure[20]. The group were presented with items and asked to consider the utility of these in measuring the adaptive behaviour of a Deaf person by rating each question on a 5-point Likert scale (from 1= not at all useful, to 5= very useful; Appendix B). Given that the findings of Moore et al. (2016a) suggested that there may be discrepancies in how people conceptualise and deal with issues arising from assessment, participants were also asked to comment upon the items or justify their ~~rankings~~ratings.

~~In the first round, agreement and disagreement ratings showed considerable variation in the results with little agreement about the best items to measure adaptive behaviour in Deaf people (Appendix C).~~ Qualitative data was provided alongside the numerical ratings, critiquing the items produced and providing reflections on what adaptation may mean for Deaf people. A TA of the questionnaire comments was undertaken to determine how participants were conceptualising adaptive behaviour[21], with this analysis supporting the hypothesis that participants were potentially drawing on differing implicit understandings of adaptive behaviour.

Thematic Analysis[22]

In accordance with the guidelines outlined by Braun and Clarke (2006), comments were collated and coded to identify themes within the text. Each

[20] For further information about the Delphi procedure, see section 3.3.8
[21] For further discussion of the thematic analysis, please see section 3.4
[22] For further discussion of the rationale for thematic analysis, see section 3.4.1

comment was given equal weighting during the coding process, and reflections were noted where differing viewpoints arose as an active part of the narrative of the data[23].

Themes were analysed in relation to the research question of how adaptability is conceptualised by experts, and a thematic map was produced (Appendix D). The themes and labels were reviewed by the research team, identifying superordinate themes and amalgamation of sub-themes[24].

Epistemology

The TA was undertaken in the critical realist tradition. In this way, empirical truths are investigated by examining what underlies perceived social realities (Nairn, 2012). Given that issues of identity and status are fundamental to the wellbeing of d/Deaf people, an approach adopting a perspective that accounts for social and experiential factors was assumed[25].

Delphi Consensus Round 2

The findings of the first round of the Delphi and the TA were summarised in a feedback report, concluding with a working definition developed from the data. In the second round, participants had the opportunity to comment on this new definition. In addition, participants were asked to re-rank the original items with regards to how normative adaptive functioning of a Deaf person might differ

[23] For further information about the thematic analysis procedure, see section 3.4.2
[24] For further information about quality checks of the qualitative methodology, see section 3.4.3
[25] For further discussion of epistemology, see section 3.4.4

between Deaf and hearing contexts. These modifications to standard Delphi procedure were made in response to the disagreement and lack of clarity seen in the first round, with the aim of moving towards a working definition of adaptive behaviour informed by a combination of theory and expert opinion.

1.4 Results[26]

Delphi Consensus

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The item pool contained 309 separate items over seven adaptive domains for rating within the Delphi procedure. Within the first round, 175 of these items met the specified 75% consensus threshold for agreement (56.6% of the overall item pool). Although consensus had not been reached for all items, the ratings of the remainders were divisive within the group (Appendix C). The ratings and qualitative comments made by participants were subjected to further analysis to extract patterns and hypothesise what this meant in relation to the participant's understanding of adaptability. The first round yielded suggestions of items that may be useful in considering adaptability for Deaf people, and provided information about the utility of the selected research influences in conceptualising adaptability.

Thematic Analysis

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Six main themes were identified from the data obtained. Overarching these six main themes were two super-ordinate themes, which divided the comments in

[26] For further consideration of the missing cases in the Delphi consensus results, see section 4.1

terms of ‘structural’ factors (e.g., those concerning questionnaire development) and ‘content’ factors (e.g., comments related to how adaptive behaviour may be conceptualised when applied to Deaf people).

Structural factors

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This theme comprised three sub-themes, namely ‘language’, ‘repetition’, and ‘assessment’. Although these areas contained some interesting Deaf-specific features, they are largely applicable to the design of any questionnaire. For example, many comments related to the condensing of items which were differently phrased ways of tapping into similar functional skill areas, or using language that would be understood clearly by respondents (e.g., plain English, ambiguity, or identifying more than one issue within an item). As the aims of the study were focused on a conceptual definition that accounts for the experiences and behavioural norms specific to Deaf people, these themes are not considered in greater detail here[27].

Content factors

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This overarching theme also comprised three sub-themes: ‘cultural differences’, ‘accessibility’, and ‘developmental factors’.

Cultural differences

Participants identified cultural differences as a core factor in defining the adaptive behaviour of Deaf people, due to the unique position of living within a Deaf

[27] For further discussion of the structural themes, see sections 4.2.1, 4.2.2, and 4.2.3

community and adhering to values and behavioural norms associated with Deaf culture whilst also existing within a mainstream hearing society, or negotiating this balance to identify with either group to a greater or lesser extent. One participant suggested:

> *'Capturing someone who tries to fit in with the hearing world and rejects deafness might be useful as this identity of attempting to 'pass' as a hearing person has been shown to be the least adaptive in various studies'* (Participant 2)

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Unlike many other minority groups, Deaf people are also in a position where identifying as Deaf is not necessarily shared by family and close relatives, and therefore cultural membership may be learnt from peers or may shift throughout the lifespan (Jones, 2002). Whilst certain choices and behaviours may be preferred at different times throughout any individuals' development, this unique position of potential isolation from others and the socio-political context of a Deaf person's identity development means that this may warrant particular exploration in the context of assessment.

Another area where the behaviour of Deaf people may differ is in strategies used to achieve goals. Many adaptive behaviour assessments do not award credit for actions that cannot be performed 'independently' (e.g., those that can be achieved by working with a support worker or interpreter; Harrison & Oakland, 2015), yet in a Deaf context this could be considered an adaptive solution to a range of interactions within the hearing world. However, one participant noted that many Deaf people may be discouraged from these types of compensatory

strategies, possibly due to previous bad experiences with trying these strategies and it being complex or not as effective as anticipated:

> *'[Books/ requests an interpreter as appropriate for doctor's appointments] Many deaf people don't bother – too much trouble and learnt that it is too complex to book interpreter and the appointment. This happens across the range of adaptive abilities'* (Participant 12)

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Whilst this comment has some overlap with the themes of 'accessibility' and 'developmental factors' (e.g., lack of access to interpreters, learnt responses to setbacks), it is included here as an example of how behaviours that may be considered adaptive by Deaf people are not recognised as such by current measures of adaptive behaviour. ~~As such~~In this sense, it becomes hard to judge whether giving examples of strategies within the assessment contextualises items, or whether simply asking whether a person is able to perform different skills is relevant[28].

Accessibility

Participants explained that accessibility of opportunities may impact on the development of adaptive behaviour. Communication barriers may present both within current interactions, and from the cumulative impact of growing up language deprived. Many participants pointed out that the long-term impact of delayed language can affect both the development of 'everyday' skills (e.g., accessing transportation, shopping, and socialisation with others, with one

[28] For further exploration of the theme 'cultural differences', see section 4.2.4

comment suggesting: '*deaf people do not have same access to phone, internet, literacy on which a lot of these skills depend*') as well as how this may conflate the assessment of adaptive behaviours. For example, poor literacy was frequently felt to be an alternative explanation for not engaging with particular skills or problem-solving strategies, rather than a failure to perform representing ID.

The Delphi ~~rankings~~ ratings suggested that many participants saw items reliant on literacy skills as a poor measure of adaptability for this population, with comments justifying the choice of low ~~rankings~~ ratings supporting this notion:

> *'[Researches options for booking a holiday or travelling away from home] - literacy issues reflect educational opportunity and access rather than LD'* (Participant 2)

> *'The items I feel might be less useful here are those which centre around the use of written or spoken language, since the deaf person may be well able to map read and plan a trip online for example, but managing a live situation when travelling may be harder e.g. if directions are given in spoken form, or travel announcements are transmitted in audio form. Therefore I rated items which loaded onto spoken or written language as being slightly less useful.'* (Participant 11)

It appeared that the Delphi panel dealt with the impact of literacy and its possible influence on adaptability by choosing to rank poorly questions which load on this heavily. Lack of opportunities and the resultant impact on learning was explicitly mentioned by participants:

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'People often do not do things they 'could' do due to others doing it for them. Sometimes they 'can' but are not given the opportunity. Sometimes that lack of opportunity means they do not develop the skill and cannot' (Participant 9)

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This statement identifies that if not provided with adequate opportunities, people will not learn skills. This comment may represent a general issue affecting many people who may have an ID, but may also relate to Deaf people growing up in hearing environments, making it difficult to sensitively draw apart what factors may have a role in behaviour. Limitations in choices and availability of resources may also impact the way in which people behave and their capacity to become adaptive:

'Never given the opportunity to try different things, to then be able to choose for themselves what they would want to do when bored – follow the same pattern of being told what to do. Often a range of possible activities need to be presented and taught, and then this question could assess this later in treatment'. (Participant 13)

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This highlights that although limited choices are not unique to Deaf people, it may be that this is an important retrospective consideration for assessors in obtaining a detailed developmental history including access to various opportunities over the course of an individual's lifetime. One participant commented:

'*I answered in assumption that deaf people would know how to do all this – normally we wouldn't know if we haven't been shown how to do some of the things outlined above'* (Participant 5)

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In this sense, ID may be a less likely explanation for adaptive behaviour differences where the person has shown the capacity to learn when explicitly taught particular tasks. However, these comments demonstrate an important distinction between measuring current levels of adaptability, and potential for adaptability[29].

Developmental Factors

Participants also discussed how behaving in a way may not generally be considered adaptive could still be adaptive in a different context, possibly due to the early experiences or past setbacks experienced by Deaf individuals:

> *'Deaf people generally give up making complaints – process is usually hearing oriented and they soon learn not to bother. It is adaptive not to bother to complain as it takes up too much energy and doesn't change anything'* (Participant 12)

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Although this implied that passivity or learnt helplessness derived from repeated setbacks in attempting day-to-day tasks is beneficial to preserving energy, this is a different understanding of 'adaptability' than is recognised in current measures.

There is also an element of confidence implied in undertaking these tasks which may be mediated by context, in that some Deaf people may feel more comfortable to behave in certain ways if in a group of other Deaf people rather than a hearing environment. In the context of confidence, it might be that some adaptive skills are harder for Deaf people (e.g., Participant 3~~one person~~ commented: '*journey*

[29] For further discussion of the theme 'accessibility', see section 4.2.5

by public transport is by default more complex for a deaf person'). This means it is a relatively higher-order skill and may require greater planning, carrying with it greater risk of something going wrong, impacting on the choices that people make[30].

Working Definition

From the above analysis and in conjunction with an analysis of the Delphi numerical rankings[31], an enhanced understanding of adaptive behaviour was developed and summarised into a working definition of adaptive behaviour for Deaf people:

> '*a collection of skills that are used day-to-day based upon a person's prior learnt knowledge and access to opportunities, enabling the individual to draw upon a variety of resources to achieve their full potential within both Deaf and hearing contexts, in a manner consistent with their values and identified cultural norms and appropriate to their age'*

This builds on existing definitions of adaptive behaviour, emphasising the importance of cultural relativity and identification, which the analyses suggested may be particularly important facets of adaptability for Deaf people. Emphasis has been detracted from factors related to personal independence, as the data indicated that independence may have a different meaning in a Deaf context, in that working with others or utilising technology may be functional adaptive

[30] For further discussion of the theme 'developmental factors', see section 4.2.6

[31] For consideration of the Delphi item ~~rankings~~ratings, factors affecting these, and interim conclusions from this process see sections, 4.3 4.4 and 4.5

strategies[32]. Feedback obtained from the Delphi group in the second round reflected that the analysis was perceived as valid and representative[33]. Emphasising cultural aspects was noted as particularly useful, and it was suggested that the definition encourages clinicians to consider the adaptive value of different behaviours. An adjustment to the definition provided was suggested by one participant in order to remove the contextual information pertaining specifically to deafness. Although this broadens the applicability of the understanding of adaptability to a wider population, it loses some of the unique elements identified by the TA as being particularly pertinent to this group, and it was thus decided that the original phrasing would be retained[34].

This definition was modified as a result of the feedback, taking into account the difficulties arising within the themes regarding the assumptions present in a definition about a person's developmental history, cultural identification, and accessibility of opportunities, and reflecting the impact of these features on how a person may behave in attempting to exclude confounding factors (e.g., anxiety, depression) that may be resultant from these experiences[35]:

> *'a collection of skills that are used day-to-day based upon a person's prior learnt knowledge and access to opportunities, enabling the individual to draw upon a variety of resources to achieve their full potential within both Deaf and hearing contexts, in a manner consistent with their values and identified cultural norms and appropriate to their age.* ***Any***

[32] For further discussion of how the working definition was constructed, see section 4.6
[33] For further discussion of the numerical results of Delphi round 2, a comparison of these across contexts, and feedback on the working definition, see sections 4.7, 4.8, and 4.9
[34] For further reflections and conclusions on the process of developing the definition, see section 4.10
[35] For further consideration of how the underlying theory used in this research impacted upon conceptualisation of adaptive behaviour, and how this may be utilised in future research, see section 5.2

differences~~eficits~~ in adaptive behaviour should be considered in light of cultural, accessibility, and developmental factors, and which cannot be better accounted for by other causes, before making diagnostic determinations of ID.'

1.5 Discussion

Summary of Findings[36]

This study drew together existing theory in the area of adaptive behaviour, exploring a new framework for assessing adaptability specific to Deaf adults. Items to assess adaptive behaviour were developed and taken to an expert group as part of a Delphi consensus methodology. The items yielded variable ~~rankings~~ ratings amongst participants~~. This suggested that there was little consensus on how best to measure adaptive behaviour~~, and it was hypothesised that this was due to a lack of clarity in the construct of adaptive behaviour when applied to the Deaf community.

~~Given the lack of consensus achieved in the first round of the Delphi consensus, a TA was conducted, yielding both Deaf-specific and general themes related to the construct of adaptability, including 'language', 'repetition', 'assessment', 'cultural differences', 'accessibility', and 'developmental factors'. From these analyses, a working definition was constructed.~~

~~This definition was modified as a result of the feedback, taking into account the difficulties arising within the themes regarding the assumptions present in a~~

[36] For an in-depth summary of the findings of this research, see section 5.1

~~definition about a person's developmental history, cultural identification, and accessibility of opportunities, and reflecting the impact of these features on how a person may behave in attempting to exclude confounding factors (e.g., anxiety, depression) that may be resultant from these experiences[37]:~~

> ~~*'a collection of skills that are used day-to-day based upon a person's prior learnt knowledge and access to opportunities, enabling the individual to draw upon a variety of resources to achieve their full potential within both Deaf and hearing contexts, in a manner consistent with their values and identified cultural norms and appropriate to their age.* **Any deficits in adaptive behaviour should be considered in light cultural, accessibility, and developmental factors, and which cannot be better accounted for by other causes before making diagnostic determinations of ID.**'~~

Discussion of Themes

Cultural Differences

Culture was a theme found to be pertinent to the conceptualisation of adaptive behaviour within this research, supporting previous thinking in relation to cross-cultural conceptualisations of adaptive behaviour (e.g., Taverna et al., 2011). Participant comments supported the notion that adaptability is contextually bound, considering the importance of cultural relativity. The extent of identification with deafness and the impact of identity on choices made is a

~~[37] For further consideration of how the underlying theory used in this research impacted upon conceptualisation of adaptive behaviour, and how this may be utilised in future research, see section 5.2~~

complex interaction and difficult to assess. Previously, the Deaf Identity Development Scale (Glickman, 1993) has been used to categorise identification with the community and Fischer and McWhirter (2001) built upon this scale to develop further predictions about what this may indicate about someone's attitudes and behaviour. For example, a 'hearing-impaired' person may conform to mainstream hearing attitudes, perspectives, and manner of behaviour, whilst an individual with an 'immersion identity' uses sign language and is involved with the Deaf community and its associated social, cultural, and political stance (p. 355). In the context of measuring adaptive behaviour, these findings may mean it is difficult to determine what course of action may be adaptive in a standardised way, especially without explicit knowledge of how someone's identity is likely to affect their behaviour and cultural frame of reference. Currently, this may depend on the perspective of the assessor in their interpretation of the results obtained through existing measures of adaptive behaviour. This judgement may be further complicated by individual cultural identification, which suggests that differences, or disagreement in the relative usefulness of items in assessing adaptability, may be exacerbated. As a result, guidelines for assessment and interpretation of items could represent a useful interim measure to understand the adaptive behaviour of this group.

Further, provision of examples of behavioural strategies within items was linked to culture, in that a tension arose between participants requesting examples for clarity but poorer ~~rankings~~ ratings being yielded in cases where other participants may have disagreed due to the influence of cultural factors. It appeared in many cases that greater clarity in the items, rather than suggesting specific ways of achieving behaviours, was important in obtaining higher ~~rankings~~ratings. Any

future scales could be comprised by retaining items with good specificity and those loaded with fewer assumptions about ways of acting, therefore minimising the need for interpretation. Alternatively, items with specific information about the way in which Deaf people achieve adaptive behaviours provides valuable insight that may be clinically useful in assessment and planning of interventions, yet this analysis suggests that detailed consideration needs to be given in the construction of this type of item.

Accessibility

Research by Harrison and Boney (2002) supported the notion that accessibility is relevant to the assessment of adaptive behaviour, in that specific behaviours may not be possible in particular environments and that individuals may modify their behaviour based on the demands of their environment. For example, individuals living in residential care may have relatively poorer access to community or leisure activities that can cater to their needs, thus limiting their opportunities to develop or display skills. As such, it is important to consider how environmental factors and the opportunities of the individual may be related within assessment[38].

The issue arising around the incorporation of items assessing literacy has been addressed by previous research. Although literacy is not correlated directly with IQ, it has been suggested that functional academic skills such as literacy affects the ability to carry out everyday demands (National Research Council, 2002).

[38] For further critique of the appropriateness of using current measures of adaptive behaviour, see section 5.3.1

Some participants within this research, however, commented that literacy may say little about adaptability, rather showing that a person may have had limited learning opportunities. It often appeared that where literacy, communication differences, or socialisation were introduced this caused divisiveness amongst the sample. However, these are correlates of deafness rather than an inherent feature of being d/Deaf[39]. ~~Rankings~~ Ratings and participant responses generally showed much greater agreement on the utility of items where problems identified were primarily in relation to having an ID rather than deafness, suggesting a mixed picture of how participants construct deafness in mediating adaptive behaviour[40].

This finding also reflects an issue of 'potential' in association with accessibility, in that whilst clinicians may be interested in potential in order to adequately formulate and plan supports for individuals, adaptive behaviour measures are generally designed to measure typical behaviour. The findings here suggest that skills selected for assessing adaptive behaviour should be considered carefully in light of things that Deaf people have had opportunities to learn, as it cannot be taken for granted that this would be general knowledge due to the risk of limited access to learning (Du Feu & Fergusson, 2003). As such, the notion of 'everyday skills' or 'day-to-day functioning', as referred to in the working definition generated within this study, may appear to be different for an adaptive Deaf adult.

[39] For further exploration of how adaptive behaviour can be understood in the context of deafness, see section 5.3.2

[40] For consideration of how intelligence and adaptability are inter-related, see section 5.3.3

Developmental Factors

The finding that many Deaf people may be reluctant to engage in particular behaviours based on their learning history may have some relevance to the concept of learnt helplessness (Seligman, 1972). Fogle (1978) described the dilemma being demonstrated within the results by conceptualising learnt helplessness as a coping behaviour designed to avoid threat. Fogle suggested that where events are outside the person's control and there is a lack of access to more effective coping responses, then this may be seen as an adaptive response. It may be that this is the case for Deaf people, who lack access to services, resources, and opportunities, and therefore may be relatively disempowered, especially if the individual has an ID.

Clinical Implications[41]

The literature showed conflicting research in the area of measuring adaptive behaviour, demonstrating: 1) a lack of clarity about the construct of adaptive behaviour; 2) how this is currently assessed with Deaf people; and 3) whether there are systemic issues in assessing the adaptive skills of Deaf people, and what these might look like. In order to provide an interim standardisation of practice, the identified themes have been translated into guidelines that can be used to guide clinical judgement in the area of measuring the adaptive behaviour of Deaf people[42]:

[41] For a summary of the clinical implications of this study, see section 5.4
[42] For further consideration of guidelines for practice, see section 5.4.1

Selection of knowledgeable respondents and triangulation

Gathering information from various sources, including those knowledgeable about the person's current everyday behaviour, the developmental experiences of the individual, and Deaf cultural factors was identified as important. It may be the case that different professionals have a better understanding of each of these components and it will be important for clinicians to draw on the themes identified within this research in order to inform which individuals may be best placed to do this. For example, a parent may be able to most accurately reflect on relevant developmental experiences and how this may have shaped the individual's behaviour, but a Deaf support worker may be better placed to consider cultural differences in some cases.

Gathering developmental history

In addition to exploration of cultural factors, specific assessment and information gathering with regards to the person's family background (e.g., history of deafness within the family, communication at home), identity, developmental history, language use, and cultural identification may all also impact on the behaviour of the individual. Through explicitly considering these features within history-taking, clinicians can begin to develop hypotheses about how to define behaviour that is adaptive (e.g., culturally and developmentally normative) in accordance with the definition developed within this research.

Assessing at Multiple Times Points Prior to Diagnosis

The fundamental importance of establishing access to opportunities was a theme arising throughout the research. Although it has been argued that the cause of behaviour differences is relatively less important than the ability to perform a behaviour, there may be significant adverse consequences of providing support as though the person has an ID rather than as a result of limited opportunities for learning. As such, teaching of skills throughout a period of assessment and concurrent treatment should be piloted before making firm determinations of causation (e.g., a diagnosis of ID), in order to rule out the final part of the working definition that deficits in adaptability are not the result of other factors.

Language assessment

It may also be useful to consider literacy skills separately to the assessment of adaptive behaviour, or to limit the influence of possible language deprivation with the assessment items. Although literacy is only correlated with the experience of being deaf, rather than being an inevitable outcome, poor literacy in this population (Traxler, 2000) indicates that either norms specific to this issue need to be further developed or an assessment of language should be a separate consideration due to the impact of this on a person's adaptability (National Research Council, 2002).

Explore use of compensatory mechanisms

Whilst most existing measures of adaptive behaviour do not consider behaviours that are performed with the assistance of another individual to be evidence that a person is adaptive in that scenario, the findings of this research showed that participants considered working with others to achieve goals to be a good indicator of a person's adaptability. This highlights not only the importance of incorporating this into scoring matrices, but actively assessing how a person uses alternative strategies for meeting goals if they are unable or unmotivated to do this independently.

Limitations

Despite the Delphi being a methodology designed to build agreement between professionals, the sample group did not reach the specified threshold of agreement for many of the items proposed to measure this construct. This could be due to a number of factors, including: the modifications made to the Delphi procedure interfering with the consensus-building process, and the complexity of the issues in defining adaptive behaviour. However, it could also reflect a significant diversity in conceptualisation of adaptive behaviour, and therefore practice, which has important implications for the assessment of Deaf individuals. Although the study modified standard methodology in order to be responsive to issues in construct validity, two major contributions of this research can be identified, including: 1) developing a working definition of adaptive behaviour, and

2) using the data obtained to develop some initial guidelines that clinicians can use as hypotheses to be test during assessment[43].

Future Research[44]

In the short-term, refinement of the guidelines produced should be considered through a case-based approach to assessment. It is acknowledged that this approach has limitations and in these circumstances the BPS recommend being adaptive in light of contextual factors (BPS, 2009). Further research should aim to test the hypotheses generated within these guidelines and for professionals to disseminate their findings broadly in light of this new knowledge, yet development of a new measure of adaptive behaviour is also recommended in the longer-term. The results herein demonstrated that a broad range of features are found acceptable across a range of contexts and as such it is not possible to further draw strong conclusions about which items should be included in a future measure. However, clear patterns about the core features of adaptability relevant to this population have been established which can act as a useful foundation for future developmental research.

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[43] For further discussion of study strengths and limitations, see section 5.5
[44] For further recommendations for future research, see section 5.6

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Extended Journal Paper

2 Extended Introduction

This section explores the literature surrounding deafness, ID, adaptive behaviour, and the interaction of these factors in greater detail. Different theories and models of adaptive behaviour are considered, and difficulties with using existing psychometric tools are discussed. These complex interacting factors are explored in terms of how they influenced the decision-making processes within the research.

2.1 Conceptualisation of ID and adaptive behaviour

ID is currently conceptualised in the context of broader theoretical models of human functioning, incorporating elements of: intellectual abilities, adaptive behaviour, health, participation, and context. These are mediated by support systems, demonstrating the interplay of each area in how an individual functions (Figure 1). However, these factors are arguably lost within assessment of intellectual ability and adaptive behaviour, particularly where the individual concerned is from a minority linguistic or ethnic background as health, participation, and context may be underplayed in standardised assessments of these areas.

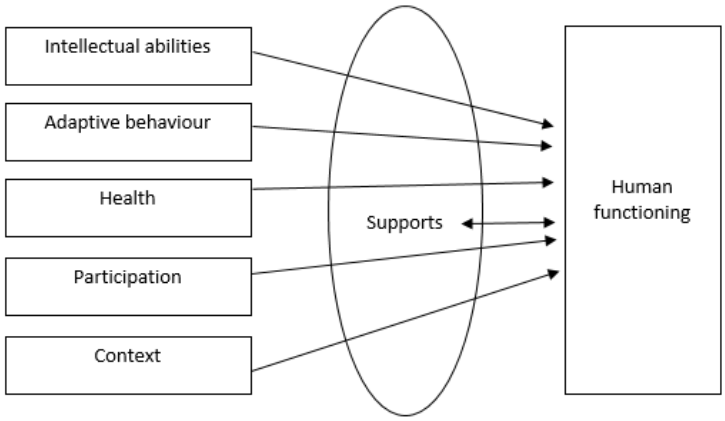

Figure 1. A conceptual framework of human functioning (Schalock et al., 2010)

Several attempts have been made to define adaptive behaviour and this has undergone multiple revisions. Presently, scales are based upon different conceptualisations, emphasising the proposed underlying factors to different degrees. Existing measures and guidelines may be limited in how to interpret health, participation, and context in the case of individuals from minority groups.

2.2 Epidemiology

Although reliable assessments of cognitive ability must differentiate ID from factors associated with deafness (Maller, 2003), the extent to which this is considered in existing measures is not clear. Whilst the Wechsler Adult Intelligence Scale – Fourth Edition (WAIS-IV) incorporates some information about which sub-tests may present particular difficulties for d/Deaf candidates (Wechsler, 2008), no norms are available for d/Deaf people. Although efforts have been made to produce guidelines for difficulties that may be encountered in assessment within test manuals, these factors may account for some of the variation in the prevalence rates of ID reported. Landsberger and Diaz (2010) argued that findings of elevated prevalence of psychiatric problems in Deaf outpatient populations as compared to hearing outpatients are reflective of clinician's difficulty in assessing Deaf individuals, due to the complexities of the impact of probable language deprivation, the experiences of Deaf people, and cultural factors associated with this population.

2.3 History of intelligence testing and development of adaptive behaviour

Early intelligence testing was developed by Binet and Simon as standardised testing procedures in an educational setting, being expanded upon by introducing norms for different age groups and refinement of the sub-tests (Becker, 2003). This was furthered by Wechsler through testing of army officers, leading to the scales that exist today (Boake, 2002). There is a lack of consensus as to whether intelligence quotient (IQ) represents a single construct of general intellectual capacity (Spearman's '*g*'), as opposed to a multi-dimensional approach to intelligence (e.g., verbal comprehension, perceptual reasoning, working memory

and processing speed, as assessed by the WAIS-IV; Fiorello et al., 2007). Recent evidence from statistical modelling has lent support to multi-factorial models of intelligence, as current measures of cognitive ability generally assess (Schneider & Newman, 2015).

Testing of cognitive ability has been met with extensive criticism since its inception. Whilst IQ tests could be considered the best predictor of success in criteria regarded as desirable for living in the Western world (e.g., educational achievement, occupational success; Sternberg, Grigorenko, & Bundy, 2001), these findings should be interpreted with caution as the strength of correlation between school attainment factors increases with age, possibly reflecting overlap in the content of testing rather than good predictive validity. Given the foundations of intelligence testing are based within a particular cultural context, it is perhaps unsurprising that IQ tests have also been critiqued for racial and cultural bias (National Research Council, 2002). The content of items within testing may lead to bias through implicitly favouring one group over another (e.g., in the case of Deaf and hearing groups, the emphasis on spoken language skills). However, Valencia and Suzuki (2001) reviewed the literature, showing that only around 29% of investigations of cultural bias in intelligence testing concluded that bias was present. Thus, this is a contentious issue within the literature. Whilst it is suggested that ID is over-diagnosed in minority groups, recent research has suggested that in many cases any differences can be attributed to the correlated disproportionate number of those from low socio-economic status background (Shifrer, Muller, & Callahan, 2011). However, these authors argued that racial or cultural biases may alternatively be reflective of the diagnostic methods used (e.g., appropriate selection of tests).

It has been noted that there may be multiple, confounding factors in assessing cognitive ability with Deaf people (e.g., the adaptation of test materials and procedures, confounding issues such as language deprivation, and concerns about cultural sensitivity, Baker & Baker, 2011; Leigh & Pollard, 2003; Morere & Allen, 2012; Pollard, Rediess, & DiMatteo, 2005). These factors make it difficult to establish norms as the reliability and validity of the assessment cannot be ensured. However, a comprehensive and culturally sensitive assessment of adaptive behaviour within ID diagnosis may be an alternative way of establishing

whether differences in adaptive skills are linked to cognitive functioning, or denote different cultural norms. Although adaptive behaviour scales may not be as culturally bound as IQ tests, Webber, Jenkinson and McGillivray (2002) noted that using American normative data of adaptive behaviour in an Australian context may not give an accurate or valid measurement, which the authors suggested may be in relation to cultural differences in literacy and social skills, and discrepancies in availability of resources. Respondents from other cultures may have different expectations of personal independence, or place different emphasis on skills that are desirable to perform (and the way in which these are performed; Taverna et al., 2011). However, many studies examining adaptive behaviour in d/Deaf children presently focus on associations between adaptability and cochlear implantation (CI), fitting with a medicalised perspective of deafness and not accounting for social and cultural differences.

Ewing (1943) historically concluded that deafness in young children has no impact or "backwardness in adaptive behaviour which is independent of communication" (p. 138). This finding is both outdated and appears incorrect in light of current evidence, which suggests that adaptive behaviour may be influenced by factors other than language (e.g., motivational factors, acquisition of skills; Schalock & Luckasson, 2004), and that language impacts upon adaptive behaviour assessment outside of scales purely designed to assess communication (Suess et al., 1981). However, this view did not account for the relative impact of deafness on social development and learning. For example, Denmark (1978) suggested that mild ID in a hearing person may impede their ability to become literate, but still have enough grasp of language to become socially competent. Conversely, he suggested that a pre-lingually Deaf person with the same level of ID is more likely to have worse adaptive skills, indicating that the impact of deafness on development would impede the process of becoming linguistically adept. This may, in turn, impact how Deaf individuals are functionally able to communicate needs and wants within everyday activities, implicating communication at the core of adaptive skill development.

2.4 Deafness as a psychological construct

The different terminology used in the context of deafness is highly important in conveying meaning: deaf, Deaf, hearing impaired, and hard-of-hearing all describe the medical condition of not being able to hear, but denote different underlying assumptions (Roberts & Hindley, 1999). The lower-case 'deaf' is a medical conceptualisation of deafness, referring to hearing impairment, often used in the context of people who have acquired deafness later in life or are deaf but do not consider themselves part of the Deaf community, using spoken language and hearing technologies as preferred forms of communication (Ladd, 2003). This research uses a combination of the terms 'Deaf', used to describe a linguistic minority who are usually deafened pre-lingually and use sign language as their first or preferred language (Meadow-Orlans & Erting 2000), and 'd/Deaf' to denote situations in which the cultural affiliation of the individual is not clear, or to refer to both 'Deaf' and 'deaf' people. This can be a significant distinction when working with d/Deaf individuals; social identity theory posits that individuals self-categorise into groups of similar others, adopting the beliefs, values, and behavioural norms of that group (Stets & Burke, 2000). Those who are Deaf consider themselves a minority culture, which has implications for assessment, as it suggests that there may be differences in how a person approaches or understands a task or functions in their day-to-day life. Therefore, in psychological assessment it should be of paramount importance to consider the context of behaviour based on culture and experiences of the individual.

Although some studies using measures of adaptive behaviour with d/Deaf children conclude that existing scales are appropriate (e.g., Roberts & Hindley, 1999), this may be related to the decreased importance of culture and emphasis on this within children's adaptive behaviour measures. Mitchell and Karchmer (2004) estimated that 90-95% of d/Deaf children are born to hearing parents, meaning that families may know little about Deaf culture and a medical view of deafness is adopted, impacting on the experiences and ~~,~~ identity~~, and~~ development of the individual.~~.~~

2.5 Relationship between adaptive behaviour, cognitive ability, and deafness

One factor implicated in the interaction of cognitive ability, adaptive behaviour, and deafness is language acquisition. It has been shown that d/Deaf children born into hearing families are more likely to experience difficulties in developing spoken language and are less likely to develop age-appropriate language than their peers, as a possible combination of inadequate and later exposure to fluent language modelling (Herman & Roy, 2006). Deaf children of Deaf parents are thought to develop language skills at an equal rate to their hearing peers, whilst d/Deaf children of hearing parents often experience difficulties and delay (Jackson, 2001). Marschark and Spencer (1997) hypothesised that if d/Deaf children acquire normal levels of language skills this provides the foundation for internalising social cues and regulating interactions, suggesting a strong link between early experiences and the acquisition of adaptive skills.

Vernon (2005) noted that language deprivation associated with deafness may impact upon the validity of assessments of cognitive ability with d/Deaf children, yet there are no recent reviews examining best practice for the psychological testing of adults. Braden (1994) estimated that the verbal IQ of d/Deaf children tends to fall around one standard deviation below norms for their hearing peers. However, these results could be attributed to poor construct validity in that there may be inherent testing and item biases in cognitive assessments (Maller, 2003). Du Feu and Fergusson (2003) showed d/Deaf people often have poorer general knowledge than their hearing counterparts, as early deafness reduces opportunities for incidental learning (e.g., over-hearing conversations, lack of access to group conversations) crucial for developing a range of verbal, social, and cognitive skills (Moores, 2001). Further, Hauser, O'Hearn, McKee, Steider, and Thew (2010) provided evidence that prelingually d/Deaf people develop a knowledge base different from that of hearing people due to the visual nature of their skills acquisition. Many of the issues in establishing a reliable measure of cognitive ability in this population are related to impact of language deprivation on learning.

Schalock and Luckasson (2004) suggested that IQ assessment usually determines maximum performance or potential, whilst adaptive behaviour

measures assess typical performance. However, expressive language development and cognitive ability may be easily conflated within measures of cognitive functioning, especially where verbal indices are relied upon to generate full scale IQ scores (Baker & Baker, 2011). Low scores may represent problems with processing information, not having acquired skills, motivational factors, or being able to formulate and express answers adequately, rather than being reflective of ID (Schalock & Luckasson, 2004). These noted issues with IQ assessment may make it harder to determine whether a person's typical performance is representative of their potential.

De Giacomo et al. (2013) conducted research into cognitive ability and adaptive behaviour in deaf children with CIs. However, this type of research typically focuses on negative outcomes, and interpret the data in such a way that makes deafness appear negative without critically considering the findings. For example, De Giacomo et al. (2013) reported that previous research has concluded that there is a strong relationship between cognitive ability and adaptive behaviour in deaf children (Oghalai et al., 2012). However, these constructs appear to converge at the lower end of the spectrum, and it may be that this is simply reflective of testing biases showing that deaf children perform more poorly than their hearing counterparts in standardised psychological assessments, making the scores less distinct. In De Giacomo et al.'s study (2013), tests of nonverbal intelligence and adaptive behaviour were reported for children of an average of 79.5 months (6.5 years) after implantation and compared to a control group of gender- and age-matched hearing children. Although the authors conclude that "these data suggested that CI was associated with improvements in behavioural adaptability" (De Giacomo et al., 2013, p. 1978) this claim appears to go beyond the ability of the author's methodology used, given that no pre-CI or deaf control group data was collected. These comments and conclusions are perhaps reflective of the broader rhetoric surrounding adaptive behaviour and deafness, and fail to critically interpret how the construct of adaptability may apply to this population.

These findings demonstrate the importance of accurately assessing typical behaviour of a Deaf individual. However, this arguably goes uncaptured by current measures, which have not been designed with Deaf people in mind.

Failure to perform skills which are considered aspirational and useful to function in mainstream, American, hearing society may have little relevance to the everyday lives of Deaf people. Tassé et al. (2012) identified that a more clinically useful conceptualisation of adaptive behaviour may incorporate the individual's social and cultural context, coupled with a collection of skills that are relevant to day-to-day functioning, yet this may not be happening in practice.

2.6 The Sociocultural Context of Adaptive Behaviour

Adaptive behaviour may be a product of social expectations about the way in which individuals become competent in fulfilling their needs and interacting with others. This conceptualisation of adaptive behaviour leads to the conclusion that measures developed in one cultural context may not be directly applicable to those living in different cultures. This is particularly pertinent in relation to Deaf people, who live in a unique context of balancing conformity to a hearing society as well as a Deaf community.

Valentine and Skelton (2007) suggested that norms valued by mainstream society may have limited relevance to the aspirations or expectations of Deaf young people, nor can these behaviours always be achieved in the same ways. Developmental trajectories may be different in this population, and therefore influence the accurate measurement of personal independence and adaptability. Existing measures of adaptive behaviour focus only on a Deaf person's integration with hearing culture, which may be limited and punishing, and thus a wealth of strengths and skills within a Deaf context may be overlooked. For Deaf people, this may communicate an assumption through assessment that it is necessary and desirable to adjust to majority cultural expectations. However, given the history of oppression of the Deaf community by hearing people (Valentine & Skelton, 2007; Ladd, 2003), adapting to a majority hearing society may not be considered adaptive for many Deaf people and behavioural assessments should be interpreted with caution.

2.7 Current Measures of Adaptive Behaviour

The Vineland Adaptive Behaviour Scale manual (VABS; Sparrow, Balla, & Cicchetti, 1984) stated that the four main areas for assessment of adaptive behaviour (e.g., motor skills, activities of daily living, communication, and social) were developed through reviewing literature on child development and from anecdotal clinical and research experience, representing the daily activities of the majority of people. Whilst this was then subjected to rigorous validation through large-scale sampling of 3,000 American children, this demonstrates that adaptive behaviour scales appear to be structured without a clear link to underlying theory, and attempts to construct measurement scales are based on a limited evidence base.

The Adaptive Behaviour Asessment System – Second Edition (ABAS-II; Harrison & Oakland, 2003) is based on the 10 skill areas identified by the AAIDD, loading less strongly on communication than the VABS as it represents a smaller portion of the scale as a whole. Therefore, general adaptive composite scores (derived from scoring of the whole measure) could be hypothesised to be a more accurate representation of adaptive behaviour in Deaf people. The Adaptive Behaviour Assessment System – Third Edition (ABAS-III) concluded that the general composite scores of a d/Deaf sample group did not significantly differ from norms for the hearing population, but that there were deficits in the communication domains (Harrison & Oakland, 2015). Despite the assertion of equivalence in scores, there are few sample characteristics reported for this group (e.g., age ranges, hearing status, extent of cultural identification, cause of deafness), limiting the authors' conclusions of validity.

Lopata et al. (2013) compared measures of adaptive behaviour of children with high functioning autistic spectrum disorders, concluding that the VABS was more likely to yield higher scores than other measures. Although the ABAS-III manual suggested that convergent validity with the VABS was strong (averaging r=0.67 across the domains; Harrison & Oakland, 2015), this data was derived from a clinical sample where the majority of scores fell in the low or extremely low range, meaning that there is limited evidence of greater specificity of either scale. The ABAS-II has previously been found to be more sensitive to the more severe range of difficulties (Lopata et al., 2013), possibly due to the emphasis on domains

assessing self-care and basic living skills. This indicates that it may be more appropriate for clinical use with those at a more severe range of the ID spectrum. However, it is important to note that Lopata et al. (2013) investigated only the adaptive behaviour of 6-11 year olds. The ABAS-II has separate forms for children and adolescents compared to adults and therefore the generalisability of findings may be limited.

This study was designed to investigate adaptive behaviour in adults rather than children. Previous research has suggested that the adaptive behaviour of d/Deaf children does not vary significantly from those of hearing children (Harrison & Oakland, 2015), but this may be due to increased emphasis on motor competence and non-verbal skills. Despite some research finding that the VABS may be appropriate to use with d/Deaf children (e.g., Roberts & Hindley, 1999), these findings may not be easily extrapolated to Deaf adults. The main focus of adaptability in adult measures of adaptive behaviour tends to shift more towards social and occupational functioning (Frick, Barry, & Kamphaus, 2010), meaning that differences could conceivably be more apparent. Valentine and Skelton (2007) argued that young people transitioning into adulthood may be experiencing increased independence and have more complex demands placed upon them which may have previously been masked.

2.8 Assessment Issues

Deaf people have previously been shown to achieve lower scores on standard assessments of adaptive behaviour than other minority groups (Braden, 1994). Although this type of norm-referencing allows for interpretation of scores in the context of individual performance in comparison to others, Baker and Baker (2011) highlighted that Deaf people are rarely included within normative samples, and that this is even more unusual in the case of Deaf people with ID. Criterion-referenced tests conversely describe the skills and knowledge of an individual who scores at a particular level, allowing for goals for progression to be established (Green, 2002). A true criterion-measured assessment may provide information about what tasks an individual must be able to perform before achieving different levels of proficiency (Glaser, 1963), and in this sense may be

both developmental and hierarchical in nature. However, current measures of adaptive behaviour are usually norm-referenced. Despite the relevance of criterion-referencing in this case, no attempts have been made to develop valid and reliable criteria for Deaf people, which may be made more difficult due to issues in the definition and construction of adaptive behaviour.

Equally, current psychological assessments may need to be adapted to provide reliable and valid assessment. However, there are differing opinions as to what constitutes reasonable adaptations to tests; the British Psychological Society guidelines (BPS, 2010) for working with individuals with a 'hearing impairment' state that British Sign Language (BSL) interpreters may translate test instructions but that "it is not appropriate for a signer to interpret the questions or items in a written test" (p. 3). The guidance acknowledges that there is a need for translation of instructions, but by not also translating the content of tests many Deaf people may be disadvantaged in testing. The apparent gap in clinical guidelines both in terms of test adaptation and assessment procedure is indicative of the relative paucity of research discussing the practical or conceptual issues of psychological assessment with Deaf people.

The difficulties in establishing reliable adaptations to test materials due to the population-specific factors described above (e.g., language deprivation, learning experiences, cause of deafness) has meant that norms for Deaf people can be impractical to develop, and it is not clear whether these lead to reliable estimations of ability. Braden (1991) argued that although group-specific norms can sometimes be useful in interpreting results, the alterations to standardised testing procedures may in fact limit the validity of the normative data obtained. He further suggested that in some cases atypical profiles might be more common in particular groups, which makes it difficult for clinicians to establish differences between individuals who may have particular deficits by comparing within the specified group.

2.9 Developing models of adaptive behaviour

Thompson et al. (2002) reviewed the development of adaptive behaviour as a construct, highlighting that there is little agreement on how to define it. Due to the

lack of theoretical basis, adaptive behaviour in practice looks like a combination of practical living skills and the absence of psychopathology (Greenspan, 1997). Historically, adaptive behaviour may have comprised only those behaviours which were essential to survival: “homeostasis, acquisition and conservation of energy, avoidance of injury, and facilitation of reproduction” (Viamontes, 2012, p. 323). This terminology also reflects an overlap with research in artificial systems and the study of simulating adaptive responses within controlled environments (Harvey, 1995). Staddon (1983) explained adaptive behaviour from an evolutionary perspective. From this position, adaptive behaviour is designed to ensure the survival of the individual, meaning that natural selection results in a lower rate of reproductive success in passing traits associated with poor adaptability on to future generations. However, heritable features or antecedents of adaptive behaviour are arguably of diminished interest in the present day: psychologists are primarily interested in the capacity for individuals to learn from environmental contingencies and select appropriate problem-solving strategies as an adjustment to circumstances.

Behavioural theory might further the idea that adaptability is a product of our learning and history of reinforcement contingencies. When individuals act within an environment, this influences both the environment and makes changes to the individual themselves acting as reinforcement (e.g., the individual receives some reward for behaving, making them more likely to act this way in the future; Ferster & Skinner, 1957). Through this process, individuals’ behavioural repertoires become shaped to be effective within that environment, explaining how an individual can become adaptive. However, it may be the case for Deaf people that attempts to be adaptive within the hearing world are met with reinforcement contingencies which do not reward this behaviour (e.g., setbacks and/ or humiliation through communication barriers preventing needs being met); these experiences could be considered a form of positive punishment, increasing a person’s anxiety and decreasing the likelihood the behaviour will be repeated in future. Holland (1978) argued that the adaptive value of behaviour may be overlooked by not thoroughly exploring the reinforcement contingencies on which a behaviour may be determined. This argument appears to have parallels with adaptive behaviour in terms of how problems are defined and by whom (e.g.,

whether behaving in a way that is inconsistent with mainstream norms can be adaptive).

Social cognitive theories also suggest that reciprocality in behaviour, cognitive and personal factors, and environmental events are implicated in the both producing and responding to demands (Wood & Bandura, 1989). People may be capable of exerting influence in their lives, and actively select environments that are rewarding within their capacity to cope. Limitations in goal-directed behaviour may arise where individuals do not believe in their own abilities, leading to avoidance and possible lack of engagement in behaviours that would otherwise be adaptive. This may be particularly relevant to the experiences of 'deaf' and 'Deaf' people, who may have repeated experiences of setbacks or humiliation within everyday activities, and become less inclined to engage with environments that may be challenging. Valentine and Skelton (2007) speculated that not engaging with the hearing world can be an adaptive choice because of these experiences. Understanding this behaviour in the context of deafness may be achieved through investigating whether adaptability is shown in other contexts, leading to the development of culturally affirmative behavioural goals, and distinguishing the choice not to engage with a hearing world from ID.

Psychodynamic frameworks, conversely, use the terminology of 'adaptability' to suggest that adaptive responses are those which are the most psychologically useful strategies for navigating interactions and reducing anxiety. However, in the context of deafness it may be that the stress of living in a hearing world induces over-reliance on unhelpful habitual behaviours that would not be considered adaptive by a mainstream hearing culture. In terms of a psychodynamic explanation of how adaptive behaviour may develop, it may be that Deaf people are more at risk of failing to establish and maintain healthy relationships, as a result of impaired ability to develop object relations through language deprivation (Glickman, 1996). Parents, in these circumstances, may over-compensate for deafness by becoming overprotective of their child, who they consider to be vulnerable. This may in turn impair the development of daily living skills and appropriate strategies for coping within hearing and Deaf environments outside of their family lives through lack of opportunity to develop these skills (Charlson, Strong, & Gold, 1992). Langher, Cataudella, Pirrò, and D'Angeli (2012)

alternatively suggest that being adaptive to one's context is rooted in the interplay of cognition and the unconscious mind. In this way, consideration of the role of defences allows for conceptualisation of reasons for being unable to respond to situations adaptively, for example due to lack of opportunities within the person's environment. However, this account does not consider the role of experiences of being Deaf in leading to behaviour that is adaptive, focusing instead on maladaptive behaviours and deficits.

From a developmental perspective, Piagetian theory suggests that maturation, experience (of consequences within the environment on intelligence), social transmission (language, education), and self-regulation are required for effective learning (Piaget, 1964). Given that it is known that opportunities for learning are diminished for d/Deaf young people, through lack of access to language (Moores, 2001), it may therefore be very difficult to develop a range of complex social and emotional skills. Mathews (2015) suggested that educators may have low expectations of d/Deaf children, and as a result may struggle with skill acquisition as they may be provided less responsibility or fewer opportunities to learn than hearing counterparts, contributing to possible learnt helplessness.

The impact of early language deprivation and loss of learning opportunities may be evident in assessment for many years, although evidence suggests that d/Deaf children of average intelligence can catch up with their hearing peers over time in some social-cognitive skills (Morgan, 2015). Findings that Deaf children of Deaf parents are not delayed in their social-cognitive skills as compared to their hearing peers (e.g., theory of mind; Schick, P. de Villiers, J. de Villiers, & Hoffmeister, 2007) provides evidence that deafness is not a risk factor for cognitive or behavioural difficulties, but that language deprivation and factors related to communication may impact on social, emotional, and behavioural development (Marschark, 1997). This may, in part, be due to social transmission factors as proposed by Piaget, but may also represent a feature of attachment theory, in that adaptability may be associated with increased capacity to explore one's surroundings from a secure base. Deaf children and their mothers may find it harder to establish closeness and negotiate joint attention (Thompson, Kennedy, & Kuebli, 2011), possibly impacting the child's attachment style and therefore confidence in independent exploration and development of adaptive

skills (Matas, Arend, & Sroufe, 1978). However, Keller (2008) suggests that the idea of attachment security as adaptive is loaded with cultural assumptions, in that a secure attachment is associated with developmental outcomes valued mainly by Western societies (e.g., personal independence). As this may take on a different meaning in the context of deafness, attachment in itself may not be a good marker of adaptability (Thompson et al., 2011).

Although these accounts have some differences in the relative emphasis placed on environment and the individual, or the way in which the behaviour is adaptive (e.g., to survival, to protect psychological wellbeing, to develop skills) adaptability appears to be a useful trait of the individual that is multi-faceted and influenced by a range of internal and external factors. The way in which this might interact with both the physical experience of deafness in terms of development, as well as the cultural position within which this is situated suggests that the study of adaptive behaviour in the context of Deaf people may be able to advance knowledge about the construct of adaptive behaviour generally, as well in a way that appropriately considers the impact of these factors unique to the population.

2.10 ~~Aims of~~Rationale for the Present Study

Previous sections have outlined the relative impact of education, family, attachment, language, access, and behavioural factors associated with membership of a culturally distinct community and how these may impact on the construct of adaptive behaviour, advancing the argument that adaptive behaviour may qualitatively differ for Deaf people. As such, focusing on re-norming existing measures of adaptive behaviour was not thought to account for these qualitative differences. The use of existing measures assumes that the items selected as desirable behaviours for a majority hearing culture are also the behavioural norms to which Deaf people conform. Additionally, many items may become more complex for a d/Deaf person to complete as a result of developmental factors rather than a deficit in their independent functioning, thus confounding deafness, cognitive ability, and adaptive behaviour. Measures of adaptive behaviour in Deaf populations should instead be guided by a coherent theoretical model of adaptability that accounts for the issues identified by this critique. Tassé et al.

(2012) has previously called for further development of understanding adaptive behaviour across cultures, indicating a significant gap in the evidence base that this research aimed to address.

One of the major critiques arising from current assessments of adaptive behaviour in the context of assessing Deaf individuals is the impact of culture on behavioural norms, and the experience of being Deaf in relation to the development and expression of adaptive skills. Whilst it may be the case that a Deaf individual is capable of performing different behaviours in some settings (e.g., within the Deaf community), but not in others, this would be considered a failure to perform a behaviour when needed in many current measures, thus not providing an accurate reflection of the individual's ability. Adaptive behaviour assessments are designed to measure 'typical' performance, but this may be conceptualised differently in the case of individuals who balance competing demands from different cultures.

Whilst context is purported to be a crucial component of adaptive behaviour measures, it appears that this is relatively unacknowledged within the evidence base. Even where it may be considered, it has been demonstrated that even qualified and highly trained professionals find it difficult to make these determinations accurately (Landsberger & Diaz, 2010; Morgan & Vernon, 1994). In this sense, understanding and measuring adaptive behaviour in a reliable and valid way will minimise the interpretation that clinicians have to make, which could be of great clinical utility.

3 Extended Methodology

This section discusses the research methodology and decision-making processes throughout the research. Figure 2 demonstrates an overview of the research process, denoting the initial review of the construct and development of a theoretical model to guide item development. This model was analysed through a mixed-methods process (a Delphi consensus and TA) to capture both the utility of the proposed items and consider how adaptability is conceptualised by expert participants. Following this initial methodology, the Delphi procedure was adapted to gather initial data investigating baseline functioning of Deaf adults of average intellectual functioning using the proposed items.

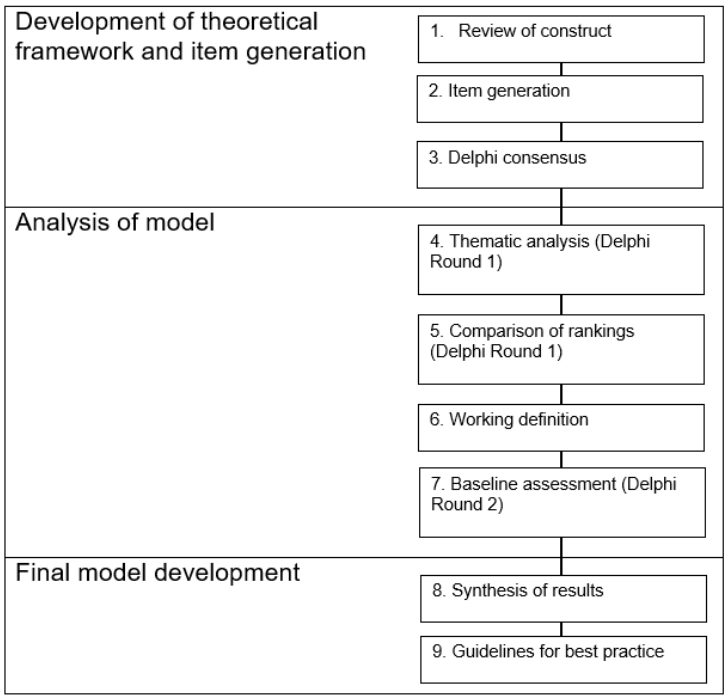

Figure 2. Overview of the research process

3.1 Review of construct

3.1.1 Systematic Literature Review

A systematic literature review associated with this thesis aimed to establish best practice in assessment of cognitive ability and adaptive behaviour (Moore, Merdian, Baker, Braham, & Gresswell, 2016). A search strategy was developed in order to investigate: what tests are used to assess cognitive ability and adaptive behaviour with culturally Deaf adults, and how are these tests or clinical practice adapted to best ensure validity. Search terms related to deafness, sign language, adaptive behaviour, cognitive functioning, psychometric testing, and intellectual disability were selected, varying dependent on the MESH heading used by the different databases searched. A full list of terms can be found in Appendix E. Whilst 106 full papers were retrieved in relation to these research questions, only 13 were considered applicable to the final review.

The results indicated that a wide range of different measures are used, and there are inconsistencies in the adaptations adopted to account for difficulties in undertaking and interpreting these tests. The systematic review excluded papers focussing on adaptive behaviour of children, due to the stated difficulties in extrapolation of this to adults, as well as excluding papers that made no consideration of cultural and linguistic aspects relevant to Deaf people. Using these criteria, only a single paper was identified considering the transferability of adaptive behaviour as a construct to Deaf people.

The review found the 'ADL[45] staircase' (Sonn & Hulter-Åsberg, 1991) was an adaptive behaviour assessment that had been used with Deaf sign-language users. The primary focus of this measure is on independence and dependence in activities of daily living (including self-care items and those that involve community participation). It has a hierarchical scoring structure, grading responses from 0, signifying complete independence, to 10, indicating total dependence (Jakobsson, 2008). The ADL staircase was heavily critiqued within the included paper (Werngren-Elgström, Iwarrson, Elmståhl, & Dehlin, 2005) as the ADL staircase focuses only on perceived independence and dependence

[45] Activities of Daily Living. These are generally defined as self-care tasks such as eating/ drinking, bathing, dressing etc. Instrumental activities of daily living describes more complex skill such as community living, financial management, and communicating with others (Foti & Koketsu, 2013).

scales rather than the broader adaptive domains that a multidimensional assessment of global adaptive behaviour would normally consider (e.g., in the VABS or ABAS-II). These findings highlighted the many conceptual issues in measuring adaptability of Deaf people, such as adaptation to testing procedures and the difficulty and relevance of adaptive skills selected for assessment when applied to Deaf people.

Due to the systematic literature review yielding only one paper related to the assessment of adaptive behaviour with culturally Deaf adults, an independent literature review was undertaken for the thesis to inform understanding of the theoretical foundations of the construct of adaptive behaviour and how this may interact with deafness. Literature regarding the construct of adaptive behaviour was ~~also~~ retrieved through Google Scholar searches related to: models of adaptive behaviour, theoretical development work in conceptualising the construct, factor analytic studies of adaptive behaviour. Further, background information was gathered from manuals of measures of adaptive behaviour~~viewed for this study,~~. The findings of this search indicated~~ing~~ significant difficulties in how the construct is conceptualised. This has significant implications for the measurement of the construct and how clinicians attempt to deal with identified shortcomings. The process of the research followed a stepped development process, remaining responsive to the data and making alterations in alignment with the findings (Figure 2).

3.1.2 Literature Review of Theoretical Foundations of Adaptive Behaviour

The varying components and models of adaptive behaviour show that there is a lack of clarity regarding both how to conceptualise adaptive behaviour, indicating an unclear underlying structure, and how this may be measured as a result. There are multiple existing models of adaptive behaviour and assessments are based on different conceptualisations of adaptive behaviour. The following observations of gaps within the literature were noted:

1. Definitions of adaptive behaviour are unclear and lack an underlying theoretical model

2. Developing specific behavioural criteria relevant to both Deaf and hearing contexts
3. Sensitivity to mild ID

The first point provided a starting point for developing new models of adaptive behaviour, allowing for consideration of construct validity, whilst the second and third points were primarily addressed within the item development process.

3.1.3 Practical, Social, and Conceptual Competence

Early work by McGrew and Bruininks (1990) attempted to impose a theoretical model of personal competence onto adaptive behaviour in order to increase its clinical utility and consider factors that may contribute to adaptive behaviour. Their study expanded knowledge of the relationship between adaptive behaviour and maladaptive behaviour, and their findings have since been developed to comprise practical, social, and conceptual skills (Schalock et al., 2010). Most current conceptualisations of adaptive behaviour are based upon this tripartite model, defining the core competence skills as: practical (e.g., personal care, occupation, travel); conceptual (e.g., communication, money, time); and social skills (e.g., interpersonal skills, responsibility, self-esteem). Factor analytic studies have also provided evidence that adaptive behaviour could comprise motor/ physical competence, but this is not consistently found to be an independent factor, particularly for older children and adults (Tassé et al., 2012). Although frequently supported by factor analysis, it could be argued that this retrospective method of defining adaptive behaviour is inadequate in the sense that the collection of skills are drawn together through statistical means as opposed to a meaningful consideration of the underlying cognitive processes and social influences affecting adaptive behaviour. Factor analysis may be of limited value here in its ability to provide meaningful explanations of data, and critiques have also noted that the way in which this technique is applied can affect outcomes significantly (Fabrigar, Wegenar, MacCallum, & Strahan, 1999). The skill areas that current measures assess are linked with the conceptualisation of adaptive behaviour as comprising practical, conceptual, and social skills, although it should be noted that prior to understanding skills in this way, measures

had been simply based on a collection of everyday behaviours lacking a unifying theory (Webber et al., 2002).

The ABAS-II relies on ten separate skills areas in assessment of adaptive behaviour: communication, community use, functional academics, health and safety, home or school living, leisure, self-care, self-direction, social, and work (Luckasson et al., 1992). The Vineland-II (Sparrow, Cicchetti, & Balla, 2005), conversely, categorises the domains of adaptive behaviour into four areas: motor skills, activities of daily living, communication, and social. This scale has been widely regarded as a leading tool for the best practice of adaptive behaviour assessments (Taverna et al., 2011). These domains consist of related sub-domains: communication is assessed through receptive, expressive, and written language skills; daily living skills comprise performance of behaviours in personal, domestic, and community settings; socialisation is characterised by relationships with others, leisure activities, and coping skills (e.g., responsibility and sensitivity); and motor skills encapsulates gross and fine movement and coordination (Sparrow, Balla, & Chichetti, 1984). However, this relies heavily on speaking, listening, and literacy, and therefore may confound the assessment process for Deaf people.

Based on the criticism that current measures of adaptive behaviour are relatively poor at assessing those who have mild impairments, skill areas that were primarily comprised of low ability items were discarded. For example, although Webber et al. (2002) highlighted that ‘self-care’ and ‘self-direction’ are important to families and often targeted as an area for intervention, these represent more severe levels of impairment and scales such as the ABAS-II have been shown to be more likely to adequately assess the functional ability of these individuals (Lopata et al., 2013). This research aimed to develop items for an assessment able to discriminate ID at the higher end of functional skills.

Through this process, the following seven areas were deemed to be useful: transportation (e.g., planning and executing travel arrangements, problem-solving); finance (e.g., budgeting, functional use of money, monitoring of spending, financial responsibility); recreation (e.g., leisure activities, excellence in play, managing interactions); health and safety (e.g., healthy living, following

rules, maintaining health/ safety); social awareness and competence (e.g., recognising and understanding emotions, maintaining interpersonal relationships, social problem-solving); communication (e.g., functional use of language, interaction with Deaf and hearing people, monitoring effectiveness of communication, strategies for communication); and work (e.g., home projects, employment, distractibility, autonomy, and ability to learn new skills).

3.1.4 A Neurocognitive Model of Adaptive Behaviour

Given that a theoretical foundation for adaptive behaviour was deemed to be limited, it was determined that an underlying foundation for adaptive behaviour could be considered to further understand the ways in which individuals respond to their environment. Increasingly the field of neuroscience may offer an adjunct to the diagnosis of ID, but presently clinical assessment is the best practice for identifying impairments to functional skills (Tassé, Luckasson, & Nygren, 2013). However, it may be that this observation identifies a link to the neurological underpinnings of behaviour, which may go relatively unacknowledged in current measures of functional skills.

Lezak (1995) proposed that executive functions impact on a range of goal-related behaviour. Executive functions are defined as 'integrated cognitive processes that determine goal-directed and purposeful behaviour… and to monitor and adapt behaviour to fit a particular task or context' (Cicerone et al., 2000, p. 1605). These functions are based on 4 overarching areas: volition, planning, purposive action, and effective performance (Lezak, 1995). Executive functioning is thought to overarch several cognitive skills in allowing an individual to become aware of a problem, formulate plans, and achieve specific goal-related behaviours. Adaptive behaviour requires structure and organisation of thoughts, evaluating various responses, and engaging in planning and abstract thinking to achieve goals at its highest level (Panerai et al., 2014), and therefore the incorporation of ideas related to executive function may be a valid way of structuring a measure. Sbordone (2000) suggested a 15-stage model of executive function based upon

these 4 factors (Figure 3), from which items for this study were generated in conjunction with the amalgamation of theory described above[46].

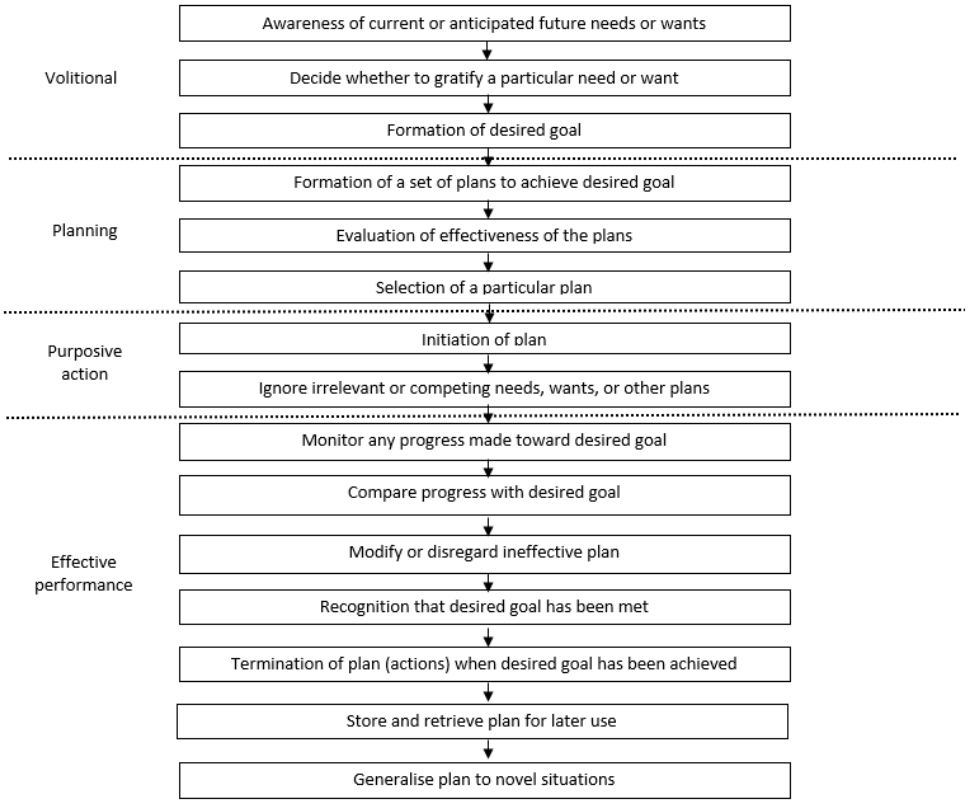

Figure 3. A 15-stage model of the executive functions of the brain (Sbordone, 2000)

Whilst other models of executive functioning were considered in their relation to adaptive behaviour, many of these focus heavily on memory, inhibition and the ability to shift between tasks (Lehto, Juujävri, Kooistra, & Pulkkinen, 2003), which may be less relevant to the assessment of everyday adaptive skills. Previous research has identified links between executive functioning and adaptive behaviour (Clark, Prior, & Kinsella, 2002), but few attempts appear to have been

[46] For further discussion of neurocognitive models applied to adaptive behaviour, see section **

made to explain the inter-relation between these variables from a theoretical standpoint. It has been noted that the VABS and the Behaviour Rating Inventory of Executive Functioning (BRIEF; Gioia, Isquith, Guy, & Kenworth, 2000) are well correlated, but often findings arise from studies of individuals with autistic spectrum disorders and are drawn~~ing~~ from small samples, which may limit the generalisability of the results. The BRIEF authors suggest an eight domain model of executive functioning (including: inhibition, shifting, emotional control, initiation, working memory, planning, organisation, and self-monitoring; Gioia & Isquith, 2004). However, this may have limited ecological validity in the context of a general functional behaviour assessment, limiting the usefulness of the model in integrating it with conceptualisations of adaptive behaviour.

Deficits in the neurocognitive structures associated with each of the areas of volition, planning, purposive action, and effective performance have been demonstrated to result in decreased ability to regulate emotions, reduced social competence, and decreased problem-solving skills (Case-Smith & O'Brien, 2015). These cognitive processes could to some extent underlie the skills needed in everyday life to be adaptive within one's environment. For example, without volition (awareness and motivational drive to achieve desired outcomes), a person will not be able to reach their full potential within everyday living. Similarly, deficits in planning ability may impact on adaptability through failure to generate effective problem-solving strategies.

Deficits in volition may be difficult to establish through standardised testing, but this is particularly important in the assessment of adaptive behaviour to establish whether absence of behaviour is the product of a cognitive choices not to pursue a need or want, or whether the understanding of the skill or required action is not learnt. This may also pick up sensitivity to depression and other motivational factors. Motivation has been previously associated with deficits in performance despite knowing how to undertake a skill (demonstrating the difference between maximum and typical performance; Schalock & Luckasson, 2004). Thus, this model may aid in understanding whether these factors are internal (e.g., impairment of executive functioning) or external (e.g., environmental factors inhibiting the performance of a behaviour).

Planning is also important in the undertaking of adaptive behaviour. Given what is known about the lack of opportunities to learn amongst d/Deaf people, particularly those who may have additional disabilities, it may be reasonable to hypothesise that some deficits in planning and problem-solving in everyday situations may be apparent. This is difficult to assess within neuropsychological settings, as there may be biases within the assessment procedure which impact on results (e.g., prompting or timing within testing), yet assessing this within an everyday scenario may provide more ecologically valid information about adaptive ability. The steps integrated within purposive action and effective performance are perhaps the easiest for a third-party respondent to consider in the case of adaptive behaviour, allowing individuals to report whether actions can be undertaken and provide evidence of adaptability within the monitoring and adjustment to demands.

Several studies have shown that deficits in executive functioning lead to observable behavioural consequences, yet neuropsychological tests have been criticised for having poor ecological validity (Spooner & Pachana, 2006). Neuropsychological testing is often subject to difficulties in extrapolating due to both the nature of the tests and the assessment procedure, which may lack ecological validity. By using the principles of the Sbordone model (2000) in conjunction with the criticisms of existing measures in this area, a standardised test grounded in observable everyday behaviour can provide a reliable assessment without the pitfalls of the strict testing environment. Despite the concerns raised about validity, measures of executive function have been able to accurately predict functioning in everyday settings and in relation to adaptive behaviour (Barkley & Murphy, 2010; Gilotty, Kenworthy, Sirian, Black, & Wagner, 2002), giving these models some credibility ~~as a~~ within the context of adaptive behaviour assessment.

The 15-stage Sbordone model (Figure 3) may assist in establishing whether an individual can determine the effectiveness of their own plans in meeting the necessary and desirable demands of everyday life, thus implicating itself firmly within the realm of adaptive behaviour. Equally, the stepped 15-stage model may assist in identifying what symptoms might be associated with deficits related to a

particular cognitive area, which might make the measure more sensitive in its diagnostic accuracy, but also pinpoint areas for rehabilitation goals.

This model aligned with the conceptualisations of adaptive behaviour described by previous researchers, and was integrated with existing theoretical components that have previously been shown to be useful (e.g., practical, social, and conceptual competence). However, a developmental psychology approach may consider executive functioning in the context of adaptive behaviour as a fluid process by which self-awareness of cognition during performance of a behaviour causes a dynamic process of updating skills based on repeated experiences (Purdy, 2011). Thus, the area of 'self-monitoring' may be redundant in the case of everyday situations as there is no requirement for changes to routine processes. Sbordone's contribution allows a structured approach to designing items based on each individual stage of the hierarchical process.

3.1.5 Incorporating Cultural Differences and Theories of Human Functioning

Given Valentine and Skelton's (2007) critique that Deaf people do not necessarily aspire to the things deemed instrumental for functioning in a mainstream hearing society, coupled with Tassé et al.'s (2012) recommendation for further research into adaptive behaviour cross-culturally, this research aimed to consider how models of human functioning apply to a Deaf context. The limited evidence base regarding theories of adaptive behaviour meant that broader models of personal competence were considered in the development of this research.

The Good Lives Model (GLM; Purvis, Ward, & Willis, 2011) was originally developed for offenders as a strengths-based rehabilitation model relevant to how individuals can strive to live a values-based life. In the sense that it was created for a marginalised group who may have had limited opportunities and experiences, it was deemed relevant to this research in order to develop criteria for assessing the behaviour of Deaf people. The GLM suggested 11 categories or 'goals' to which the authors assert individuals attempt to direct their behaviour towards. These include: healthy living and functioning, knowledge, excellence in work and play, agency, relatedness, community, inner peace, spirituality, happiness, creativity, and pleasure.

The GLM acknowledges that there is a split between the achievement of universal goods (e.g., intimacy, health, autonomy) and the influence of personality and identity in how these goals are achieved. These core areas reflect the adaptive behaviour literature in the sense of the difference between necessary and desirable demands (Taverna et al., 2011), and the role of cultural and individual factors in mediating the way in which demands are satisfied. Equally, the authors argue that what is adaptive should be conceptualised within the boundaries of the environment in which the population exists (Purvis et al., 2011). As such, questions were designed to attempt to account for this (e.g., 'checks times for accessible film showings', or 'leisure activities are what the person really wants to do, rather than being the only accessible option'). From this model, the goal of 'healthy living' was subsumed into a broader 'health and safety' adaptive domain.

Relatedness and community were considered in light of Deaf social norms, as the research indicated that this may differ significantly for Deaf people. These facets of social competence may be of particular interest to the assessment of adaptive behaviour given the importance placed on these values within society and changes within this over time. Limitations in social skills may have consequent effects to related skill areas (e.g., the capacity to work may be influenced more greatly by social functioning than the inability to carry out simple tasks, and poor judgement and social rule violations may make the individual significantly more vulnerable than deficits in other skill areas), therefore being more predictive of problems in day-to-day life (Hupp, LeBlanc, Jewell, & Warnes, 2009).

Whilst other options for a theoretical framework were considered, it has been acknowledged that competence is a "fuzzy concept" (Le Deist & Winterton, 2005, p. 29), despite being foundational in current conceptualisations of adaptive behaviour. However, much of the research in this area primarily focuses on human resources and management, with little reference to psychological theory. Thompson et al. (2002) suggested that personal competence models (e.g., practical, social, and conceptual skills) could be developed in future research, with specific reference to the influence of environmental factors. However, there is no clear guidance on how this may be integrated. Given the paucity of options

available, the GLM represented a psychological alternative that offers an account of human behaviour contextualised by individual circumstances.

3.1.6 Interim Conclusions

The above literature review led to the following conclusions:

- A measure of adaptive behaviour for Deaf people should aim to focus on the borderline of functional ability, as severe impairment is likely to be captured adequately by existing measures of adaptive behaviour due to the role of culture.

- The skill areas and models of personal competence included in current measures may be a helpful basis from which to further develop criteria relevant specifically to Deaf people but needed modification.

- The GLM would be helpful in guiding these modifications due to the relevance of how marginalised groups with limited resources and opportunities may work towards living values-based lives.

- A neurocognitive model emphasising how individuals choose to interact with their environment can provide a coherent structure for measuring adaptability.

Having reviewed the literature, a neurocognitive model upon which to conceptualise items was selected. It was deemed that existing measures of adaptive behaviour could be modified to increase the face validity of the adaptive domains relevant to deafness, incorporating seven of these areas in the final scale framework: travel, finance, recreation, health and safety, social awareness and competence, communication, and work. Broader models of personal competence were reviewed and aspects of the GLM were incorporated into the structure of the items. Practical, social, and conceptual skill models demonstrated through factor analytic studies were retained and utilised within the item generation for this research. The following section explains how these theories were integrated to generate items in preparation for the Delphi consensus.

3.2 Item Generation

3.2.1 Review of Existing Items

Tassé et al. (2012) reviewed existing adaptive behaviour scales, recommending four assessments as being comprehensive and psychometrically sound. These included: the ABAS-II, the VABS, the Adaptive Behaviour Scale – School Second Edition (ABS-S:2; Lambert, Nihira, & Leland, 1993); and the Scales of Independent Behaviour - Revised (SIB-R; Bruininks, Woodcock, Weatherman, & Hill, 1996). Although these measures are standardised and validated, it was found that the ABS-S:2 would not be appropriate for use within this research as the assessment is developed for those aged 3-21 years. The SIB-R is comprised of adaptive behaviour components but also a maladaptive behaviour scale which has been found by many studies not to be a useful factor in assessment of adaptive behaviour as they are distinct constructs (Borthwick-Duffy, 2007), and does not use the recommended personal, social, and conceptual competence structure as indicated most useful by recent conceptualisations of adaptive behaviour (Schalock et al., 2010). As such, the SIB-R and ABS-S:2 were not further examined for the purposes of item development.

The ABAS-II is a 239-item questionnaire based on the AAIDD (Luckasson et al., 1992) 10 core skill areas (as described above). It relies on third-party report from parents or carers and teachers, and also includes optional self-rating forms (Harrison & Oakland, 2003). The ABAS-II has norm samples that include those with and without ID, whilst the VABS includes norm samples for those with 'hearing and visual impairments' (Harrison & Boney, 2002, p. 1172). The VABS has been evaluated as the most commonly used and widely validated of around 200 adaptive behaviour scales (Doucette & Freedman, 1980; Holman & Bruininks, 1985; Kamphaus, 1987), and therefore it was from these measures, alongside their more recent counterparts the ABAS-III and Vineland-II, that items were initially reviewed and drawn from. For a table demonstrating which items from these measures were retained, and how this was integrated with the other selected models, please refer to Appendix F~~E~~.

Having made adaptations to ABAS-II and VABS/ Vineland-II items, the research team met to review the items, assessing for relevance to adaptive behaviour, that items could be considered sensitive to a range of difficulty levels (with an

emphasis on capturing those who may be mildly impaired). Further adaptations were generated based on appropriateness to Deaf experience and ensuring the purity of the construct (e.g., considering whether items would be influenced by other factors, increasing error in measurement). This was further developed in greater detail within the consideration of each of the adaptive domains.

3.2.2 Developing Behavioural Criteria for Deaf Adaptability

Travel

The systematic literature review highlighted features of how travel may interact with deafness, suggesting that Deaf sign language users may experience higher levels of dependence in this area due to the relative impact of communication when travelling (Werngren-Elgström et al., 2005). This was an area of main focus in designing questions related to transport, leading to the design of questions to consider both independent travel (e.g., by car, walking, or bike) and minimise the influence of communication when using public transport. Further, information about the exact mode of travel was removed from several questions (e.g., 'plans travel to a destination, e.g. shops, pub, friend's house', 'can find a way back to a familiar destination if lost'). The emphasis on executing travel plans was also mitigated by considering the other aspects of planning and problem-solving as introduced by the neurocognitive model. By focussing on these aspects, it can also be more readily established whether not executing plans is as a result of anxiety, or whether this is a deficit in planning or problem-solving.

Based on the neurocognitive model, questions about monitoring whereabouts were also incorporated, such as 'recognises familiar landmarks on known routes and uses these to help find new locations'. Questions related to monitoring were designed in order to make use of visual information, as it was understood that monitoring whereabouts may provide additional challenges to d/Deaf people.

Finance

The finance section was one that was deemed to be relatively less affected by deafness, except in instances where it becomes interaction-based such as

buying items. As a result, questions about the functional use of money were limited, asking instead whether money is managed effectively (e.g., ‘understands how to manage their income and outgoings’). The neurocognitive model was useful here as volition and understanding allowed for design of questions that assessed the conceptual knowledge and use of money without potentially confounding items related to specific interactions with money.

Emphasis on adapting this section was placed on assessing higher-level skills, such as budgeting, managing finances, and understanding financial implications of contracts. It was hypothesised that potential literacy issues may make some complex skills, such as applying for mortgages or credit cards, relatively less accessible. However, because little was known regarding a ‘normal standard’ for Deaf people in terms of how those with average intellectual functioning would be able to undertake these behaviours, these questions were still included for experts to comment upon (e.g., ‘understands financial implications of taking out loans before doing so [e.g. checking monthly repayments, interest rates]’).

Recreation

Research related to the recreational activities of Deaf people suggested that activities may be relatively limited due to issues of accessibility (Lieberman & Stuart, 2002), yet it should be noted that much of the literature focusses on deaf-blindness. Attempts were made to mitigate the impact of this through inclusion of questions about generic activities (e.g., ‘able to find things to entertain themselves when bored’). The GLM concepts of excellence in play, pleasure, and creativity were considered in relation to this question in order to determine how Deaf people achieve these goods with limited resources. Again, generic ideas were expressed in order not to impose specific ways of thinking onto the behaviour of individuals, for example ‘has interests that are fun and relaxing’, or ‘seeks out hobbies related to hobbies or interests’.

The neurocognitive model was applied here in the sense of planning of activities and monitoring whether modifications needed to be made to plans. For example, ‘can the person organise a large event with different steps [e.g. an event for a social group] and recognise when everything has been done’). Equally, to be

mindful of possible communication demands within these questions, attention was devoted to how the person is responsive to this (e.g., ‘monitors whether communication is effective with other members of group activities’, ‘moves plans to a different place if finding it difficult to follow conversations’).

Health and Safety

Factors related to the GLM were incorporated into the items within this section, for example, through the emphasis on healthy living (e.g., ‘understands what food is health/ unhealthy’) and maintenance of good health (e.g., ‘plans meals in order to get necessary nutrition’), as goals which people strive towards.

Health and safety was hypothesised to be relatively less influenced by deafness, but key areas of difference addressed by the items focussed on everyday skills in understanding basic health needs (e.g., ‘knows if temperature is too high and takes action’), as well as alternative strategies for emergencies (e.g., ‘owns signalling devices at home as needed [e.g., flashing/ vibrating alarms for fire, smoke, clocks, doors]’).

Many Deaf people may find healthcare difficult to access, often due to factors outside their own control (Fellinger, Holzinger, & Pollard, 2012), but without questions that can assess aspects of understanding and factors that the individual can exert some influence over, there is a risk of misunderstanding the adaptability of a person in these circumstances. As such, managing visits to the GP and engagement with healthcare was also included in this section.

Social Awareness and Competence

Deaf young people may experience loneliness and isolation as a result of communication barriers (Charlson et al., 1992). Several different factors have been proposed suggesting the psychological correlates of how social skills may be developed differently in d/Deaf children, including learnt helplessness, families becoming overprotective, and disempowering the individual from learning skills (Mathews, 2015). Others propose psychodynamic ideas about the delays in developing appropriate object relations due to language deprivation, meaning

that healthy relationships may be harder to develop (Glickman, 1996). Charlson et al. (1992) interviewed well adapted d/Deaf students (as identified by their teachers) in order to identify factors that may have contributed to their adaptability. It was suggested that joining clubs, making others aware of the need for adjustments, family support and good communication with family, motivation, and having friendships outside the family were all predictive of positive adaptation. Therefore, items such as ‘attempts to maintain good relationships with family members’ and ‘remembers and utilises effective communication strategies’ were included.

However, it was also noted that keeping within Deaf groups was in some ways an adaptive response for these students, allowing them to thrive whilst also avoiding the negative attention of hearing students with whom they had had previous bad experiences (Charlson et al., 1992). It has been established within the literature that socialising with Deaf peers is a positive experience that can foster greater self-esteem and satisfaction with social relationships than for those who are unable to integrate with other Deaf people (Fellinger et al., 2012). As a result, questions about socialising with Deaf people such as ‘attends a Deaf club or socialises with other Deaf people’ were included.

Aspects of the GLM were again included here to emphasise the importance of intimate relationships, which is often not assessed within existing adaptive behaviour measures. For example, ‘able to maintain intimate relationships’ and ‘expresses a sexual preference’ were included for expert input within the proposed items.

Communication

As preferred and accessible methods of communication may significantly diverge between Deaf and hearing contexts this section was designed specifically with these factors in mind. Many current measures of adaptive behaviour may implicitly include assumptions about the adaptive value of speaking and talking above manual communication strategies. This may not be possible or desirable for a significant proportion of Deaf individuals and therefore may say relatively little about adaptability. As such, questions related to signed and generic

functional language skills were created (e.g., ‘has adequate motor skills to make clear handshapes’, ‘generally correct sign orientation’). The use of spoken language was minimised.

There are significant cultural issues that may be present within this section, and the questions were designed to assess use of functional language and strategies for communication across a range of contexts, such as how the person adapts to situations with both hearing and Deaf people (e.g., ‘decides whether to join in conversations with Deaf/hearing people’), and strategies for communication (e.g., ‘able to adapt communication in a variety of ways [e.g., higher/lower signing register, oral communication, writing things down]’).

Further, monitoring whether communication is effective was an important feature of the neurocognitive model incorporated into this section, for example by asking ‘makes other aware in they need prompts to keep up with conversation or are lost in conversation’, and being able to select different approaches if needs are not met.

Suess et al. (1981) found that communication is the skill area that is most affected by deafness in adaptive behaviour scales. Their study showed that communication scores are often depressed compared to matched groups of hearing children, but also that differences in mode of communication may impact on all areas of adaptive functioning. This demonstrates that although the other adaptive domains are purported to be assessing distinct functional areas, communication is a factor that pervades all areas of adaptability.

Work

Adaptability at work has been an area of interest in organisational psychology and models specific to job performance have previously been developed (Campbell, McCloy, Oppler, & Sager, 1993). In a review of different areas necessary for adaptation in the workplace, Pulakos, Arad, Donovan, and Plamondon (2000) described the following factors as being important:

- Solving problems creatively
- Dealing with uncertain situations

- Learning new tasks and procedures
- Interpersonal adaptability (e.g. using different styles to achieve a goal, working within a new team)
- Adapting to environmental demands

Each of these areas were considered in relation to deafness and how this may impact adaptability at work according to these principles. As such, this section emphasised being able to learn from mistakes, and manage time effectively (e.g., 'acquires new skills through observation', 'checks work against set targets and deadlines'). Of the domains reviewed, this category required relatively few adaptations in order to make it more equitable. This may be because workplaces are relatively structured environments with clear demands upon individuals. Therefore, everyone is required to make adaptations in prescribed ways in order to achieve clear goals which are not so heavily impacted by cultural or accessibility factors.

The GLM suggests that autonomy and a sense of agency is important to individuals. This may have a different meaning in the context of deafness, as many tasks may be undertaken with the assistance of another. However, in order to account for this, some questions were designed to assess how well individual can utilise these resources (e.g., 'uses interpreters/ support workers effectively at work'). In terms of autonomy, this also linked with the concept of volition proposed by the neurocognitive model, leading to the design of questions such as 'easily moves between tasks and manages workload effectively', or 'moves onto a new project or deadline once a piece of work is completed'. This represents adaptation to environmental demands as well as interpersonal adaptability.

Non-employment related items were also included within this category, such as working on home projects and general time management skills. This allowed for consideration of skills across contexts, meaning that it could be discriminated whether the environmental demands of the setting impact the expression of adaptive behaviours.

3.2.3 Conclusions

In total, 309 items were designed to fit with each of the 15 steps identified by Sbordone (2000; Figure 3). In each of the seven adaptive domains, 42-49 items targeting each individual step were generated in order to ensure a comprehensive measurement of each skill and to account for attrition of items during the Delphi procedure without compromising the overall structure. It was anticipated that the items would be cut down to approximately 15 items per section by the end of the Delphi consensus, but having a robust pool from which to select was intended to preserve a good level of internal consistency. By constructing a pool based on a factor structure (e.g., the adaptive domains and model of executive functioning), this gave the initial pool better componentiality (Fishman & Galguera, 2003), which was considered important in ensuring good psychometric properties of a prototype tool.

Having generated these items, experts were asked to provide their opinions as to item content validity and clinical utility within a Delphi procedure (Appendix B).

3.3 Delphi Consensus

3.3.1 Rationale

Delphi procedures can be a useful method of identifying and building consensus opinion on a range of issues over time, whilst avoiding generic group biases such as individuals dominating discussions such as in focus groups (Herdman et al., 2002). Delphi studies possess some major advantages over other group approaches in ease of contacting participants remotely, and the lack of interaction between individual participants means that ideas can be generated independently in the earliest phase (Loo, 2002). Having made attempts to impose a theoretical model onto adaptive behaviour and ~~selected a definition of adaptive behaviour with which to prime~~presented a short summary of three definitions of adaptive behaviour to participants to aid in responding, the focus of the Delphi allowed for consideration of how participants were conceptualising adaptability, and provide some information about the utility of proposed items for a measurement scale.

The Delphi methodology allowed for criterion validity to be explored through the evaluation of the proposed behaviours as relevant and important to assess (Fishman & Galguera, 2003). The results of the initial Delphi showed wide variation in the ~~rankings~~ratings. As such, comments made alongside the Delphi ~~rankings~~ ratings were further analysed as it was hypothesised that these would reveal implicit definitions of adaptive behaviour that participants were using to inform their ~~rankings~~ratings. In this way, both criterion and construct validity were investigated across the course of this process.

3.3.2 Design

Delphi procedure is designed to elicit agreement between professionals, allowing for structured containment of opinions rather than the open nature of a semi-structured interview. Delphi methods are founded upon the idea that "two heads are better than one" (Dalkey, 1969, p. 5), usually involving a series of questionnaires being sent to a group of expert participants. Through multiple rounds of questioning and feedback, individuals are given access to the anonymised results of the group and asked to reconsider their own thoughts based on the overall findings until a specified threshold of agreement is reached (Hsu & Sandford, 2007).

Traditionally, a Delphi process continues for between 3-5 rounds. If agreement still does not reach a threshold level at this point, it has been considered acceptable to determine agreement by averaging scores (Herdman et al., 2002). However, the definition of consensus is not clear within the literature, and stopping the procedure can also be dependent on the scale of the research conducted (Giannarou, 2014) or the number of rounds the researchers can undertake in the time available (Keeney, Hasson, & McKenna, 2001). McGinn et al. (2012) suggested that 75% is an achievable standard of consensus for studies in which the experts are geographically dispersed. However, a recent systematic review of criteria for 'consensus' on items within Delphi studies showed that 75% is the median threshold for agreement (Diamond et al., 2014). Given that this was the most consistently occurring within the 72 papers reviewed by Diamond et al. (2014), it was deemed appropriate that 75% would be a reasonable cut-off score

for the purposes of this research (e.g., accepting items where 75% ranked ‘4’ or more on a 5-point Likert scale, or rejecting items where 75% ranked ‘2’ or fewer).

3.3.3 Ethics

This study was reviewed by the University of Lincoln ethics committee and approval was given on 11th February 2015 (Appendix G~~F~~). Three further minor amendments were made to the ethics application. This included: a request to include individual interviewing of professionals to the methodology as a potential adjunct to the Delphi process (approved on 30th March, 2015; Appendix H~~G~~), and a clarification that the expert consultation would take place via email rather than at a group meeting as previously stated (approved on 5th June, 2015; Appendix I~~H~~). Information sheets and consent forms were updated to reflect these changes. A third amendment to the study debrief sheets was made to update them to reflect the changes to the research process (approved on 21st October, 2015; Appendix J~~I~~).

Information sheets and consent forms were included in an initial recruitment email alongside the Delphi questionnaire containing the item pool (Appendix K~~J~~ and L~~K~~ respectively). Participants returned these at the same time as the questionnaire. Researcher contact details were available to allow participants the opportunity to discuss any questions further before deciding whether to participate. Participants were informed that their feedback would be used anonymously and that the results would be disseminated through a written thesis and academic journal publication. Debrief sheets were provided to all participants following completion of the Delphi consensus (Appendix M~~L~~).

3.3.4 Participants

The use of the term ‘expert’ is not clearly defined within Delphi literature, making it difficult to set rigorous standards for inclusion in Delphi consensus methodology, which is reliant on people being knowledgeable about the topic under investigation (Baker, Lovell, & Harris, 2006). Powell (2003) suggested that including those who will eventually benefit from the information gathered is important and useful. Therefore, the standards chosen for this group included

those who were experts through their clinical/ research expertise in the field of mental health and deafness.

The historical context in which Deaf research is undertaken is laden with politics and sociocultural debate. Valentine and Skelton (2007) suggested that the background of persecution and discrimination associated with the experience of being Deaf (e.g., the context of oralism in learning leading to banning of sign language usage in schools; discrimination of Deaf people in the media, workplace, social welfare, and the legal system; Ladd, 2003) has meant that research may be perceived critically by the Deaf community where the authors are hearing. In order to address this, this research has sought to involve Deaf professionals as participants and adopt epistemologies appropriate to considering the unique experiences of this group (Young & Temple, 2014). This is further considered in my critical reflections on undertaking the research, and in relation to the interpretation of the qualitative data collected within this study.

Participants were all self-reportedly working within the field of psychology. This included assistant and unqualified posts, researchers, psychologists in training, and qualified staff from different professional backgrounds (e.g., counselling and clinical psychologists). Participants worked in a range of different geographical locations, specialisms, and settings (e.g., NHS, private, university-based), indicating diversity of the group as recommended for Delphi processes (Powell, 2003).

~~63 members of the Applied Psychologists in Deafness Special Interest Group (APDSIG) were emailed prospectively to invite them to participate in this research. Of these 63, 12 emails were undeliverable or the prospective participant was unavailable (e.g., maternity leave, out-of-date contact information). Characteristics of the 13 participants who consented to take part in the study are shown in Table 2.~~

~~Table 2~~

~~*Participant demographic information*~~

~~**Demographics**~~	~~**N(%)**~~
~~*Role*~~	
~~Clinical Psychologist~~	~~8(61.5)~~
~~Clinical Neuropsychologist~~	~~1(7.6)~~
~~Assistant Psychologist~~	~~1(7.6)~~
~~Trainee Clinical Psychologist~~	~~1(7.6)~~
~~Psychological Therapist~~	~~1(7.6)~~
~~Counselling Psychologist~~	~~1(7.6)~~
~~**Total Participants**~~	~~**13**~~
~~*Hearing Status*~~	
~~Deaf~~	~~4(30.7)~~
~~Hearing~~	~~9(69.2)~~
~~*Experience of working in the field of deafness and mental health (years)* [mean(SD)]~~	~~14.3(8.9)~~

3.3.5 Inclusion Criteria

In order to take part, the following inclusion criteria were required:

- Professional qualification (e.g., healthcare professionals or research qualifications)
- Experience of working with d/Deaf people (e.g., those who are knowledgeable about mental health and deafness and have past/ current experience working with this population)

- Appropriate access to internet, phone or Skype facilities, as face-to-face interviews were not feasible due to the large geographical spread of participants.

Both Deaf and hearing professionals were invited to participate in the research. Hearing status was recorded in the demographic information obtained at the time of participation, as was the professional role of the individuals and number of years of experience working in mental health and deafness.

3.3.6 Exclusion Criteria

Delphi group members were required to be able to commit to a time frame of responding within two weeks of being sent the interview paperwork. In cases where participants consented to take part but did not return paperwork in the allocated time, they were contacted again to see if they wished to continue participating. Given the limited pool of professionals eligible to participate, the exclusion criteria was not restrictive to ensure a range of views were obtained.

3.3.7 Sample size

Germain (2006) stated that a small sample size for a Delphi consensus is sufficient, providing that the participants have been selected from diverse backgrounds. Although around 20 participants are often cited as an ideal number of participants for a Delphi group (Ludwig, 1997), Skulmoski, Hartman and Krahn (2007) highlighted that 10-15 participants may accurately represent a topic and ensure validity of responses. Although there was not a large pool of clinicians or researchers specialising in this area from whom to select, care was taken to capture both d/Deaf and hearing professionals who are likely to have an in-depth knowledge of assessment, Deaf mental health, and issues pertaining to ID and adaptive behaviour.

3.3.8 Delphi Procedure

Obtaining structured responses in ~~ranking~~ rating pre-determined items rather than traditional open-ended questioning in the initial stages of the Delphi process was considered a valid methodology, due to the increased knowledge of the area achieved in the initial study literature review (Hsu & Sandford, 2007). The ~~ranking~~ rating process is designed to continue with each iterative round involving a form of controlled feedback where the synthesised results are presented to participants, asking them to reconsider their opinion in light of the group decisions or justifications (Dalkey, 1969).

Clayton (1997) noted that Delphi consensus can have some limitations when the construct being investigated pertains to human behaviour, suggesting that participants may make their own judgements about what is being asked rather than responding according to an operational definition. However, in anticipation of this participants were provided three definitions of adaptive behaviour. One had been selected from the AAIDD, as this is an organisation informing the theoretical understanding and clinical application of issues related to ID. Furthermore, the definition used in the ABAS-II, one of the main measures of adaptive behaviour from which items were generated, was provided. Finally, a ~~primed to respond in a concrete way through the provision of a definition of adaptive behaviour at the beginning of the questionnaire: "the effectiveness and degree to which people meet the standard of personal independence and social responsibility expected of their age and cultural group" (Schalock, 2004, p. 370). This~~ definition proposed by Schalock (2004) was selected due to its incorporation of ideas that adaptive behaviour may differ between populations, therefore allowing people to consider ideas about the transferability of adaptation across cultures and different groups.

The Delphi consensus undertaken for this project lasted only two rounds due to the initial findings suggesting that consensus was unlikely to be achieved and that there were significant discrepancies in how adaptive behaviour was being constructed by participants. A TA of both questionnaire comments and ~~the~~ a further analysis of the numerical ~~rankings~~data, comparing and contrasting the patterns seen in how items were ra~~nk~~ted, was undertaken. At this point, the identified diversity in practice indicated that a working definition of adaptive

behaviour was needed, which was constructed and fed back to participants with a summary of the initial results. The focus of the second round subsequently shifted, asking participants to rank whether a Deaf person of average intellectual ability would be able to perform each item in both Deaf and hearing contexts, aiming to:

1) Determine whether participants were ~~ranking~~ rating items poorly because they were concerned that a Deaf person would not reliably be able to perform the skill due to factors associated with deafness rather than ID;

2) Test the universality of the construct by generating some baseline data for normative adaptive skills of Deaf people, and;

3) Assess whether the context of performing skills where others are Deaf or hearing was able to discriminate confounding factors between anxiety, confidence, and choice.

3.4 Thematic Analysis

3.4.1 Rationale

TA is a non-linear, iterative process as coding and themes are reviewed and refined systematically, with continual reference to the source material as well as checks introduced through reflexivity. This may be considered a methodologically robust approach, but it is acknowledged that there are common pitfalls to analysis, particularly with reference to the interpretation lacking necessary depth, or being insufficiently transparent about the analytic process (Smith & Firth, 2011). Whilst interpretation should be founded in the data, Braun and Clarke (2006) suggested that it is common for researchers to simply restate the research questions as themes, or make claims too broad for the data obtained.

Most studies using TA rely on in-depth interviews conducted with individuals, but Joffe and Yardley (2004) acknowledged that open-ended questionnaires or survey may also comprise data that can be coded and analysed in this way. Although initially TA was criticised on the basis that it was not a clearly defined methodology in its own right and there was little existing information on how to carry it out (Joffe & Yardley, 2004), Braun and Clarke (2006) addressed this with

their now widely subscribed to guidelines clearly demonstrating best practice in carrying out a TA. Table 2~~1~~ demonstrates how each of the six recommended steps were adhered to throughout the analysis.

Table 2~~1~~

Braun and Clarke (2006) six-phase model for undertaking a thematic analysis

Phase	Actions Taken
1. Familiarising yourself with the data	Collated comments from the questionnaires, re-reading each of these whilst organising the comments by section. Made initial notes on thoughts that stood out from the data.
2. Generating initial codes	Refined the most basic elements from the data in each domain and across the data-set. Coding was based on understanding of adaptability and its impact on behaviour, and how comments elucidated this further.
3. Searching for themes	Sorted codes into themes and created clearer patterns of themes and sub-themes.
4. Reviewing themes	Checked themes are internally consistent and different from other themes identified. Checked that meanings from whole data-set were captured. Some themes were collapsed into others and sub-themes were reviewed for inclusion in the thematic map.

5. Defining and naming themes	Analysed what each theme said about the data set. Considered relationship to adaptability and how the themes could be appropriately labelled to reflect what was being said.
6. Producing the report	Told the story from the data, within and across themes to be fed back to participants and for inclusion in the final write-up. This included extracts from the data to illustrate the narrative and considered answers to the research question about how best to assess adaptability in light of this new understanding.

Although discourse analysis may have been another option for analysing questionnaire comments, given that this method accepts that there may be multiple truths about a single topic and emphasises the role of language in constructing reality (Talja, 1999), this approach would have been difficult to apply to questionnaire data given that only limited views were given on each topic. These units of language would not have constituted as a full 'discourse' on the topic that could have been used to examine linguistic features in depth (Graham, 2005). Content analysis would have alternatively allowed for patterns to be established within the data by systematically analysing written text and constructing these into clear, quantifiable categories, but TA offered a more nuanced approach, retaining themes and ideas which can offer a more explanatory reading of the data. Braun and Clarke (2006) suggested that TA can be a particularly useful methodology where little is known about the topic, allowing researchers to identify patterns and themes within data. Although this is not the case in the present study, the application of adaptive behaviour to Deaf people is not well-understood and therefore the views of participants were felt to be useful in more clearly defining this phenomenon.

3.4.2 Procedure

The dataset did not require initial transcription as the questionnaire comments were provided in a written format. As such, they are an accurate representation of the comments made by participants. These comments were collated and organised to reflect the sections of the questionnaire that they appeared in, in order to keep as much of the context as possible during the initial phases of analysis.

Boyatzis (1998) indicated that originally the terminology for codes and themes were used without a clear distinction between one over the other. However, coding in this instance would indicate close readings of the text, whilst themes may exist at manifest (semantic, explicitly stated within the data) or latent (interpreted meaning of what is being said) level. The coding within this research was conducted deductively, with a mixture of themes existing at both manifest and latent levels (see Appendix N~~M~~ for an example of the coding process). As ideas about the topic of adaptive behaviour already exist, evidence was being coded for how adaptability is conceptualised by participants in the context of this research.

One way of establishing whether patterns are themes involves checking them against each other, reviewing for internal homogeneity (consistently, meaningfully organised within one theme) and external heterogeneity (clear differences distinguishing themes from one another; Trahan & Stewart, 2013), and also back to the data set to make sure that they were still present after review. The themes and sub-themes were checked to ensure they were consistent with the over-arching themes, and super-ordinate themes that over-arched the main themes within the data were also identified as an important feature of the analysis.

This process was active and interpretative, not simply describing what was said but considering its context and relevance to the wider study. The illustrative nature of the write-up, using quotes from participants, helped to ensure the match between the interpretation and the actual data obtained. Each theme was given attention within the write-up and explored in depth to make sure that all aspects

of interpretation could be explored. During this process, supervision was sought to reflect on the position of the research and how this had impacted the analysis. This helped to clarify where my own perspective may have influenced the conclusions drawn, why this may have been the case, and consideration of the potential bias this introduces and how it affects the analysis. Equally, the epistemology was explicitly stated prior to the write-up and this was considered within the report produced.

3.4.3 Quality Checks

A number of steps were taken in order to ensure the quality of this research, as recommended in all qualitative research through establishing reliability (through procedural trustworthiness), and validity (through checks related to interpretations and conclusions; Stiles, 1993).

Procedurally, this research was conducted using well-regarded guidelines produced by Braun and Clarke (2006), which were developed in response to criticism that TA was not a clearly defined research methodology (Attride-Stirling, 2001). Coding was given even weighting, with detailed attention relevant to the explicitly stated epistemological position, and this was repeatedly reviewed in light of the researcher's reflexivity in understanding the stance brought to interpretation. Themes were closely linked to the data, and this has been illustrated through the use of supporting examples within the narrative of the analysis.

Once an initial analysis and draft thematic map had been produced, the findings were discussed within research supervision. The key aspects of the data were reviewed, helping to shape the understanding of the comments received from participants. Through this process, the super-ordinate themes of 'structure' and 'content' were consolidated as well as drawing out a broader, overarching understanding of each theme through discussion of their meaning in relation to adaptability. This perspective was integrated with my own understanding of the material, helping to develop ideas outside of my subjective viewpoint and address biases or assumptions that may have been present when reviewing the data.

Throughout the process I have attempted to be reflexive about my own responses to the views given by my participants and be open about this within my analysis. I found that at times I disagreed with what participants were telling me about their understanding of adaptability within this community. For example, some contradictory ideas were proposed by my participants, and I had to integrate these differing viewpoints as well as my own perspective from my understanding of the construct and knowledge of Deaf research. By exploring this within supervision and also throughout the analysis I have been able to maintain a balanced position in the writing of the results that remains close to the data.

My previous role as a researcher working in Deaf mental health influenced my initial perceptions and beliefs about the subject matter of this research. Although this may have impacted how the results were interpreted (Mauthner & Doucet, 2003), the reiterative, mixed-methods nature of the Delphi procedure in combination with the qualitative aspects of this research was designed to minimise any biases. In addition, reflexivity was considered in both supervision and within this thesis in order to act as a quality check for ensuring that the analysis was an accurate reflection of the participants' perspectives and only minimally influenced by my own experiences.

As a final quality control, findings were fed back to participants as a continuation of the Delphi consensus process. This aimed to establish whether participants felt that the analysis was a valid representation of the differing views that emerged from the interpretation. This process of 'member checking' was described by Fereday and Muir-Cochrane (2006) as a potentially useful way of validating findings with informants, yet others have argued that this may simply give rise to irrelevant responses being yielded in relation to the researcher's interpretations, rather than maintaining focus on the construct being investigated (Sandelowski, 2002). In this instance, given that little is known about the construct being investigated in this context, and the status of participants as experts in the subject matter, it was considered a useful process to further the understanding of the emerging theory.

3.4.4 Epistemology

Epistemology, the science of knowledge, is a philosophical position attempting to discern how we come to know things and the reliability and validity of claims about knowledge and its scope (Willig, 2013).

Although TA is not bound to a particular epistemological position (Braun & Clarke, 2006), the context of epistemology in how the world is interpreted, and its relevance to the interpretation of data generated on subject matters about which little is known is invaluable. Whilst adaptive behaviour is a topic broadly researched, understanding of the construct is unclearly defined, and there is little research considering the application of this to a Deaf population. In this instance, social factors and explanations may take on a greater role within the conceptualisation of adaptive behaviour as a construct, which a critical realism approach is able to account for (Madill, Jordan, & Shirley, 2000). Easton (2010) noted that critical realism is a relatively new approach to epistemology, evolving out of naïve realist assumptions that reality can be readily accessed. Although critical realists accept this premise, it questions the researcher's ability to access and reflect this (Howitt, 2010). This position suggests that all actions and knowledge are undertaken within the assumption that the world is real and that individuals behave in accordance with this because there is no empirical way of disproving it (Easton, 2010).

Whilst a social constructionist perspective may have fit better with the aims of this study in that a critical view was taken in terms of how adaptive behaviour is conceptualised, developing an approach that questioned previous thinking about whether all people could fit into this model on the basis that these constructions may be bound by history and culture in its definition (Burr, 2015). However, this stance was somewhat incompatible with the aim of this research to increase understanding for the purposes of creating a psychometric tool, indicating the presence of adaptive behaviour as a construct that is definable and measurable. Although Kvale (1995) argued that social constructionism allows researchers to examine questions of validity through a process of hypothesising and generating ideas about the nature of the phenomena, this is mainly relevant to the context of qualitative research and may have limited applicability to the objective approach that is demanded through the development of psychometric tools.

In recent years, some researchers within the Deaf community have postulated a 'Deaf epistemology'. Ladd (2003) suggested that this fundamentally relates to how Deaf people engage with their environment, conceptually and through action. The conditions under which d/Deaf young people grow up may follow a different developmental trajectory to hearing children, influencing the knowledge that Deaf people gain and how they come to know things (Young & Temple, 2014). Hauser et al. (2010) proposed that this epistemology encompasses ways of learning, which has a further impact on the way in which individuals then behave adaptively and navigate a range of situations, which has parallels with this research. Understanding how Deaf people define and express themselves is highly relevant to behavioural research, and suggests the need for researcher reflexivity in how being hearing encapsulates a range of assumptions and ideological positions.

4 Extended Results

This section considers the findings of the quantitative aspects of this study gained from the Delphi consensus methodology as well as the qualitative results obtained from the TA of questionnaire comments. An in-depth analysis of the differences in ~~rankings~~ratings, and how these systematic comparisons led to the development of a working definition of adaptive behaviour for Deaf people, is explored.

4.1 Overview of Round 1 Delphi Findings

~~The item pool contained 309 separate items over seven adaptive domains for ranking within the Delphi procedure. The Delphi consensus ended following the second round. Although the specified threshold for agreement (75%) had not been reached for all items, the rankings of the remainders were divisive within the group (Appendix C). The rankings and qualitative comments made by participants were subjected to further analysis to extract patterns and hypothesise what this meant in relation to the participant's understanding of adaptability. The first round yielded suggestions of items that may be useful in considering adaptability for Deaf people, and provided information about the utility of the selected research influences in conceptualising adaptability. This diversity led to the conclusion that a working definition, drawing together the identified themes into a coherent model for clinicians to consider measuring adaptability, would be useful. This was provided in the feedback given to participants between rounds.~~

The divisiveness of the ~~rankings~~ ratings in the first round indicated that agreement was unlikely to be achieved, and instead the research design adapted to establish whether the proposed items could provide further insight into a baseline standard of adaptability for the average Deaf person. As such, in the second round, participants were asked to provide yes/no responses as to whether Deaf people of average intellectual ability would be able to perform each behaviour listed. Participants were also given the option to give further feedback on the working definition proposed on the basis of the themes identified within the first round.

4.1.1 Missing Cases

The number of missing cases was examined to indicate whether there was a systematic trend of missing data. There were 4,017 cases in the data set (representing ~~rankings~~ ratings of each item from 13 participants), with 40 missing cases across the whole questionnaire (<1%). One participant did not complete the questionnaire in full. The data that they provided was still used in the results, but they were removed from the analysis of the following sections within that round for which they had not provided responses. ~~was removed from the data set after completing only part of the questionnaire. However, the rest of their data was retained~~. This yielded an additional 175 missing data points, but when calculating the percentage agreement they were excluded from the analyses. Given that each item was ranked individually and did not affect the data set or each domain as a whole, missing data was included in the analysis of percentage agreement of each item. Within the second round, there were 41 further missing data from a data set of 4,944 (representing yes/no responses from 8 participants across both Deaf/hearing categories for each item), again representing < 1% of the overall results.

Several participants emailed alongside their ~~rankings~~ ratings for the second round, explaining that they had left some items blank because they did not make sense to provide an answer (e.g., 'communicates in a way that is intelligible to other hearing people' in the Deaf context, or 'does not use signs/ phrases repetitively' in the hearing context). Although not everyone provided this as a rationale, a visual scan of the data suggested that other participants may have also used this as a strategy which may suggest a limitation of the chosen methodology to obtain responses in the second round.

4.2 Thematic Analysis

4.2.1 Language

Many of the comments made by participants were related to multiple complex issues surrounding language and deafness. Sub-themes of 'ensuring a clear question focus', a 'lack of clarity', writing from a 'hearing perspective', 'the meaning of independence', and 'accessibility for respondents' were all important

features of the broader theme. Participants commented on both the wording and phrasing of individual items, in the context of both cultural sensitivity and the focus of the question:

> *'I have mainly marked items down because the wording was vague or overly complicated'* (Participant 4)

> *'The word 'plans' would not be clearly understood in this question. Does it mean they decide they want to go to that location? Or the actual process of how they would arrive there'* (Participant 13)

In addition, the impact of possible literacy delays or ease of understanding of questions for the person responding was considered important to participants. For example, participants identified that respondents may include Deaf professionals who may not have a high level of English fluency, which may impact on their understanding of the questions and thus the validity of the assessment:

> *'I am not sure who will be answering the forms but if deaf people then this question has two things going on – not sure if some deaf people will be able to understand this question well?'* (Participant 5)

Participants also commented upon how the items had been constructed with a 'hearing' perspective. The sentence structure and wording was described as 'flowery', or 'ambiguous' at times, and requests to make items accessible in 'plain English' were frequent. This is couched in terms of the language theme, but also represents a cultural difference in the way that language is used and constructed within the Deaf community, with accessibility as a key aspect that overarches the importance of the language being used. It is a linguistic feature of BSL that due to iconicity of signs (e.g., the visual structure carrying specific meaning; Taub, 2001) the way in which an item may be translated or understood would mean that further explanation would be required to maximise understanding of the question:

> *'I think many items are too hearing/ English by using general terms, rather than specifics – I can imagine having to explain and give specific examples to many of them'* (Participant 12)

These comments were interpreted to link with aspects of reliability and validity in assessment: if the language used in the items is not clear or easily understood,

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then the construct being measured will vary based on interpretation. This suggests that when measuring adaptive behaviour in a Deaf context there are reliability and validity issues associated with language, but also cultural factors that are of great importance to Deaf people. In a separate email, one participant queried whether there would be a fully accessible BSL translation of the new scale, highlighting the importance of language to Deaf culture. If integrated with the research process as further development work is undertaken, this would also help to develop a standardised measure that would not require additional information or examples as the participant quote above suggests.

4.2.2 Repetition

Although efforts had been made during the construction of the test to address key points associated with the 15-stage executive function model (Sbordone, 2000), some respondents felt that items were not distinct between domains and that there was some overlap in testing particular skills (e.g., 'recreation' section questions about finance and transport). This also applied within domains, where participants felt as though questions were similar and could easily be merged. In part, this was an intentional factor in the design of the study to make sure that the factor structure was not diminished as items were rejected throughout the Delphi process.

Some comments related to defining what skills may be considered adaptive, and what to include or exclude. For example, within the communication section the following comment was made:

> *'I think you need to decide if you are assessing communication – i.e. signing ability or not – if not, then leave all the BSL grammar stuff out and concentrate on effectiveness'* (Participant 2)

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This was interpreted to indicate that specific features of communication were not considered so closely linked to adaptability. This comment indicates adaptability is related to being able to effectively use different communication strategies. Although these questions were included to account for different modes of communication used by Deaf people, it is perhaps the case that an assessment of functional use of language in a particular form (e.g., making an assumption of

the importance of fluent sign language use) is simply adding an alternatively flawed assumption in the same way that prioritising spoken language does in existing measures of adaptive behaviour. However, several models of adaptive behaviour include motor competence or development of physical skills (Schalock, 2004) and the mechanics of language in a Deaf context is relevant in this sense due to the manual nature of BSL which may be another way to explore these features. There may additionally be significant differences in the way in which Deaf people use language in different contexts which is laden with personal choice and developmental factors, which are explored further within this analysis.

4.2.3 Assessment

A core component of this theme was whether some of the questions were truly related to everyday adaptive skills, in that some felt that items were not wholly representative of the general population, particularly with regards to finance:

> *'This seems to be more about being responsible. The question is surely: is a person cognitively able to do this even if they then choose not to?'* (Participant 1)

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Whilst items had been selected in order to tap into everyday skills and day-to-day functioning in line with other definitions of adaptive behaviour, it was felt that there was perhaps a value judgement associated with the skills that were selected. For example, budgeting and researching good financial options elicited comments about whether it was realistic to expect anybody to be able to complete all these tasks competently, or whether they were core skills required for adaptive functioning. As such, these items may say relatively little about adaptability and therefore demonstrate poor construct validity. However, this has been a common feature identified in previous adaptive behaviour definitions, relating to Tassé et al.'s (2012) observation that items often incorporate the idea of learning and performing skills to meet societal expectations.

A further aspect picked up as a point of concern amongst participants regarding some items was the influence of multiple confounding variables, and the possibility of these leading to false positives or negatives within the responses:

'If a deaf person never goes out much or doesn't have any friends locally then that person wouldn't be aware because of deafness/ communication difficulties rather than LD [Learning Disability] itself' (Participant 5)

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'Those with anxiety disorders would score just as highly on this, potentially skewing the results' (Participant 13)

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The first quote alludes to factors associated with deafness that may confound the process of an ID assessment. For example, a comment that arose frequently was that Deaf people often live in geographically diverse areas. This is particularly important for Deaf people, as it links with issues of accessibility of resources (e.g., there may be fewer accessible events for those who are Deaf in rural area, having a greater impact on ability to participate in the community), and~~but~~ also has implications for social competence and ability to access other Deaf people easily. Equally, the quote regarding anxiety could be argued as a general issue related to the performance of adaptive behaviour, yet it may be a particularly pertinent factor in the Deaf community due to the experience of being Deaf. This relates to a developmental factor also identified in the TA indicating that some Deaf people may become passive as a result of previous setbacks, but these comments relate to how this may impact assessment more broadly, whilst the question of whether this is adaptive is explored in more detail in the 'developmental factors' section. This raises an interesting question of the generalisability of adaptation from hearing to Deaf contexts in considering whether anxiety is implicated within the construct of adaptive behaviour. Schalock and Luckasson (2004) identified the impact of motivational factors in behaviour, questioning whether it is a product of developmental experiences, or if it is distinct from the skills necessary to develop adaptive behaviours.

A critique levied at the construction of some of the items related to measuring factors other than the individual. This was present both in the context of communicating with others (e.g., maintaining good relationships with family, which some believed may say as much about the family as the individual with regards to finding effective communication strategies), as well as possible factors associated with services or local authorities (e.g., ensuring access to appropriate

flashing/ vibrating alarms systems such as clocks, doorbells, or fire alarms, as this may be out of the individual's control):

> *'You are in danger of measuring things other than deaf person themselves, e.g. their family's ability to sign, accessibility of services – meaning the deaf person could get a low score, unrelated to their ability'* (Participant 2)

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This is an issue of content within the questionnaire, although not uniquely applicable to items designed within this study. For example, the item 'attempts to maintain good relationships with family members' was an adaptation from the ABAS-II item 'has good relationships with family members'. The construction of this question was designed to reflect potential systemic factors that may interact with the skill being assessed (e.g., family not learning to communicate effectively with the Deaf person, leading to poor communication and lack of closeness). However, by placing the emphasis on the skill of the Deaf person to maintain these relationships, it possibly introduces elements of personal choice (e.g., whether the relationship is worth maintaining), and extraneous factors (e.g., family willingness to learn and use different modes of communication) which mean that assessing this may be independent of adaptability due to the many different factors that could potentially contribute to a low score. These examples of confounding factors may introduce the chance of obtaining false positives or false negatives on items, highlighting the importance of culturally competent interpretation of results.

4.2.4 Cultural Differences

Between participants, there was some discussion about communication and thus identification with Deaf values. One person commented:

> *'This does have some underlying assumptions – e.g. that it is adaptive for the person to belong to the Deaf community – however many Deaf people choose not to do this due to gossip or 'backstabbing' or because they are not welcomed, e.g. if they have an additional disability.'* (Participant 2)

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There appeared to be differing opinions within the analysis in the extent to which it may be adaptive to adhere strongly to Deaf community values and the cross-cultural context in which Deaf people live. Engagement with Deaf groups may be adaptive in some sense, following Ladd and John's observation that '… we are not disabled in our own community' (1991, p. 14-15, cited by Lang, 2001). In mixing within one's own cultural group, a Deaf person with average intellectual functioning could be considered fully adapted and able to functional perfectly well. However, removed from this context and required to integrate with hearing society (e.g., for work, errands, etc.) differences in adaptability may become more apparent and this additional facet of adaptive ability is not captured by standard measures of adaptive behaviour.

Related to this, Deaf people may select different strategies for problem-solving as opposed to those in a mainstream hearing context, which was a latent sub-theme derived from the comments made. For example, whilst using pen and paper to navigate social interactions may be an effective strategy for communication, participants suggested that many Deaf people would reject this (possibly due to identification with Deaf community values or a political stance), and an assumption of written language fluency cannot be assumed for d/Deaf people (Musselman & Szanto, 1998). As such, many items that would appear to have good face validity are questionable where the individual is d/Deaf:

> *'[Gives shop assistant the necessary amount of money when purchasing items] – if it can be seen on a visual display - most deaf people give larger denomination and get change as they can't hear how much the cashier is asking for.'* (Participant 3)

> *'[Ending conversations appropriately]… there are differences in hearing ways of doing this and deaf ways – might need examples'* (Participant 12)

Although it is not unique to deafness that items may lack face validity, this does further highlight the need to incorporate ideas from experts or Deaf lay people into the development process and the clear need for checks of how participants may interpret items in the context of developing culturally appropriate tools (DeVon et al., 2007).

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4.2.5 Accessibility

Access may also be limited simply through lack of hearing. For example, some skills may be concomitant with physically being able to hear, even where this is not explicitly a demand mentioned in the item (e.g., 'listens to music'). Some participants discussed how awareness of surroundings may be more limited than that of a hearing person:

> *'[Monitoring whether communication is effective] – more difficult for deaf people in hearing environment'* (Participant 5)
>
> *'[Avoids situations likely to cause trouble] – if aware, given deafness'* (Participant 9)
>
> *'Deaf people may not understand what other people are saying so they walk away'.* (Participant 5)

In these instances, it may be that there is an assumption that the individual is in some way less socially competent through not being able to recognise these things, where it could be that not being able to hear is inhibiting that individual from responding to social cues that are more accessible to a hearing person**.** This has great relevance to the structural aspects of designing questions that are valid for Deaf people, but also highlights the importance of recognising the interaction between deafness and the domains on which adaptive behaviour is founded (e.g., ideas surrounding social, conceptual, and practical competence).

4.2.6 Developmental Factors

Factors based on the experience of growing up Deaf, or identifying strongly with the Deaf community, also appeared to influence the way in which individuals behave or the day-to-day skills they might employ:

> '*Not useful as an adaptive measure – many deaf people would reject this [booking interpreters, carrying pens/ paper or a phone to write things down]'* (Participant 2)
>
> *'Not sure of the validity of the last 3 items which a) put the onus on the deaf person for adapting communication and managing interaction – many*

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very able deaf people would reject this and therefore b) does it say anything at all about LD/ functional abilities?' (Participant 2)

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This suggested that although the individual may be aware that these are effective strategies for meeting needs, there is a considerable faction of the Deaf community who would choose not to act in this way. This indicated the importance of both developmental factors in these attitudes becoming fixed through repeated experiences of finding preferred strategies, and also the importance of test administrators or respondents in recognising this as a confounding variable. In this instance, rejecting certain problem-solving strategies results in the same outwardly observable behaviour as an individual who is not *able* to use these strategies. However, it should be noted that these choices are not made by everyone and in terms of relativity this means that a normative response is hard to establish, possibly limiting the validity of these items within assessment.

4.3 Comparison of Item ~~Rankings~~Ratings

Alongside the TA, which helped to elucidate hypotheses about how participants were conceptualising adaptive behaviour and its applicability to Deaf people, the Delphi ~~rankings~~ ratings were subjected to systematic comparison. Through this process, the theoretical underpinnings of items were considered in order to determine whether the models and theory had utility, and consideration was also given to differences in ~~rankings~~ ratings of functionally similar items. These were compared and contrasted in order to assess whether specific wording or construction of the question influenced scores.

Given the significant diversity in ~~rankings~~ ratings and features identified in TA, this process aimed to clarify which items may be useful in measuring adaptive behaviour, and the clinical implications of this within assessment.

Table 3

Proportion of items derived from existing measures of adaptive behaviour

Domain	**Number of ABAS-II items included**	**Number of adapted ABAS-II items included**	**Number of VABS/ Vineland-II items included**	**Number of adapted VABS/ Vineland-II items included**
Travel	2/42 (4.8%)	4/42 (9.5%)	0/42 (0%)	2/42 (4.8%)
Finance	4/49 (8.2%)	2/49 (4.1%)	0/49 (0%)	9/49 (18.4%)
Recreation	3/43 (7%)	9/43 (21%)	0/43 (0%)	3/43 (7%)
Health and Safety	8/44 (18.2%)	7/44 (15.9%)	0/44 (0%)	3/44 (6.8%)
Social Awareness and Competence	10/44 (22.7%)	9/44 (20.5%)	0/44 (0%)	2/44 (4.5%)
Communication	4/44 (9%)	16/44 (36.4%)	0/44 (0%)	6/44 (13.6%)
Work	7/43 (16.3%)	9/43 (21%)	0/43 (0%)	1/43 (2.3%)

In terms of the theoretical underpinnings of item generation, Table 3 shows the proportion of items drawn from existing measures in each domain. It is of note that in comparison to the sections that ~~perform the best and worst~~achieve the highest and lowest levels ~~in terms~~ of consensus (see Table 4), the three ~~best ranked~~ categories with the highest level of consensus also retain amongst the highest proportion of existing items or items adapted from existing measures. However, this was not the case for the 'social awareness and competence' domain, which retains the second highest proportion of existing items but is amongst the least agreed upon in terms of ~~ranking~~ rating consensus. This reflects the findings of Webber et al. (2002), demonstrating that more complex items may be relatively less agreed upon. Of the 309 items ranked by the Delphi panel, 38

of these were existing ABAS-II items, and a further 56 were items adapted from the ABAS-II (a total of 30.4% of the overall sample).

The ‘communication’ domain retains the greatest proportion of items linked to the ABAS-II, with a large number of adaptations made to existing items in order to increase their applicability to the Deaf community, whilst the ‘travel’ and ‘finance’ domains retain the fewest items. This may be due to the introduction of executive functioning model as the primary framework for organising items. Whereas in the ABAS-II and Vineland-II questions about travelling and finance are asked in the context of skills in personal competence, these were used as a framework for exploring different levels of executive functioning in greater depth using scenarios related to the areas of travel and finance.

Further exploration of the items suggested that there was mixed support for the ABAS-II items and its adaptations. In many cases the adaptations yielded ~~rankings~~ ratings that did not meet the Delphi threshold. However, in other cases, particularly where the adaptations minimised emphasis on speech or drew out factors that were specific to deafness and communication. This is mirrored in the finding that ‘communication’ is one of the most agreed upon domains in terms of Delphi ~~rankings~~ratings.

It could be that the ABAS-II items that were retained ~~were ranked higher~~yielded greater consensus above a rating of ‘4’ because they had been deemed to be acceptable indicators of adaptability that are universal across populations. However, it could also be argued that due to their applicability across different groups these items also represent more basic skills that do not capture individuals who may only be mildly impaired, counter to the aims that this research set out to primarily achieve.

Although the VABS/ Vineland-II was not utilised as much as the ABAS-II in the construction of the items, the support for the adaptations made from this measure of adaptive behaviour were generally very strong. All items in the health and safety and social awareness and competence domains met the threshold for agreement, whilst 7/9 and 5/6 items met the threshold in the finance and communication domains respectively. Notably, these domains were well-rated overall with the exception of finance. Equally, the measures used from which to

draw items had significant overlap in content, meaning that support for items from these measures may be relatively equivocal.

4.3.1 Adaptive Domains

Table 4 shows how many items in each of the seven domains selected from the process of reviewing the construct of adaptive behaviour met the a priori threshold of agreement.

Table 4

Percentage of items meeting Delphi consensus threshold in each adaptive domain

Adaptive Domain	**% items retained (75% ~~ranking~~ ratings of >3~~4~~)**	**Range of ~~rankings~~ ratings (% agreement >3~~4~~)**
Travel	38	30.8-100
Finance	51	23.1-92.3
Recreation	42	38.5-92.3
Health and safety	75	41.7-91.7
Social awareness and competence	45	41.7-100
Communication	64	33.3-100
Work	81	58.3-91.7

The domains which included the highest proportion of items reaching a consensus ~~ranking~~ rating of 4 or more were: work, health and safety, and communication. Conversely, the domains reaching the poorest agreement were: travel, recreation, and social awareness and competence. The ranges of agreement have also been calculated, showing that overall the 'finance' domain yielded the poorest consensus in ~~ranking~~ rating (with items achieving between 23.1% and 92.3% consensus ~~ranking~~ rating of 4 or more). In line with the finding that work is the domain achieving the highest consensus of well-ranked items,

even the poorest rated items in this category achieved a consensus of 58.3% ~~ranking~~ rating of 4 or more. Overall, 175 of the 309 proposed items achieved the specified threshold of 75% agreement of ~~ranking~~ rating 4 or more (56.6% of the sample).

Although amongst the poorest ra~~tnk~~ted of the adaptive domains, a model of social-cognitive processes was incorporated into the assessment of social awareness and competence adaptive domain, theoretically building upon the suggestions of the National Research Council (2002). The ~~rankings~~ ratings identified that 10/15 of these items met the threshold consensus for agreement, suggesting that this may be a useful way of assessing social adaptive skills despite this area not being well ranked overall. This may indicate that the domain itself is useful but that the way in which the items are currently constructed and the theoretical basis from which to do this may need further investigation.

In terms of the content of the domains, it is of note that the health and safety section ~~is amongst the best rated~~achieves amongst the highest consensus on ratings of 4 or more, despite the known barriers to accessing healthcare for the Deaf community (Fellinger et al., 2012). It could be that navigating these difficulties demonstrates good adaptability and thus these questions provide useful information about an individual's adaptation, or it could also be argued that many of the items in this domain contain generally basic, concrete, practical skills. The item development table (Appendix F~~E~~) demonstrates that many items in this domain arose from a combination of the GLM aspects of healthy living, and skills related to practical competence.

The work section had the highest agreement ~~ranking~~ rating of 4 or more. It could be that the items in this category were more familiar skills for participants to rank, or provide clear, concrete examples of skills that are needed for everyday participation in work. A comparison of the ~~rankings~~ ratings found that many of the items in this category are unclear, using terms like 'effectively' frequently, which could be interpreted in different ways. In this context, skills such as independently setting targets and goals were rated more favourably than in other contexts, perhaps due to the expectation that if someone were in work they may have a higher level of ability. The work section equally highlighted that continuing to stay

on task and working productively ~~was a better rated~~produced higher consensus ratings ~~way of being adaptive~~ than asking about whether someone becomes distracted, again reflecting the influence of phrasing on the items.

4.3.2 Neurocognitive Model

Further to the generation of theory, the Sbordone (2000) model was also reviewed in terms of how each of the items met the 75% consensus threshold (Table 5).

Table 5

Percentage of items meeting Delphi consensus threshold in each 15-stage neurocognitive category

Executive Functions of the Brain	**15-stage model (Sbordone, 2000)**	**Items agreed**
Volitional	Awareness of needs and wants	17/23 (73.9%)
	Decide whether to gratify want/ need	17/21 (81%)
	Form a specific goal	10/20 (50%)
Planning	Plan to achieve goals	9/21 (42.9%)
	Evaluation of plans	11/22 (50%)
	Select appropriate plan	11/22 (50%)
Purposive Action	Initiate plans	14/21 (66.6%)
	Ignore competing needs/ wants	17/21 (81%)
Effective Performance	Monitor progress	13/21 (61.9%)
	Compare progress to goal	5/20 (25%)
	Modify plan if ineffective	14/21 (66.6%)
	Recognise when goal is met	7/20 (35%)
	Terminate plan when goal is met	8/19 (42.1%)
	Store and retrieve plan for later	13/18 (72.2%)
	Generalise plan to similar situations	9/18 (50%)

Volitional

Questions relating to awareness and understanding of wants and needs, and choosing whether to gratify these (e.g., volitional factors within the Sbordone [2000] model) are generally well-rated. This was established within the TA as an important point to assess as lack of understanding or awareness may lead to lack

of skill development, and can help differentiate between someone who is learning disabled and someone who is Deaf and has not had adequate opportunities to learn. The concept of recognition was not well agreed upon in different contexts throughout the ratings. It appeared through further investigation that items ~~were rated worse~~achieved much greater variability in ratings across the spectrum of possible scores when the context of understanding or recognition was a social-cognitive feature (e.g., emotions, awareness of social rules), rather than practical understanding skills. Recognising emotional states in oneself and others, and recognising isolation were both rated relatively low, possibly suggesting that this may not be a psychologically adaptive mechanism in relation to wellbeing. Practical recognition questions, such as 'recognises familiar landmarks on known routes and uses these to help find new locations' fared better, achieving consensus and also not yielding any ratings below '3'. Many of the items in this category do not contain information about carrying out a skill based on these understandings or recognitions, making assessment relatively harder as they are not based on concrete behavioural information. ~~, these items are consistently ranked more favourably than other sections.~~

The lack of specificity of the questions also may have contributed to a conflict between the ~~rankings~~ ratings and TA. By introducing specific strategies within the volitional questions, this may in turn create the problems identified in the TA around choice and accessibility, as participants indicated that items such as 'decides independently whether to participate with others in playing a game or other group activity' may be confounded by these factors. However, it is of note that the ~~rankings~~ ratings here are generally good and achieve the specified level of consensus despite the noted criticisms.

Planning

In terms of the overall stages of the Sbordone (2000) model (volitional, planning, purposive action, effective performance) planning is the section that was most consistently poorly rated. This was generally corroborated by the systematic comparison of ~~rankings~~ratings, showing that 'planning' is only well ra~~nk~~ted where this involves little forward thinking, passive abilities, or basic skills. Items involving

planning were generally more highly rated when the purpose of the item was clear. For example, items that were more vague about why the behaviour was being performed or planned, such as ‘leaves home to travel to other destinations’, was rated lower than ‘plans travel to a destination, e.g., shops, pub, friend’s house’.

The planning section provides empirical support for the notion that requesting assistance from others as a compensatory mechanism to achieve adaptive goals is a good measure of adaptability for Deaf people. Questions relating to seeking support from others to achieve goals, such as ‘works effectively with interpreters or communication support workers to express their needs/ opinions’, were consistently rated higher than other types of strategies, such as using pen and paper, independently researching options, or checking information using the internet. The ~~rankings~~ ratings of items related to the planning section of the neurocognitive model generally map well onto the findings of the TA, in that it could be hypothesised that the reasons for the lower ~~rankings~~ ratings in this category are impacted by the relationship of literacy in being able to plan ahead, and also the cultural and developmental context in which people select strategies for making plans and what that person might choose to do. Reviewing the differences in ~~rankings~~ ratings in this category once again highlights that measuring competence in only hearing environments is a poor way of assessing adaptability for this population, corroborating the results of the TA as skills in this area may depend on several factors independent of adaptability.

Purposive Action

The category of purposive action generally contains fairly basic, practical skills in terms of carrying out plans. They are largely based on clearly identifiable, concrete behaviour which is possibly reflected in the higher overall ~~rankings~~ ratings across this category. Although generally ~~well-rated~~items generated in this category met the consensus threshold, the ~~rankings~~ ratings and TA conflicted at points in this category. Despite significant criticism in the TA in relation to accessibility in carrying out plans, the ~~rankings~~ ratings generally support the usefulness of these items overall. It may be that there is some significant dissent

from a small number of participants but that this was not accepted by the wider group.

Distractibility was also interpreted differently by some participants within the TA in the context of 'ignoring competing wants/ needs', with one person suggesting that due to the visual nature of being d/Deaf, it is not a clear indicator of a learning disability to go off-task whilst out and about. However, here items pertaining to distraction are rated inconsistently. Thus, developing norms for this type of question may be useful discriminator between adaptive and maladaptive behaviour. Despite some conflicting findings regarding distractibility and preponderance of visual stimuli, the step 'ignoring competing wants/ needs' yields the consistently highest ~~rankings~~ ratings within the neurocognitive model.

Effective Performance

The effective performance stage has the greatest variability in ~~ranking~~rating, containing the lowest consensus agreement (comparing progress to a goal) as well as amongst the highest (storing and retrieving a plan for later). Comparing progress to goals and recognising when goals are met may relate to the theme arising in the TA regarding accessibility, in that in some cases this may be relatively harder for a Deaf person if they have limited awareness of their surroundings due to their lack of hearing. Emphasising visual stimuli in this instance seems to improve ~~rankings~~ ratings of these items.

Several items in this section focussed on understanding and planning for longer-term consequences (e.g., 'Does the person learn from previous mistakes (e.g., getting into debt) and make plans to budget in future'), yet these items did not consistently achieve consensus of 4 or more ~~were not~~ ~~well rated~~ in comparison to more 'everyday' skills such as 'budgets money to cover expenses for at least one week'. This highlights that participants have chosen to focus on tangible, immediate behaviours that may offer a concrete example of an adaptive skill but say little about the person's ability to execute plans over a longer period of time, which may be important for independent living (e.g., budgeting, saving).

Making use of prior knowledge was not consistently rated as an adaptive skill, although it was clear that having some core strategies that the individual can utilise is considered adaptive in this context. Measuring the ability to use these skills across different contexts however did not yield responses that met the threshold for consensus in this category.

It may be that there is some difficulty with measurement in this area, as like other steps in this model it may not be possible for a respondent to answer with certainty as to whether the person is able to complete the skill, as the questions have cognitive as well as behavioural underpinnings.

4.3.3 Good Lives Model

The main elements of the GLM utilised in the construction of the items specifically were the life, relatedness, and community domains (for full explanation of how theory was utilised to generate items, see Appendix F~~E~~). Although 'knowledge' and 'agency' ran throughout, this mirrored the elements promoted by the Sbordone (2000) model. Due to this overlap in theory, I have presented only the key results here of the aspects of the GLM that were unique contributions to the model.

'Relatedness' and 'community' were hypothesised to be particularly pertinent aspects of the GLM in relation to measuring the adaptive behaviour of Deaf people, as this was reflective of the research literature suggesting that there may be differences in how Deaf people interact with others (Fischer & McWhirter, 2001). Much like the findings of the overall adaptive domains, the items constructed based on the GLM goods of 'relatedness' generally showed that these items within the work, communication, and health and safety categories fared best in terms of meeting the specified consensus threshold. These items were not very prevalent in the finance and travel sections, and were more contentious in the social awareness and competence adaptive domain. This may reflect the themes identified in the TA with regards to choice and accessibility, and the differences in how interaction occurs in the Deaf and hearing communities. The 'community' goods items appeared mainly in the travel, recreation, and social awareness adaptive domains. These items did not ~~fare well~~

~~in terms of rankings~~consistently meet the consensus threshold of 4 or more, suggesting again the complexity in assessing engagement with the community as problematic in the assessment of Deaf people, evidenced by participants choosing to rank these items relatively poorly.

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The 'life' goods from the GLM were contained entirely within the health and safety adaptive domain. Of the items constructed using elements of this theory, 86% of them reached the specified consensus threshold. This compares with 75% of the items overall meeting the threshold within this domain, suggesting that using this element of the GLM was a useful way of conceptualising adaptive behaviour in this setting.

4.4 Factors affecting item ~~rankings~~ratings

Based on the above findings, it appeared that there was significant variation within ~~rankings~~ratings. As a way to further explore how adaptability was being constructed within the item ~~rankings~~ratings, an ~~secondary~~ ~~'thematic~~ analysis~~'~~ was undertaken by~~,~~ comparing and contrasting functionally similar skills to determine similarities and differences within the ~~rankings~~ ratings and forming hypotheses about the understanding of adaptability driving the responses. The following themes were identified:

- Accessibility
- Communication
- Ability
- Question construction
- Developmental factors
- Routine

These have some degree of overlap with the TA, but some novel areas were also further drawn out through this process. Points of divergence between the TA and ~~rankings~~ ratings are discussed.

4.4.1 Accessibility

The best rated items were found to be concrete in their wording, and are not related to the experience of being Deaf. However, the items that are rated worst are those that are arguably conflated by the themes identified in how being Deaf interacts with adaptive behaviour. For example, 'books and travels on holidays to a range of different destinations (e.g., in same county, country, or abroad)' may have been ranked differently as it was noted that delays in literacy may make this more difficult, therefore participants did not agree that literacy is an adaptive skill. Alternatively it could be that literacy is adaptive but it conflates the measurement of adaptability, and therefore participants chose to give these items lower ~~ranking~~ rating in order to preserve only items that are not influenced so strongly by extraneous factors. Questions containing 'research' are generally rated quite low, with the exception of 'researches or asks someone if unclear how to take a particular medicine'. Introducing another option for checking may mitigate some of the effect associated with 'research' being included in the question, and the association of this with literacy.

However, 'checking' items also yielded disagreement, with some comments suggesting that this may be harder for Deaf people as there may be less access to technology, phones, or internet. Where visual strategies are introduced within the question (e.g., recognising landmarks) this tended to be higher rated than questions relying on technology or reading. The exception to this is in the 'work' domain where the impact of including 'checking' in the question does not appear to influence ratings. This may be because those in employment are likely to be high functioning and the impact of the factors associated with making checking less accessible may be less prominent.

Some items which involve mention of specific activities, such as going to the cinema was rated as lower than others (e.g., pub, social groups, park), which may indicate that there is poorer access to this form of entertainment, making it a poorer activity to select in assessment. Questions which involve an element of interaction were also generally rated as lower.

Items that tended to be rated higher were related to skills that were clearly learnt through practice or observation. For example, performing a behaviour explicitly

taught was felt to be a better measure of adaptive behaviour than vaguer items asking about ability to change strategies. This is less concrete and also possibly reflects an issue in not having access to learning different ways of doing things. However, simply copying tasks were less well-rated (e.g., 'following procedures'). This may be due to the possible influence of language factors or confidence, or was regarded as a less adaptive skill than acting autonomously. This was supported by higher ratings in the work section where the emphasis on independent decision-making increased agreement.

Finally, accessibility also conflated the assessment of some areas of adaptive skills in the context of health and safety, possibly due to the relative inaccessibility of healthcare for many Deaf service users (Fellinger et al., 2012). For items related to routine health behaviour there was poorer agreement, which held true for seeking out immediate care or taking urgent medical action. However, the latter could be considered more adaptive. The consistently low ratings surrounding health may imply a behavioural norm of Deaf people that regular access to healthcare is not sought, but this is likely to reflect broader systemic inequalities in making this process more complex than it would be for a hearing person rather than being related to adaptability.

4.4.2 Communication

Although there was disagreement within the TA about whether an assessment of communication ability is 'adaptive', these items were rated relatively high compared to some of the assessment of functional language. This may mean that, in a Deaf context, an assessment of language may help to identify whether issues around language deprivation or low language ability are contributing to poorer adaptive skills. However, this carries the assumption that the language used would be BSL or manual signing rather than spoken language, and that this may be more adaptive.

4.4.3 Ability

Some items may have tapped into an ability level too high for that which may be sensitive to possible ID. Particularly in the 'finance' section some of the higher

~~rankings~~ ratings were those that closely linked to ‘everyday’ activities such as spending in a café, or bus fares. However, these also contained elements of interaction and therefore may be a less reliable assessment of adaptability. Some comments suggested that there were several items included that may not be representative of the general population (Deaf or hearing) and therefore were not considered to be a good assessment of adaptability.

Some aspects of accepting and managing responsibility appears to be variably rated amongst the different adaptive domains. Whilst in the ‘work’ category, which is generally well-ranked, participants have suggested that multi-tasking, organisation, and planning are adaptive skills that are reasonable to assess, the ~~rankings~~ ratings across different domains appear to minimise the importance of skills such as multi-tasking. It was unclear from the results whether the reason for this was linked to not considering these behaviours adaptive, or because they are impacted by a variety of other factors that may make this skill more difficult for a Deaf person, and therefore participants have chosen to diminish the utility of these items. It may also be that these skills are relatively more complex and participants felt that it wouldn’t be clinically useful to assess for this information, as if an individual could demonstrate these skills it would be unlikely that there would be suspected deficits in adaptive skills.

4.4.4 Question Construction

Where specific examples of how problems might be solved (e.g., by checking a map) are provided, there appears to be greater disagreement. For example, ‘can find a way back to a familiar destination if lost’ yields 100% ratings of 4 or more, but there is no indication included in how the problem is solved and is somewhat vague. However, the comments provided indicate that specific examples are a useful feature of constructing questions as without these there may be confusion amongst respondents.

There appears to be a need for balance between being concrete about the purpose of particular skills, for example by using learnt knowledge to achieve specific goals, yet once these complex skills are introduced more disagreement is also found. This may be because factors related to the influence of deafness

are introduced and begin to make the item a less reliable measure of adaptability alone. However, it may also be the case that in asking questions that provide specific examples of ways to achieve particular behaviours, this may not account for the norms and expectations of someone who strongly identifies with their culture and can therefore lead to inaccuracies in assessment.

Negative framing of questions appears to yield lower agreement. For example, questions about 'not getting lost' were higher rated than 'becoming distracted'. This was also the case for items related to finance, where questions about budgeting tended to be better rated than those that indicated getting into debt or over-spending. Language use was also an important factor in questions surrounding the communication section. For example, 'makes others aware if they need prompts to keep up' could perhaps be reframed as raising awareness of lack of access as phrasing appears to yield different ratings amongst questions focussing on functionally similar skills.

Questions that explicitly refer to 'adapting' to various environments yielded disagreement. 'Changes communication strategies to adapt to the other person' may have been interpreted as putting the onus of responsibility on the individual to do this, which may not always be possible. Equally, 'able to adapt communication in a variety of ways' was not well agreed upon, suggesting a similar issue. This may also have some associations with identity and choices about when to use particular behavioural skills. For example, it was commented within the TA that some people may reject communicating in particular ways (e.g., through use of pen and paper), and therefore asking about these strategies to assess adaptability may not be tapping into the skills in which this measure is designed to investigate.

As has been highlighted in the discussion of utility of the different theoretical underpinnings of items, questions that are concrete and ask about clear, goal-orientated, practical skills generally seem to be higher ranked than the more abstract conceptual or social skills. Whilst this may be the case for any behavioural measure, it is of note that these skills have been retained within most adaptive behaviour measures as a useful indicator of adaptability, yet may be more prone to fallacies in item construction.

It appeared from both the TA and the ~~rankings~~ ratings that some items may have fared better in different adaptive domains. For example, there was some instances of crossover in item content between 'travel' and 'recreation' (in getting to leisure activities), and also between 'social awareness and competence' and 'communication'. Whilst these are intended to be distinct domains, it may have influenced the ~~rankings~~ ratings of items where they appeared to be in the wrong category.

4.4.5 Developmental Factors

Several questions may require the individual to have considerable confidence in performing particular skills. For example, 'moves plans to a different place if finding it difficult to follow conversations'. The question 'able to tell others if adjustments need to be made to activities to make them more accessible' was rated higher than many others where confidence or anxiety may impact on how individuals respond, possibly because the first requires more action and assertiveness whereas the second is more about raising awareness.

Although it may be that confidence is a core feature of what it means to be adaptive (e.g., choosing behaviours that meet needs within your environment), it could alternatively mean that questions requiring confidence (which could be conflated by anxiety and therefore not representative of adaptability) are not appropriate within this assessment. This demonstrated the need for norms with this question in mind, influencing the decision to establish a baseline assessment during the second round of the Delphi.

4.4.6 Routine

Many of the skills that would be fundamental to living an independent life generally did not meet the threshold to be considered as good measures of adaptability. For example, as discussed in relation to the neurocognitive model and adaptive domains, planning, especially in the context of long-term consequences and managing finances, appear to be low-ranked by participants. Items relating to organisation, those with a greater emphasis on planning, and

unfamiliarity of scenario yield worse ~~rankings~~ ratings than those items which are predictable and routined.

This may link with the literature surrounding the cognitive abilities of Deaf people, as some research has suggested that there is a greater degree of cognitive inflexibility or rigidity in Deaf people (Moore & Malinowksi, 2009). However, this is a controversial finding with mixed support (Ebrahim, 2006), and therefore may be reflective of the lack of consensus achieved here. Participants may have been aware of this literature and made their ~~rankings~~ ratings accordingly, or may also be working with particularly impaired clients for whom this may pose a greater difficulty than a Deaf person of average intellect. In either case, this demonstrates again that there is some conflation of cognitive ability and adaptability, which could be clarified through the development of a working definition of adaptive behaviour for Deaf people.

4.5 Interim Conclusions

The above findings suggested that adaptability was conceptualised differently by participants, leading to diversity in ~~rankings~~ratings. As a result, it was determined that a definition of adaptive behaviour for Deaf people would draw together features identified by the TAs as problematic to ensure that practice is grounded in both theory and evidence.

It was apparent that participants tended to agree on areas more clearly related to ID yet disagree where the construct of deafness is introduced as an additional layer of complexity. However, disagreement in ~~ranking~~ rating may not indicate that these items are poor measures of adaptability, simply that they have been ranked lower because they are relatively complex skills and therefore may be less reliably performed by Deaf people even if they are of average intellectual ability. In order to test this hypothesis, the focus of the second round of the Delphi adapted to assess the universality of the construct of adaptability and establish a baseline level of ability of the average Deaf person using the items generated within the first round.

Thus, two further steps were taken in this research:

- A definition was constructed on the basis of the TA and analysis of numerical ~~rankings~~ ratings within a summary report sent to participants;
- The second round of the Delphi aimed to seek feedback on the working definition and generate some initial empirical data as to the functioning of a Deaf person of average intelligence.

4.6 Developing a Definition

Reviewing definitions of adaptive behaviour, Tassé et al. (2012) reported that six common themes have been consistent over time. However, each of the six themes appear to be adhered to variably depending on the emphasis of the specific measure. These include:

- Learning and performance of skills to meet societal expectations
- Age and cultural relativity
- Functioning related to physical needs and community participation
- Maintenance of responsible social relationships
- Developmental nature of adaptive behaviour
- Typical behavioural performance

The TA considered the comments in light of these factors and how adaptability may be understood in relation to deafness, highlighting some key aspects of adaptability in the Deaf community that differ from these common areas of definitions.

4.6.1 Skills that meet societal expectations

Although it is a reasonable suggestion that through experience of setbacks a person would learn not to bother with particular tasks and that this may have some adaptive value, there are issues with assessing this in a standardised measure. It is likely that while this may affect many Deaf people, there will be others who do manage these skills and therefore in a large normative sample this may mean that there is significant variability in skill performance. As such, it may

be that a broad view of ‘societal expectations’ needs to be considered, without which questions may simply reflect avoidance (e.g., in making complaints). However, this does highlight that there may be significant differences in the way in which Deaf people function day-to-day as compared to hearing people, given that this behaviour may be more common for a Deaf person.

4.6.2 Functioning in the Context of Community Participation

The role of context and assessing differences in behaviour between Deaf and hearing environments appears to be an important feature of assessment, given that it allows for a fuller picture of an individuals’ potential in different environments. Some items did not initially split whether the question refers to Deaf or hearing contexts. For example, ‘chooses to befriend other Deaf/ hearing people’ was stated as one question. However, this actually yielded a higher level of agreement than questions which asked about one context and then the other (e.g., ‘joins in with social clubs or events to meet new people (Deaf community)’ and ‘joins in with social clubs or events to meet new people [Deaf/hearing]’). These two questions yielded identical results. It is possible that the lack of splitting the question allows for ambiguity and therefore may be a good assessment of social competence in unspecified settings. As a means of testing this, the second round requested responses from participant that considered the utility of each item in both Deaf and hearing contexts.

4.6.3 Age and Cultural Relativity

Both age and cultural comparisons may be relevant to this assessment. The identification of ‘cultural differences’ as a theme within the TA indicated that to reliably assess adaptability in this group, it is important to have a clear idea of the behaviour expected within this population. This may include integration with the hearing world and/ or the primacy of meeting demands within Deaf community settings. This indicates that re-norming existing measures may say little about the adaptability of Deaf people as points of divergence from hearing social norms have been reflected in participant comments and ~~rankings~~ratings. This further supports the need to assess behaviour in both a Deaf and hearing context.

4.6.4 Maintenance of responsible social relationships

Items identified as being related to social competence appeared to be worse ranked than those based on practical or conceptual competence. This may be reflective of general trends within the adaptive domains, as fewer items met the specified threshold where the overall category was also generally poorly or divisively ranked as a whole (see Table 4). There was good support within the ~~rankings~~ ratings for items implicating understanding of responsible social relationships (e.g., 'able to seek out appropriate people for intimate relationships', and 'does not become over-familiar with strangers [e.g., accepting gifts or giving personal information]'). However, there are some notable exceptions to the types of relationships that Deaf people may seek to maintain. For example, items referring to having good relationships with family members of seeking friendships within the individual's own peer group were more poorly ranked, possibly reflecting the relative difficulties that Deaf people may have maintaining these relationships even if they were desirable.

4.6.5 Developmental nature of adaptive behaviour

Due to developmental factors such as family background, access to communication, and past experiences in the hearing and Deaf communities, it may be that behaviour would change over time at a different trajectory to that expected in a majority hearing population. It has been shown that this is the case for various other social-cognitive skills in Deaf people, such as theory of mind (Rhys-Jones & Ellis, 2000). The knowledge base of Deaf individuals may be different to that of a hearing person because of loss of incidental learning opportunities, so it is important to ascertain what knowledge the Deaf community are likely to possess and develop assessments that account for this (Atkinson, Denmark, Marshall, Mummery, & Woll, 2015). This again suggests that adaptability is highly contextual and that assessors must remain vigilant to developmental factors during assessment, with the TA implicating that features of developmental history as fundamental to the assessment process.

4.6.6 Typical versus maximum performance

Given that adaptive behaviour scales are measured through concrete observable behaviours it is difficult to reconcile the notion of potential and typical performance, and it appears throughout the ~~rankings~~ ratings that ability, potential, and the socio-political context (e.g., cultural differences) are conflated or treated differently. Whilst IQ scales are designed to measure maximum performance, and therefore potential, these may be equally flawed when used with Deaf people (Baker & Baker, 2011) and therefore there may be limited opportunities for clinicians to consider potential within their assessments. It is of note that this arose within the TA, as it implies the importance of a working definition that clarifies these differences in interpretation to inform practice in assessment.

4.7 Delphi Round 2

The findings of first round of the Delphi indicated that although some clear themes could be derived from the data provided, both qualitative and quantitative, there were some outstanding questions that could be addressed by the second round, and that given the divisiveness of the early ~~rankings~~ ratings obtained it would not have further utility to repeat this method. Instead, the second round aimed to generate a baseline for the adaptability of a Deaf person of average intelligence. Participants were asked to consider a Deaf client of average intellectual ability and rate whether this individual could do each item in a scenario where all other people were Deaf or hearing, yielding two separate ratings for each item (yes/no in both Deaf and hearing contexts; see Appendix O~~N~~ for response template). A report was compiled detailing the findings of the TA and systematic comparisons (Appendix P~~O~~) and re-sent to participants who had contributed to the first round of the Delphi process.

Delphi procedures have also been used flexibly to consider qualitative feedback and in the context of developing definitions (Skulmoski et al., 2007; Loo, 2002; Okoli & Pawlowski, 2004), and as such participants were asked to provide any further comments on the working definition provided.

4.7.1 Comparison of Item ~~Rankings~~Ratings

Items were subjected to ~~ranking~~ rating of whether individuals would be able to perform the behaviours assessed in each item (in both Deaf and hearing contexts). If any participant identified that a Deaf person might struggle, in a Deaf or hearing context, this was noted in order to reveal where there had been differences in scores (Appendix Q~~P~~). An analysis of which items received poorer ratings was conducted, with consideration to why this may be the case in the context of both the skills being performed and the emergent definition.

The table below (Table 6) considers the ability of an average Deaf person to perform the items that were accepted as good measures of adaptability in the first round (i.e., those that met the 75% consensus of 4 or more ~~rankings~~ratings).

Table 6

Comparison of Delphi Round 1 and Round 2 Results

Adaptive Domain	**Problems in only a Hearing Context**	**Problems in both Deaf and Hearing Contexts**
Travel	0/16 (0%)	3/16 (18.8%)
Finance	0/25 (0%)	7/25 (28%)
Recreation	6/18 (33.3%)	4/18 (22.2%)
Health and Safety	2/33 (6%)	16/33 (48.5%)
Social Awareness and Competence	9/20 (45%)	7/20 (35%)
Communication	16/28 (57%)	4/28 (14.3%)
Work	3/35 (8.6%)	12/35 (34.3%)

This table demonstrates that despite items being accepted as valid measurements of adaptive behaviour in Deaf people (through the Delphi procedure in the first round), the average Deaf person may still perform poorly. This is contrary to current measures of adaptive behaviour, where the skills assessed are demonstrated by the vast majority of the general population (Tassé et al., 2012). This may suggest that the items generated are still poor indicators

of adaptability in the Deaf population and that further research should aim to develop items with good criterion validity, accurately reflecting the everyday skills of Deaf people.

Where items are identified as problematic in a 'hearing only' context this may suggest the increased influence of communication or motivational factors, whereas problems identified in both contexts, may denote skills of greater complexity or influenced by factors associated with the experience of being d/Deaf (e.g., possible language deprivation). Consideration is given to these factors in detail by reviewing each of the adaptive domains.

4.7.2 Comparison of Adaptive Domains

Travel

Within the travel domain, the highest rated item 'can find a way back to a familiar destination if lost' (achieving 100% consensus score of 4 or more in the first round) was one of the three items in this category that were identified as problematic for a Deaf person to do in either a Deaf or hearing scenario. This indicates that there is a potential deficit in the neurocognitive model (e.g., modifying plans) rather than this difficulty being as a result of interacting with others as a way of solving this problem. All of the items identified as difficult for the average Deaf person in this domain were from within the 'effective performance' neurocognitive category.

The other items identified as difficult within those agreed in the initial Delphi ('if a planned route is not available [e.g., road closure, train cancellation], finds an alternative way of getting to their destination' and 'gets off public transport at the required stop') may relate to possible access issues, reflecting the results of the TA. These items are a mixture of practical and conceptual skills, and may depend on the availability of visual stimuli or access to technology in being able to solve these problems.

Of the items that did not meet the specified threshold in the first round, items referring to the concept of 'checking' led to the worst baseline responses in this category. For example, the item ranked hardest to do (e.g., most participants

responding ‘no’ in either context) was ‘books and travels on holidays to a range of different destinations’. This may be due to the poor phrasing of the question, mirroring the language theme identified in the TA, as it incorporates two questions in one. However, it also may relate to access or literacy issues.

Finance

Of the items accepted as meeting the consensus threshold in the first round, 28% of these would reportedly be difficult for the average Deaf person to demonstrate in either a Deaf or hearing context. These items spanned the range of the neurocognitive model, and contrary to the results of the first round it was mainly practical skills that caused difficulties (rather than conceptual or social skills, which were generally considered less indicative of adaptive behaviours). This may be a product of fewer of these items being retained in the second round due to not having met the specified consensus threshold.

Again, the finding that none of the problems identified were unique to a hearing environment indicates that interaction is not the part of the skill that is difficult, but that there may be features of having opportunities to learn these skills in the first place. This may be related to accessibility issues identified within the TA such as education and language deprivation.

Investigating all items in this category, including those not meeting the consensus threshold, the item rated hardest to do was ‘completes forms for businesses or services’. This is directly taken from the ABAS-II. Other items that were ranked as harder were similarly related to literacy, although making complaints or switching between different services was also identified as being difficult.

Recreation

Of the items accepted in the first round, 10/18 were problematic. Of the six items thought to be difficult within a hearing context, these were related to the TA themes of language, accessibility, and developmental factors. Items related to being assertive about communication were rated as difficult in both Deaf and hearing scenarios, suggesting that this is less to do with the act of communicating

and more related to being assertive and whether this is a representative adaptive skill.

Generally within this domain the social competence skills are problematic rather than practical or conceptual skills. Two of these items were adapted from the ABAS-II. As compared to the other adaptive domains, there appears to be slightly more emphasis on difficulties in volitional skills in this context, whereas generally the other domains yield problems across the spectrum of the neurocognitive model.

In terms of the items that are ranked amongst the worst in this round, ‘can the person organise a large event with different steps (e.g., an event for a social group) and recognise when everything has been done’ yielded the highest number of participants responding ‘no’. This item was adapted from the Vineland-II. This follows a general pattern established that planning on a large scale may be more difficult or not a good indicator of adaptability for Deaf people. Other items that were considered difficult involved monitoring communication with others and being able to alert others to the need for adjustments or requiring additional help to follow conversations.

Health and safety

Despite this category being generally well-ranked within the first round, over half of the items in this domain were ranked as being difficult for the average Deaf person to perform. This once again shows that practical skills were in fact harder than conceptual or social skills, despite being well ranked as good measures of adaptive behaviour.

Although several items were identified as being potentially problematic, this was generally not ranked as difficult by as many people as in the other domains. For example, only one or two people identified items as problematic in most cases. The worst ranked items in this domain were ‘researches or asks someone if unclear how to take a particular medicine’. This fits with the findings of the first round that items referring to ‘research’ or having elements of literacy are felt to be more difficult. This also supports the observation that participants appeared

throughout the first round to have dealt with items that may be difficult by not ~~ranking~~ rating them as valid measures of adaptability.

Social awareness and competence

Of the items retained from the first round meeting the consensus threshold, only 3/20 were not considered in any way problematic for the average Deaf person. Table 6 demonstrates that this category has the highest level of problematic items than any other category.

This domain provides evidence that interaction may be more difficult for a Deaf person, regardless of context. However, the high number of items that would be difficult to do in both Deaf and hearing settings may mean that the items retained still do not identify skills that are relevant to this population. Equally, it could mean that this section contains items that are too complex for the majority of Deaf people in terms of managing interactions.

Of the nine items identified as problematic primarily in a hearing context, four of these are directly taken from the ABAS-II. The worst ranked items overall were 'attends Deaf club or socialises with other Deaf people', 'initiates games or selects TV programmes liked by friends or family members', and 'able to identify emotions in others'. These come from a diverse range of theoretical sources within this domain, but notably accessibility, both in terms of having opportunities and being able to physically access information may have impacted on the ~~rankings~~ ratings here. For example, whilst identifying emotions of self or others may seem like a basic skill, this may be impaired in Deaf people if they cannot access key information such as tone of voice. Research indicates that theory of mind may be delayed in Deaf young people, but the evidence base suggests that Deaf people of normal cognitive ability function at the same level as their hearing counterparts in these areas by adulthood (Rhys-Jones & Ellis, 2000).

Communication

Of the items identified as problematic in this domain, it was overwhelmingly the case that this was due to interaction with hearing others rather than being

problematic in both Deaf and hearing situations. Many of the items retained in this domain from the first round are based on social competence skills, which perhaps unsurprisingly may be more difficult to perform in a hearing context than a practical skill. Very few items retained within this category were not considered problematic. However, amongst these, the items are very basic (e.g., 'uses pointing or feature to indicate whether something is wanted or not wanted', 'decides whether to join in conversations with other Deaf people').

The item ranked hardest to do within the entire domain was 'able to communicate effectively with people unknown to the person'. It is possible that even a very adaptive person might struggle to do this. Some of the feedback from this round intimated that if the Deaf individual's communication partner is unskilled in communicating with Deaf people, this may also influence whether the Deaf individual is able to make themselves understood.

Work

In this domain items that were ranked as problematic were generally supported by multiple participants. Amongst the items ranked as hardest were 'uses interpreters/ support workers effectively', 'changes or attempts to change strategies for completing work following constructive feedback', and 'completes large projects on time'. These are adapted Vineland-II and ABAS-II items respectively. The items could be described as conceptual skills and related to time management. This may also have some crossover with being assertive in using communication strategies in different situations, for example managing the difficulty in working with others to achieve goals.

4.7.3 Interim Conclusions

The core findings of reviewing the difficulty of each adaptive domain identified that the results mapped well onto the findings of the TA. The data here suggests that participants in the first round elected to deal with items that may be difficult to perform by ~~ranking~~ rating them as poor measures of adaptability, likely because of the potential for conflation between adaptability and other factors

(e.g., accessibility, developmental factors, and language deprivation). This ~~correlation~~ apparent relationship between items being ranked poorer (round one) as also being ranked harder (round two) leaves it unclear as to whether the proposed items are truly poor at assessing adaptive behaviour, or whether they represent relatively more difficult skills. For a table demonstrating which items were ranked above the consensus threshold in the first round and also were not considered problematic in the second round, please see Appendix R~~Q~~.

The findings here further demonstrate the utility in splitting Deaf and hearing contexts. Although an overview of the results may indicate that the items represent a level of ability too complex for a Deaf person of average intelligence, a more detailed approach reviewing items within individual domains shows that there may be difficulties related to interaction outside of areas explicitly measuring communication skills, confirming the results of Suess et al. (1981). Again, this may represent skills that are more difficult, but it has been highlighted that an alternative perspective may be that opportunities to develop skills in these areas may be more limited for Deaf individuals than their hearing counterparts.

4.8 Comparison of Results across Contexts

4.8.1 Difficulties in a Hearing Context

In situations where everyone is hearing, barriers such as lack of understanding, difficulties within interaction, and inaccessibility of information may be significantly more pronounced than in Deaf environments, where communication and clarification of misunderstandings may be more easily navigated. Due to often poor experiences of education and lack of incidental learning opportunities (Du Feu & Fergusson, 2003), Deaf people may need relatively more guidance in learning new skills and therefore difficulty in seeking clarification in all-hearing contexts may have a greater detriment to adaptive skill development than it would in a Deaf scenario. An idea emerging from the working definition is that Deaf people may possess different strategies for interacting with hearing others, yet depending on the skills and resources of the conversation partner this may or may not be successful. This may also be relevant to the ‘communication’ adaptive domain where many items related to linguistic competence were ranked lower in

a hearing environment. This may indicate that a person is less likely to use particular modes of communication (e.g., signing) when in the presence of hearing others, or that they may adapt communication to maximise their chances of being understood, compromising the linguistic integrity of full BSL.

Repeated experiences of negative interactions may influence both a person's choice about whether to engage with hearing people, indicating that questions reliant on choice about integration with the hearing world, and the assumption in a definition that this is a positive choice may be flawed. Anxiety about future interactions may be raised, leading to a lack of assertiveness in situations where adjustments would need to be made for the person to fully engage, impeding future skills development through loss of opportunity. This further begs the question: to what extent it is the individuals' sole responsibility to have a range of strategies for communication? Many items ask whether the person is able to monitor and adapt their communication, but it may be difficult to tell if interactions have been effective and successful.

The findings here are pertinent to the structure of the items generated in terms of the underlying model, as items linked to 'volition' may also load on a variety of other factors. In terms of the neurocognitive structure underlying the proposed measure, an observation arising from this round was that Deaf people may struggle with applying ideas learnt from one area to other aspects of their day-to-day functioning. This arose in the 'effective performance' questions several times and could represent a feature of Deaf cognition that warrants further investigation, both generally and in its applicability to adaptive behaviour.

4.8.2 Difficulties in Deaf and Hearing Contexts

Where participants rated that a Deaf individual would struggle in both Deaf and hearing contexts, this was interpreted as potentially tapping into higher-order skills which may be more difficult to perform regardless of the environmental context. Drawing upon the TA and consideration of the demands of each item, it appeared that there were some key factors influencing why these adaptive skills may be more difficult to perform. For example, literacy skills and possible lack of opportunities for skill development may manifest themselves regardless of the

environmental context. This may also reflect limitations in choices in the person's lifetime, as identified by the TA as a possible explanation for poorer adaptive skill development. This provided support for the working definition, indicating the need to take into account an individual's previous learning experiences.

There were several ~~rankings~~ ratings where participants felt the individual would struggle in both contexts which may be related to cultural behaviour. For example, some items exploring whether a person would book a GP appointment, or attend a social group were ranked as potentially problematic across contexts. This could indicate that these behaviours are less likely to occur (due to systemic issues in engagement with healthcare, or the changing landscape of the role of Deaf clubs in the modern Deaf community), or could be related to personal choice. It may not be that these items are 'problematic', simply that the person is less likely to choose them.

There is an interesting feature emerging from this research that 'distraction' may be conceptualised differently in a Deaf context. Within both these ~~rankings~~ ratings and the first round of the Delphi consensus, items related to distractibility were highlighted as not useful in measuring adaptive behaviour, or that Deaf people may routinely become distracted. Although it may not be considered adaptive, the findings of this research suggest that this may be relatively more common within the Deaf world due to the visual nature of this environment, and therefore may say little about adaptive skills as a whole. Research has highlighted that Deaf children are often reported to be distractible, possibly as a result the impact of visual attention on cognitive processing (Dye & Hauser, 2014), which appears to be reflected in these results.

Some participants raised concerns throughout the Delphi process that the level of language skill of the individual is a crucial part of development and performance of adaptive skills. For example, there appeared to be some concern within the second round about whether a person would be able to communicate their needs effectively in Deaf or hearing environments if their language is poor, and as language is not a core component of intelligence then the instruction for the ~~ranking~~ rating of this round may have given rise to some variance in responses.

4.8.3 Difficulties in a Deaf Context

In the few instances where participants had reported in every case that a person would be able to do this in a hearing scenario but highlighted that they may struggle in a situation where everyone was Deaf, this can be explained in two ways. Firstly, it is possible that these scenarios felt to be a more challenging situation in questions where there may be a need for clarification, or it would be difficult to notice that a response was required because of the physical inability to hear. In this case, other Deaf people in the situation may also be unable to provide any support. The other situation in which this arose were questions largely pertaining to functional use of language and communication strategies. For example, ~~rankings~~ ratings were lower for items that would not be relevant in this case (e.g., writing things down, pointing/ gesturing to make needs known, or working with interpreters). This may have been participants' way of dissenting to the relevance of the question.

4.9 Feedback on Working Definition

Emphasising the importance of upbringing, experiences, and opportunities of an individual was felt to be a useful feature of the working definition as experts suggested that this may be of greater influence in the development of adaptive behaviour rather than the lack of access to sound associated with a medical view of deafness. However, one participant suggested that this could be redacted to 'experiences' as a catch-all terminology alluding to these features.

In terms of the relevance of the operationalisation of this working definition into a measurable construct, one participant linked this to the Delphi findings, recognising that it may be difficult to generate items that capture different skills while simultaneously maintaining good face validity and representativeness of adaptive behaviour as a construct.

Some participants expressed discomfort with projecting a hearing perspective onto Deaf people (e.g., by making the assumption that adaptability is still useful to assess within both contexts) for fear this may appear 'colonial', and because it eliminates the important factors identified in the TA regarding personal choice

and the role of developmental factors in behaviour. Although the tension of ethnocentricity is unlikely to be unique to deafness, this point may be difficult to address in the context of adaptability with this population. It appears divisive amongst experts as to whether these features are a useful factor in considering the adaptive value of behaviour, or whether they represent a value-laden position in which the definition projects an assumption about which behaviours are adaptive.

Critique was levied at the findings of the summary report, including thoughts about the representativeness of research to a modern UK context. For example, there has been a distinct rise in medical views of deafness (e.g., the new born hearing screening programme, prevalence of CI procedures, and advances in audiology) coupled with the increased emphasis on mainstream education and integration (Department of Education and Skills, 2001). Changes to educational policy may mean that d/Deaf young people may have had very different opportunities to an older Deaf generation, which one participant suggested may contribute to greater opportunities for adaptability. There is no empirical evidence in this area, making it difficult to interpret whether this is the case, but given the stated importance of opportunity and recognising behaviours that have adaptive value this seems like a hypothesis that may benefit from further research.

The items originally presented were criticised for failing to capture the responsiveness of others to behaviours which may be adaptive. For example, it was noted by one participant that attempting to modulate communication may be adaptive, but interactions may still be unsuccessful depending on the skills of the communication partner. Consequently, a Deaf person may still receive a low score for items which assess functional use of language dependent on the respondent's understanding of these interactions. This indicates that it may be difficult for assessors to consider whether items have face validity in the context of Deaf people, which is problematic in current assessments as they do not provide guidance for the interpretation of these scenarios. Further, this is absent from current conceptualisations of adaptive behaviour, and may be difficult to incorporate further within a definition. Instead, this can be considered within guidelines for assessment.

It should be noted that only four responses were gathered in relation to the working definition, indicating that these views are perhaps not representative of the broader thinking of experts in this area. Alternatively, it could be that the lack of responses to the definition indicated tacit agreement or no major points of disagreement, given that the second round of ~~rankings~~ ratings yielded eight responses.

4.10 Reflections and Conclusions

Responses again showed variability between participants, and some ideas that had been previously noted at earlier stages of the Delphi process recurred within this section. For example, it was identified through the TA that items may assess factors outside of the individual (e.g., access to vibrating alarm clocks, flashing fire alarms at work, etc.), again influencing people's responses to these items.

Many participants reported finding this a difficult task based on the lack of information about the person for whom they were to imagine completing each behaviour. For example, some responded that they would assume competence in each adaptive domain if the person was of average intelligence, whilst another responded that their answers were highly dependent on a variety of factors related to the individual's personal resilience, skill in language, personality, and the choices available to them, reflecting the findings of the TA. This participant had rated several items as both 'yes' and 'no', explaining that it was depending on the skills outlined above. For the purposes of scoring for this round, I interpreted each of these answers as 'no' (giving a score of 0), as the rationale for these ~~rankings~~ ratings was to identify areas of potential difficulty.

Due to the fact that each person was primed to imagine an anonymous individual known only to them, the findings of these ~~rankings~~ ratings may be highly subject to variance based on these factors. The findings of this research indicate that adaptability may be heavily influenced by language, choices, and developmental opportunities in Deaf people, and therefore these ~~rankings~~ ratings may not be representative of a normal level of adaptability in Deaf people. However, it does further help to clarify which items may be better or worse at tapping into

adaptability as a construct, and allow the researchers to further investigate how these may be refined in the future.

It is further worth noting that the findings of this round were analysed having already conducted the TA, possibly influencing the way in which discrepancies in ~~rankings~~ ratings were interpreted.

5 Extended Discussion

This study aimed to develop understanding of the construct of adaptive behaviour. Through the process of reviewing theory and generating items, subjecting these to expert opinion, a working definition of adaptive behaviour was constructed. This allowed for development of best practice guidelines for assessment, which are considered herein. The developmental literature relating to adaptive behaviour and the relevance of the proposed models in adding a novel contribution to knowledge in this area are discussed. Research and clinical implications are considered, with recommendations for future research.

5.1 Summary of Findings

5.1.2 Delphi Consensus Round 1

Item Ratings~~Rankings~~

The first round of the Delphi consensus demonstrated that the proposed items were divisive and the a priori consensus thresholds were not achieved in many cases. A systematic comparison of item ratings was undertaken, highlighting patterns which appeared to determine how items that appeared functionally similar were ranked. Items increasing accessibility (e.g., not referring to literacy, skills reliant on visual stimuli) achieved better ratings, as did clarity in question phrasing, and use of compensatory mechanisms (e.g., working with interpreters or support workers). Items that were ranked more poorly tended to be related to the level of ability being determined as too high, those related to living independently (e.g., managing situations which are unfamiliar, planning, and organisation), and situations which may require confidence or assertiveness. These items may be easily confounded by factors other than adaptability, and a TA of questionnaire comments was undertaken to review justifications for the rankings.

Thematic Analysis

The TA revealed that although there is crossover with the difficulties of capturing adaptive behaviour in minority ethnic or linguistic groups living within majority

cultures (e.g., themes such as ‘assessment’ and ‘language’ may be common to other populations), there are some key differences associated with the developmental experience of growing up d/Deaf and Deaf cultural factors that set assessment of adaptive behaviour with this population apart from other groups (e.g., themes of ‘cultural differences’, ‘developmental factors’, and ‘accessibility’). These themes mapped well with the comparison of item rankings. A working definition of adaptive behaviour was produced, amalgamating the results of the TA and the ratnkings within a summary report sent to participants.

5.1.3 Delphi Consensus Round 2

Following the first round of the Delphi consensus, it was anticipated that the strength of differing opinions between the group and lack of clarity of the construct of adaptive behaviour would generate further disagreement. As such, the second round was adapted to elicit feedback on the working definition and establish a baseline assessment of normative functioning of Deaf adults of average intellectual functioning.

Working Definition

The working definition was largely considered by participants as a useful contribution to the understanding of adaptive behaviour with Deaf people, particularly with reference to the cultural determination and highlighting the importance of experience in the development of adaptive skills. However, there were some differences in opinion about whether there should be a separate definition of adaptive behaviour unique to Deaf people, or whether removing reference to specific features of the experiences of being Deaf may be a more inclusive and useful conceptualisation. The concerns raised were regarding discomfort with the assumption that Deaf people will act in a certain way. By removing the specific Deaf and hearing wording of the definition, this could have application to the understanding of adaptability more generally. However, given that the evidence suggests it may be particularly difficult to for those who are not knowledgeable about deafness to draw apart the relevant issues (Landsberger & Diaz, 2010), it is a fine balance between emphasising these issues specifically

within a definition without becoming overly prescriptive and thus the original wording was retained and guidelines for interpretation were produced instead. Further, the TA indicated that intelligence, deafness, and adaptability are often conflated. To address this, a further addition was made to the proposed definition:

> *'a collection of skills that are used day-to-day based upon a person's prior learnt knowledge and access to opportunities, enabling the individual to draw upon a variety of resources to achieve their full potential within both Deaf and hearing contexts, in a manner consistent with their values and identified cultural norms and appropriate to their age.* ***Any deficits in adaptive behaviour should be considered in light cultural, accessibility, and developmental factors, and which cannot be better accounted for by other causes before making diagnostic determinations of ID****.'*

Baseline Assessment

The results of this section further indicated that adaptability and intellectual ability are often conflated, with some participants responding that they would assume that someone of average intelligence would be able to adequately perform all of the proposed items when required. However, other participants highlighted that Deaf people of average intelligence may not reliably be able to perform skills across the range of adaptive domains and across Deaf and hearing contexts. Some items were highlighted as being difficult only in situations involving hearing people in relation to both learning of, and performance of, skills. However, some difficulties were also identified in both Deaf and hearing contexts. This was hypothesised to demonstrate that the skills may be relatively harder, thus tapping into the higher end of adaptability more effectively, but could equally be related to the role of 'choice' and developmental experiences, reflecting the findings of the TA in whether these items may be conflating adaptability with other factors.

The findings of this study supported the hypothesis that adaptability may be constructed differently for Deaf people, demonstrated by the significant disagreement between expert participants. This advanced the findings of the

initial systematic literature review, which highlighted differences in practice in the assessment of cognitive ability and adaptive behaviour.

5.2 Findings in the context of previous research

5.2.1 A neurocognitive model of adaptive behaviour

Sbordone's 15-stage model (2000) provided a useful framework for developing items that captured behaviour at several different stages (e.g., volition, planning, purposive action, and effective performance). This has been further considered through synthesis of the ~~rankings~~ ratings and comments gathered throughout the research process.

The 'volitional' questions appeared to yield high ~~rankings~~ ratings within the first round of the Delphi procedure, suggesting it has some usefulness in assessing adaptive behaviour. Notably, however, this was not the case for the social awareness and competence section. Several of these items were integrated with influences of the GLM, such as 'expresses a sexual preference', 'has a strong sense of identity', and 'has a desire for social interaction'. This may indicate that these factors are not a good measure of adaptive behaviour, although it was also considered that processes such as identity development may follow a different trajectory for Deaf people (Glickman, 1993). However, the general observation that volitional questions yielded higher agreement could also reflect that these questions are assessing relatively low-ability skills and thus may not be an especially helpful contribution to the item pool as it has been hypothesised that the ABAS-II and VABS/ Vineland-II already capture these skills. It could also be argued that these questions have little utility within a behavioural assessment as they are focussed primarily on cognitive factors underlying observable behaviour. Thus, asking about direct behavioural consequence may be more informative within assessment.

In many cases related to 'effective performance' the questions focused on applying learning from one area to other aspects of day-to-day functioning (e.g., cognitive flexibility; Moore & Malinowksi, 2009). Many studies have demonstrated that rigidity and concreteness of thought processes is common amongst d/Deaf children (Passig & Eden, 2000; Courtin & Melot, 1998), but this appears to be

strongly related to language ability (Ebrahim, 2006). Given the low ~~rankings~~ ratings of these items in both rounds of the Delphi procedure, it appears that this may not be a useful measure of adaptability because it may either represent a feature of cognition associated with the experience of being deaf, or because it is conflated by language ability. Equally, it could be considered that these questions were poorly phrased and more abstract in terms of a behavioural assessment because it may require guessing on behalf of the respondent. It has been noted that the physical experience of being deaf can make it difficult to monitor effective performance, such as in the case of interactions or being aware of evolving social situations (e.g., 'avoids situations at home or in the neighbourhood that are likely to result in trouble').

This model may be useful in establishing whether there are specific deficits related to each stage which may be an additional factor impeding the effectiveness of an individual's behavioural strategies in a way that is ecologically valid, and represents a novel way of approaching the assessment of adaptive behaviour. Therefore, its relevance to the construction of adaptive behaviour warrants further investigation.

5.2.2 Good Lives Model

The TA addressed several of the features that the GLM attempted to introduce into the research. However, the concept of values-based ideas in relation to adaptability perhaps conflated the measurement of adaptive behaviour. The themes of 'developmental factors' and 'cultural differences' highlighted the importance of these aspects being considered within a comprehensive behavioural assessment, yet the inclusion of these features presents a tension within a tool that can be used for the purposes of discriminating ID from these contextual factors.

Whilst the GLM suggests that behaviour is directed towards achieving values, an idea that is extolled within contextual behavioural science more broadly (e.g., Acceptance and Commitment Therapy; Hayes, Strosahl, & Wilson, 1999) and which is fundamentally a feature of any psychometric tool measuring behaviour, participants here commented that some items may contain assumptions about

how people should act. This is likely not an inherent criticism of the GLM as being incorporated within the items, but the way in which the theory was used in the present study. Balancing an individual's choice to behave in a certain way, and the interaction of this with developmental and motivational factors are not unique problems associated with this study, but it is possible that the way in which these items were incorporated into the item construction meant that I was unable to adequately capture values-based action without obfuscating the assessment of adaptive behaviour, as evidenced by the disagreement found within the Delphi consensus group.

5.2.3 Adaptive Domains

The results of this study provide mixed support for the adaptive domains selected from the study literature review. Despite identifying clear factors that affect ~~rankings~~ ratings within domains (e.g., accessibility, communication, ability), it was less clear which of these domains are most relevant to the assessment of adaptive behaviour. Although it was found that work, health and safety, and communication were amongst the best rated categories, there was still intermittent support for all domains selected. As such, this research cannot make strong conclusions about which areas capture adaptability best, suggesting instead that adaptability may be captured by looking broadly across a range of behaviour in different settings. However, it could be that participants were relatively acquiescent in their responses: although clearly the items were divisive, no items met the criteria for being rejected completely from the Delphi procedure, indicating that participants were more likely to respond positively to items and limiting the conclusions of how helpful each area may be to the assessment of adaptive behaviour.

5.2.4 Models of Human Functioning

Buntinx & Schalock (2010) have previously endorsed a more holistic approach to behavioural assessment in the context of ID, suggesting that examining the influence of interaction between the individual and their environment could provide greater clinical utility in diagnosis and support planning. This allows for

examination of the impact of possible impairment within the context of a person's functioning more broadly (e.g., a model of human functioning including health, community participation, and context; Figure 1). The data obtained within this study supports this idea, suggesting that context is paramount and that focusing on the adaptive behaviour in isolation is not sufficient in diagnosing ID or planning interventions. This research represents a contribution to furthering the understanding of adaptive behaviour, concluding that sociocultural context (or 'cultural differences') are fundamental to this area, particularly in the sense of adapting between the Deaf and hearing community and the provision of adequate supports and opportunities within the person's environment. This is compatible with the beginnings of a research shift towards these more general models of functioning (Schalock et al., 2010). However, at present few guidelines exist in terms of what factors are important to consider in the context of Deaf individuals, and thus items within existing measures may not capture skills that are relevant to everyday life.

5.3 Research Implications

5.3.1 Critique of Current Measures of Adaptive Behaviour

Several items from the ABAS-II and VABS/Vineland-II were incorporated into this research, either directly or modified in order to minimise the influence of language deprivation and to account for cultural behaviour differences. The data obtained here is suggestive that there are several features of current adaptive behaviour measures that become inappropriate when a Deaf person is being assessed. For example, the TA highlighted several critiques related to the structure of the proposed questionnaire which could also be applicable to existing measures, including: the language used, repetition of skills and questions assessing similar areas, and assessment issues (e.g., in the context of false positives/ negatives, assessing factors outside of the individual). Therefore, these critiques can be incorporated into future development work in the area of adaptability.

Furthermore, the critique of the items proposed are also reflective of problematic question construction in terms of a lack of understanding of the developmental factors, cultural differences, and accessibility within the environment in existing

measures. These problems are likely to primarily arise due to these assessments not being designed with Deaf people in mind (Baker & Baker, 2011). Although some norms have been developed for d/Deaf people using the ABAS-III, the sample characteristics of this group were not reported. Given that the results of this study suggest that there is potential influence from upbringing and family background (e.g., whether the person is from a Deaf family) and their self-reported identity as a d/Deaf person, this limits the validity of the normative sample provided. As such, norms developed based on the conceptualisation of adaptive behaviour generated within this research and its associated items could be a useful contribution to future research.

It was highlighted throughout the TA that the use of language is an important factor in designing tests for use with Deaf people. For example, concerns about ambiguity within the questions for Deaf respondents (due to the possible impact of literacy), could affect the validity of the results. This is a problem that could affect existing measures: although these will have been subject to greater language checks, there are several generic wording difficulties that limit these measures (e.g., selecting language that would require further explanation for a Deaf individual either because of lack of clarity or being too general in nature to adequately translate).

Some of the key areas in which current measures of adaptive behaviour do not lend themselves to reliable and valid assessment of Deaf individuals are in failing to account for subtle factors that will influence behaviour at the milder end of difficulties. For example, overlooking such areas as physical inability to recognise environmental cues and sensitivity to social rules has been found to be an important factor in the ability of a Deaf person to perform particular desirable behaviours in a hearing context within this research. However, the value of measuring in both Deaf and hearing environments may counteract this critique by demonstrating whether a person can do this with these contextual barriers removed in social situations. It may still be that in situations where the environment is inaccessible (e.g., train stations, paying for items in a shop, on a bus) this is still problematic.

Finally, it should be noted that no existing research was found specifically examining the adaptability of Deaf adults. Although the Deaf population has been sampled in the context of developing norms, it has been clear from the critique this study has identified that not only is adaptive behaviour a problematic construct with poor basis for definition and related behavioural criteria, but also that criteria for adaptability may be even more complex for assessing Deaf individuals. This supports the case that further research should expand upon the findings of this study in developing assessments for Deaf adults alongside clear guidelines for how to interpret these.

5.3.2 Understanding of Adaptive Behaviour in a Deaf Context

Adaptability has been hypothesised to stem from experience, but it is fundamental to receive adequate opportunities to learn in a way that is appropriate to the individual's needs (Marschark & Spencer, 1997). The ABAS-III scoring matrix has altered from its earlier version to take account of not having the skills to perform a behaviour, or not having been taught to perform a particular behaviour, highlighting the importance of 'accessibility' and 'developmental factors' as identified by this research, but also denoting the difference between performance and potential.

Although it has been established that there is a high level of heterogeneity within the Deaf population, which may diminish the usefulness of standardised assessment, the development of a new instrument which accounts for the limitations of current modes of assessment will contribute to the evidence base. Non-standardised testing, by contrast, may seem more suitable given the wide variation in needs and experiences of this group. However, this may mean that Deaf people are not able to achieve equitable service and assessment, given the diversity in conceptualisation and practice identified by this study's findings. The systematic literature review conducted for this study clearly showed that there is little agreement on how to adapt and appropriately administer tests, suggesting that the development of clear guidelines for assessment of adaptive behaviour are needed to ensure reliability and validity (Moore et al., 2016a).

The tension between identifying with the Deaf community and being ‘deaf’ was identified by the ‘cultural differences’ theme as being highly relevant to the assessment of adaptive behaviour, as this may affect the expression of behaviour in different settings. As such, attempts have been made to include this understanding within the working definition developed for this research. Presently, there are no clear guidelines to guide the clinical judgement of assessors in determining whether a Deaf person is displaying a deficit of adaptive functioning, or is behaving within Deaf cultural norms (e.g., within socialising or communicating). Kersting (1997) suggested that interest in the Deaf community does not preclude an individual from wanting to have relationships with hearing people, although this may depend on identification with Deaf cultural values and past developmental history. However, this suggests that it is important to measure both Deaf and hearing factors as some well-adjusted individuals may choose to be part of one or both groups. Assessing across both Deaf and hearing contexts may allow for consideration of confidence or anxiety in different settings and demonstrate how individuals negotiate these competing demands. Olley and Cox (2008) argue that poor motivation leading to performance deficits can be interpreted as evidence of factors associated with a person’s disability (e.g., lack of acquisition and performance of skills demonstrate limited intellectual capacity), yet this perspective leads to poor discriminant validity of whether the individual has additional disabilities. Assessing across different contexts can therefore contribute to intervention planning and ensuring individualised, person-centred supports, but may be more problematic in the context of a diagnostic, standardised assessment due to the variation and complexity of associated factors.

5.3.3 Differentiation of Intelligence and Adaptability

Adaptive behaviour in the broader context of cognitive ability and ID is important to the understanding of the function of the constructs, and how they are distinct from one another. Although IQ assessment is designed to represent an individual’s maximum performance, whilst adaptive behaviour focuses on the typical performance of individuals, this distinction may be problematic in the context of deafness as IQ assessments have similar flaws to those identified in

the measurement of adaptive behaviour (Baker & Baker, 2011). Therefore, it is difficult to establish the differences between potential and observed ability. The present study attempted to rectify this within the context of adaptive behaviour assessment by drawing apart the Deaf and hearing contexts in order to see whether this could elucidate where any differences in ability exist when assessment is able to discriminate potential from other confounding factors. However, within the data, these points were often conflated. For example, within the second round of the Delphi, some responses appeared to assume average adaptability where the individual has average intelligence, despite these constructs being only moderately correlated even where the individual is lower functioning (Klin et al., 2007). This could indicate a lack of understanding of the differences between constructs, or simply reflect that adaptive behaviour measures may have a low ceiling and therefore an individual of average intelligence may be able to complete all the tasks effectively (National Research Council, 2002). However, the questions generated for the present study were designed to assess adaptability at the borderline of ID, representing the higher end of an adaptive behaviour spectrum, and therefore the impact of this should have been minimised.

The difficulties in disentangling these constructs has been restated in the working definition developed, as the consequences of incorrectly diagnosing ID can be extremely detrimental to an individual. Whilst some participants appeared to err towards assuming adaptability where average intelligence was also assumed, the results of the baseline assessment suggested that there were some areas of difference to generic norms where participants had ranked items much harder for a Deaf person. This further highlights the importance of integrating context and the identified themes into the assessment itself, and in the interim developing guidelines for assessment that can account for these factors in order to minimise these empirically derived differences in interpretation amongst clinicians.

5.3.4 Modifications to Delphi Consensus Methodology

This research utilised a Delphi consensus methodology, but due to concerns about the validity of adaptive behaviour in this context, modifications were made

to this procedure. Modifications to Delphi procedures have previously been described (Heimlich, Carlson, & Storksdieck, 2011), and it is worth noting that this approach has been a useful way of obtaining implicit understanding of a poorly defined construct in a way that other studies have not.

Heimlich et al. (2011) used a Delphi consensus to develop understanding of a construct by assessing face validity of factors found in the literature in the first round, and exploring content validity of constructs in second and third rounds. Modifying the Delphi to focus on constructs demonstrated the ability of the Delphi procedure to test emerging theories. The results of this research suggested that there was a lack of clarity around what adaptive behaviour constitutes, and modifying the Delphi procedure has similarly demonstrated that this process can be useful for accessing implicit cognition about a poorly defined topic within a group setting whilst still retaining the benefits that Delphi methodologies offer. For example, this allowed for eliciting group opinion without introducing a power dynamic and also used the summary report to check the validity of the analysis with participants.

Whilst consensus was not achieved, this may be reflective of the literature surrounding adaptive behaviour as a historically poorly defined construct (Tassé et al., 2012). Through the Delphi process, some agreement was elicited through the qualitative feedback on the working definition presented in the second round. However, this is impossible to measure statistically (e.g., using the standard threshold of agreement seen in Delphi studies; Hsu & Sandford, 2000). These comments were instead considered in relation to existing theory and the results of the first round.

The utility of the Delphi methodology here may have been limited in the sense that consensus may only be achievable if there is there is some degree of clarity in the construct to begin with. This was further reflected in the agreement of items related to ID, a well-researched area with a large evidence base, and the disparities between deafness. The lack of evidence base in this area may be exacerbating differences in clinical practice, as clinicians may be relying on their own understanding of both the constructs of adaptive behaviour and how this may

be integrated into assessment when working with Deaf individuals with little information available to support the process.

5.4 Clinical Implications

This research suggests that existing measures may be problematic to use with Deaf individuals as they have not been designed for use with this population, and as such a long-term implication of this research would be the development of a measure of adaptive behaviour for Deaf people. A standardised measure of adaptive behaviour is paramount to reduce differences in opinion and decrease the need for interpretation. In the absence of such a tool, and the fundamental importance of evidence-based practice, the theory and data generated through this project can aid in providing guidelines for assessment as an interim measure. Without theoretically and data-driven guidelines for assessment, there may be confusion and diversity in clinical practice.

The findings of the Delphi consensus and TA both indicate that clinicians experienced in this area feel that there needs to be thorough consideration of culture and context in assessing adaptive behaviour. Existing items do not adequately capture this, leading to room for misinterpretation. This may in turn lead to the increased risk of misdiagnosis of ID and pathologising of cultural features of deafness as a deficit, leading to inappropriate support for Deaf individuals. Incorrect diagnoses of ID may lead to stigma and isolation (Fletcher & Navarette, 2003), and denotes fundamental inequality in the way in which Deaf individuals are treated as compared to a hearing person. The British Psychological Society code of ethics and conduct (BPS, 2009) implicate the importance of developing different practice where contextual factors necessitate this. In light of the limited literature in this area, clinicians may need to instead develop working hypotheses about behaviour. Some initial suggestions for how this might be developed are considered below.

The findings of this research have been explored in the context of developing the understanding of the construct of adaptive behaviour with Deaf people. The above sections have considered the limitations of existing research, a paucity of theory in the construction of adaptive behaviour, and disparity in interpretation of

adaptive behaviour in the context of deafness. This, in turn, has implications for clinical practice in two ways:

1. The development of guidelines for assessment and interpretation of adaptive behaviour measures from the findings of this study.
2. Using the ~~rankings~~ ratings of items and patterns identified from this process to information future development of appropriate items for assessing adaptive behaviour with this population.

5.4.1 Guidelines for the Assessment of Adaptive Behaviour in Deaf People

This research has demonstrated that even professionals skilled and experienced in working with Deaf individuals have different ideas about how adaptive behaviour may be conceptualised, and whether this should be applied differently in a Deaf context. Some attempts have been made to offer guidelines for assessing the behaviour of Deaf individuals before, but these have mainly been in the context of education and for Deaf children. Simeonsson, Wax and White (2001) described the importance of understanding and engaging with linguistic and cultural differences in the assessment and interpretation of test results through triangulation of measures and assessment of developmental history.

Use of working definition specific to Deaf people

The development of a working definition of adaptive behaviour will help to guide clinical judgement in the area of assessment for this population, where particular features of behaviour have been identified as particularly important to focus upon. It will be a useful first step towards drawing together the different ideas that exist about adaptive behaviour for this population, enabling clinicians to begin to develop their own working hypotheses about formulation of adaptive behaviour deficits in conjunction with more specific guidelines for carrying out assessments.

Assessing between Deaf and hearing contexts

Both rounds of the Delphi procedure highlighted the importance of assessing between Deaf and hearing contexts, which may minimise the influence of biases such as conflating adaptability with low motivation, anxiety, or personal choice in community participation. This also allows clinicians to begin to form hypotheses about an individual's potential, and interpret why differences may exist between contexts in light of the other information collected.

Interim use of the ABAS-II

The early findings tentatively confirm that norming existing measures may not be useful given the issues identified through the TA and Delphi process. There was variable support for the existing ABAS-II items that were included, with items most agreed upon representing more basic skills, or adaptations taking into account differences in communication or Deaf cultural features. This may indicate that for someone with more severe impairments the ABAS-II may give a more reliable representation of adaptive behaviour. Equally, knowing that communication may impact upon measurement, it may be that this can be accounted for in the scoring matrices by awarding credit for alternative modes of communication. However, caution should be taken in making interpretations given the limited support for this model within the present study. Whilst the Vineland-II adaptations yielded good support within the Delphi ~~rankings~~ratings, no items from the existing Vineland were ranked within this study, limiting the conclusions that can be made as to its current appropriateness. The findings suggested that the adaptations represented good measures of adaptive behaviour for this population, yet the measure as a whole loads strongly on communication and a number of these items lack face validity for Deaf adults and may conflict with the themes identified by this research.

Generation of Deaf-specific norms using culturally sensitive items

In addition to the findings above related to the use of existing measures of adaptive behaviour, the development of Deaf norms using culturally appropriate

measures will provide useful information regarding whether a person functions in relation to similar others. An initial attempt to consider these features within the second round normative functioning assessment indicated that there may be some distinct differences in the adaptive behaviour of Deaf individuals, and as such norms will help identify what may be due to cultural behaviour or the other themes identified, and which areas may be more sensitive to discriminating between someone who may have an ID and a Deaf person of average functioning. These findings can be further developed in order to inform future questionnaire design, and some hypotheses for how to do this are considered below.

5.4.2 Developing Items for Assessing Adaptive Behaviour

5.4.2.1 Design of Items

As with any psychometric tool, items should be clear, concrete, and ask only one question at a time. However, it is particularly important in the case of the assessment of adaptive behaviour that some additional guidelines for designing items may need to be adhered to. For example, one dilemma arising from this research was assessing behaviours that indicate an individual's potential. Whilst it is generally recommended that adaptive behaviour assessments should measure typical performance rather than maximum performance, the ability of clinicians to accurately measure potential may be limited in this context given the methodological issues associated with the assessment of cognitive ability in Deaf individuals (see Baker & Baker, 2011; Leigh & Pollard, 2003; Morere & Allen, 2012). However, through the development of working hypotheses related to adaptability it may still be possible to consider these factors within an adaptive behaviour assessment by assessing between Deaf and hearing contexts, assessing at multiple points in time, and asking questions explicitly related to potential. In this way, the impact of potentially confounding motivational factors may be minimised.

Equally, a tension between giving examples of behaviour and being overly prescriptive in making assumptions about how people behave arose within this research. The ~~rankings~~ ratings demonstrated that offering specific strategies was

sometimes ranked lower because of the impact of personal choice, yet the qualitative comments indicated that examples give questions greater context and reduce ambiguity. Further research should aim to work with Deaf people and interpreters in order to determine translatability and ease of understanding for respondents, and also advise on where there may be differences between Deaf and hearing cultural behaviour that can be incorporated into item design.

5.4.2.2 Adaptive Domains

The initial data suggests that the measure as proposed within this research would not be a reliable or valid way of assessing adaptive behaviour in Deaf individuals and therefore it would not be recommended for use at this time. However, the item ~~rankings~~ ratings obtained indicated that all the adaptive domains identified within the literature review could be potentially relevant to the measurement of adaptability, demonstrating the value of assessing behaviour broadly across a range of different contexts. Alternatively, these findings may suggest that there is not the need for separate domains for these contexts, particularly where the rate of reaching consensus was poor. Travel, finance, and recreation may be important to assess due to establishing adaptability in a range of contexts but they may not need to be separated as overarching domains.

The findings from the social awareness and competence section showed that a social-cognitive model (National Research Council, 2002) was useful for conceptualising these skills in a concrete way. Although models of personal competence (McGrew & Bruininks, 1990) have previously been proposed as an underlying feature of adaptive behaviour, more support was found for practical skills within this research, whilst the more abstract social and conceptual skills were not as well ranked. However, this may reflect a general tendency within this research for divisiveness where there is a lack of clarity and where deafness interacts with adaptive skills, and that improving the construction of questions related to social and conceptual skills through the imposition of clear underlying models with links to how these skills relate to the everyday behaviour of Deaf people, this section could be more usefully constructed.

In terms of the adaptive domains it may be important to note the structure of the 'work' section. Whilst this is an optional feature of many existing measures of adaptive behaviour, to be administered where a person is in employment, the 'work' domain of the proposed scale included both those related to employment and 'home' work tasks. Many people who are suspected of having ID may not have had employment opportunities in which to demonstrate their adaptability (Grigal, Hart, & Migliore, 2011). In addition, those who are Deaf may face additional challenges; although it is hard to truly estimate the extent to which deaf people are discriminated against in employment, Bowe, McMahon, Chang, and Louvi (2005) suggested that it may be particularly hard to obtain an initial employment offer and ensure that reasonable adjustments are made to working environments. This critique was noted by participants within the proposed items, showing that some questions appeared to assess factors beyond the individual's control (e.g., whether necessary environmental adjustments are made). Although this may be an important feature of how Deaf people are able to adapt within working environments, it may be that sensitive assessment of this should consider whether the individual has taken steps to make their needs known, rather than whether these requests have been fulfilled.

The 'work' items yielded relatively high ~~rankings~~ ratings in comparisons to the other domains, yet the structure of this domain could be problematic in administration as it currently stands. As such, the separation of home and employment items would be advised for a future scale.

5.4.2.3 Neurocognitive Model

Again, the neurocognitive model had mixed support for all areas of the model. 'Volition' appeared important to retain as a feature of adaptability, as it can aid in the clarification of whether behaviour is a result of ID or the experience of being deaf and unable to recognise environmental cues. The 'planning' sections, although relatively poorly rated where the scenario was unfamiliar to the individual, showed better support where a rationale for the behaviour was incorporated within the question (e.g., goal-directed focus was maintained). The 'purposive action' section revealed that there may be different conceptualisations

of distractibility for Deaf people, and that norms are needed to establish whether this behaviour represents a cultural norm. In terms of 'effective performance', the key points arising from this was also to achieve fairness through emphasis on visual stimuli and consideration of whether the inability to hear would affect the performance of behaviours. Further, it could be that emphasising 'everyday' in the working definition may be fundamental in the construction of items to assess adaptive behaviour, as items within the effective performance sections that focussed on long-term consequences of behaviour were rated more poorly by participants than those with associated immediate gains.

5.4.2.4 GLM

The incorporation of GLM factors was generally shown to be useful in the research findings. In particular, the assessment of healthy living within an adaptive behaviour measure seems to be presently under-utilised but a useful addition. By drawing further upon these features whilst accounting for the possible impact of developmental features such as opportunities and choice, it would be recommended that these are incorporated further into future research in this area.

Developing norms, particularly in relation to community participation (e.g., 'relatedness' and 'community' categories), may provide insight into the normative functioning of this population with regards to Deaf adaptive behaviour, reflecting emergent research evidence that this may be different for this group of individuals.

5.5 Strengths and limitations

This study represents a novel contribution to the understanding of adaptive behaviour, both in reviewing current thinking about the nature of the construct, proposing how theory from other models can be utilised in assessment, and considering issues specific to the needs of Deaf people and how this is best assessed.

This study has the scope to affect a significant number of people who are traditionally poorly served by healthcare systems (Fellinger et al., 2012). Although the epidemiology of ID within a Deaf population is difficult to calculate, due to the stated problems in assessment, it is thought that around 150,000 people in the UK use BSL as their main or preferred form of communication (Office for National Statistics, 2011). If it is assumed that, at a minimum, 3% of this population (consistent with levels of ID reported in the general population) may be eligible for an ID diagnosis, this equates to approximately 4,500 people. However, common causes of deafness may also impact on cognitive ability and therefore it is plausible that a much greater number than this would be considered for an assessment of ID (Baker & Baker, 2011). As such, it becomes even more important that assessments are valid and reliable for this group to avoid misdiagnosis.

The Delphi methodology was selected as a means to elicit agreement, as the systematic literature review conducted in conjunction with this research indicated that disagreement was a likely outcome. This was part of the rationale for not selecting less structured approaches such as focus groups or interviewing procedures. The initial findings of the Delphi reflected the partially predicted lack of consensus and as such modifications had to be made which may present a limitation of the way in which this methodology was used within the research process. However, the adaptations to Delphi procedure may also represent a strength of this research in being responsive to the data and constructing meaning where little had previously been known with regards to adaptive behaviour in a Deaf context.

The lengthy nature of the Delphi questionnaire may further have affected recruitment to the study, introducing a possible sampling bias whereby those with strong opinions regarding the subject may have more readily responded, and thus not remain representative of the wider group of professionals. However, the subject pool of 13 reflected a reasonable proportion of the overall population from which participants could be drawn (25.5%). Due to the level of specialism of this area, this potentially represents good recruitment to a project that required intense participation (e.g., two rounds of Delphi procedure, ~~ranking~~ rating >300

items). This, combined with the level of disagreement yielded within the results, may suggest that any strong biases were diluted.

Although this research aimed to include experts in the field to generate best practice standards for assessing adaptive behaviour, the sampling procedure may have influenced the outcomes of the research. Only experts in the field of mental health and deafness were included, as opposed to those who have specialist interest in psychometric development or functional assessment. Equally, some participants expressed concern that they worked with d/Deaf children which may have influenced their responses. Had this study included a broader group of experts, this may have offered a valuable contribution to the understanding of adaptive behaviour more generally, but simultaneously could have added to the wide variation in responses. It may also be of note that participants could have skewed perceptions of adaptability based on their personal experiences of deafness and Deaf individuals, potentially drawing upon highly adapted colleagues or severely impaired clients when responding to the items, which I was unable to account for within the results.

A difficulty encountered throughout the study was difficulty in establishing clear definitions. Much of the research in adaptive behaviour uses different definitions and different models for understanding adaptive behaviour. Although this was a challenge upon which this research was largely founded, a major strength of the study has been clarifying areas of disagreement and considering the implications of this in light of previous research, despite the noted limitations in the process of undertaking the Delphi methodology, in achieving the aims of this research.

5.6 Future Recommendations

Although this research has established a working definition of adaptive behaviour for a Deaf community as well as guidelines emerging from the data about how this could be assessed, it is clear further research is needed in this area. Whilst as an interim measure best practice guidelines have been produced, the long-term goal of achieving parity of assessment for Deaf people as compared to their hearing peers should be in the production of reliable and valid measures of adaptive behaviour that are standardised for this population.

Whilst the approach adopted for this study attempted to remain culturally sensitive, the items developed for this research were developed without input from Deaf stakeholders. Deaf and hearing professionals were asked to participate in a Delphi consensus designed to establish face and content validity, yet this was at the stage of piloting the items rather than within the development process. Atkinson et al. (2015) extol the importance of an ethnographic approach, working concurrently with Deaf people to develop items that are relevant to the everyday functional skills of this population, and how these measures can be administrated in practice. Future research would likely benefit from input from Deaf professionals as members of the core research team, or from liaising closely with consultants during the development process.

It was felt that including the views of Deaf people who may have an ID was not feasible within this research despite the Department of Health (2001) recommendation that stakeholders should be directly involved in research that pertains to them. The original proposal for this study incorporated Deaf focus groups and interviews with those who had additional cognitive impairment as part of the research, but given the difficulties encountered with defining the construct of adaptive behaviour and the underlying theoretical structure it was not felt that it was the appropriate time to incorporate these individuals within the research. Independent review of the item construction process would allow for further input regarding whether item content is culturally appropriate and whether there may be diversity within the group that will interact with the response to those items. As such, this should also involve Deaf individuals who have been established to have an ID or who have undergone functional assessments of adaptive behaviour. The establishment of a working definition means that these groups can be consulted with the clear remit of assisting in establishing the face and cultural validity of items generated.

Critical Reflections

Project Inception

At the beginning of my training, I was keen to pursue research in an area that I was already familiar with from my previous role as a Trial Coordinator. My interests were in mental health and deafness, and my time in a Child and Adolescent Mental Health Service for Deaf young people and their families, left me with a passion to increase knowledge and awareness of this area. However, as I developed my project ideas through the process of undertaking this research, I have had to revisit some of my assumptions from my early days of working in this area and subject them to critical analysis. Although this has undoubtedly made this research a stronger piece of work, it required a shift in my beliefs as the research progressed. For example, despite my initial assertions that this project idea would represent a useful and necessary contribution to working clinically with Deaf people, the evidence base was extremely limited and it was difficult to demonstrate a scientific, rather than political, rationale for undertaking this research. This has been problematic throughout the research as a whole, and I have considered this in light of the scientist-practitioner model (Spengler, Strohmer, Dixon, & Shivy, 1995).

Given the dearth of literature available, and a possible bias in the literature arising from the type of research currently being funded (e.g., many grants are presently focussed on biomedical research, or the impact of assistive technology, such as CIs, on a variety of long-term outcomes[47]), this approach has been divergent from the mainstream perspective. In keeping with the scientist-practitioner model, it felt as though interventions are being made in this area with little evidence or data to support clinical judgements being made. As such, this study represented an attempt to add to the limited evidence base in order to further understand the construct and inform clinical decision-making.

[47] See Action on Hearing Loss, Hearing Health Foundation, and the National Institute of Hearing Research websites for an overview of currently funded projects and research areas.

Delphi Consensus

Although I had chosen to seek the comfort of couching my ideas about adaptability in the context of expert opinion, this process prevented me from further avoiding ownership of my views. Throughout the design of the study and my initial reading, I increasingly found it difficult to grasp and draw together all the different ideas existing around the construct of adaptive behaviour. The process of developing my understanding has run concurrently throughout the design and conduct of this thesis, including the write-up.

Despite imposing a particular theoretical model, my stage in training at this point was such that I was not confident in my understanding of all the overlapping pertinent areas (e.g., neuropsychology, ID, test construction theory, epistemology). However, it became apparent as the research continued that this was not unique to my own situation; upon taking my ideas to my expert panel it appeared that a clinical grasp of the construct was not well agreed upon, despite clinicians routinely undertaking adaptive behaviour assessments within practice. This allowed me to take a step back from my own anxieties and begin to see the bigger picture, deciding that a qualitative approach may help to draw out the nuances of the construct. In this sense, the Delphi consensus was useful for me as a researcher as it forced me to question what I thought in relation to the contributions of my participants, which allowed me to begin to grasp and work with the construct with greater clarity.

This research initially sought to include Deaf lay people within the process as well as professionals, as a check of face validity and to contribute a more pragmatic understanding of criterion validity (e.g., what might a highly adapted Deaf person look like in contrast to a Deaf person who struggles with adaptive behaviour). However, due to time constraints and the diversity of opinion generated by the expert group, it was felt that at this stage it would only introduce further disagreement into an already complex topic. However, the decision did not sit entirely comfortably with me given policy recommendations to include stakeholders in research relating to them.

Although my Delphi process yielded a negative result, discussions in supervision helped me to see that this still represents a valid and important contribution to

understanding the construct better. Looking back, my initial systematic literature review indicated that experts disagreed on how best to assess adaptive behaviour and intellectual functioning with Deaf adults, which foreshadowed the disagreement found within the Delphi procedure. However, this was considered when deciding upon the project methodology, and it was felt that a Delphi process would encourage consensus building amongst clinicians which could be translated to the evidence base. Other approaches may have yielded similar disagreements and the Delphi procedure provided a framework for interpreting and integrating these different views. However, modifications to standard Delphi procedure once again muddied the waters of abstracting a clearer understanding of the construct of adaptive behaviour. In response to this, a TA of the comments obtained through this process was undertaken.

Thematic Analysis

Having never attempted a TA before, I was keen to research different methodologies before approaching my data. Once I had read and re-read the Braun and Clarke (2006) guidelines, I tentatively began to organise my data. I found the process of collating all the relevant information into one document a useful and systematic way of familiarising myself with the data. However, I did find myself wondering if I saw things within the data that fit with my own views, which was something I explored within my research supervision. Having previously worked as a researcher within the Deaf community, I feel this influenced my perceptions and beliefs about the subject matter of this research.

The epistemological position of this research was tricky for me to navigate at times. Upon starting the programme, I did not feel that I had strong beliefs about epistemology or my research ideas, despite others identifying these in me. However, the TA greatly honed my focus on what I was finding important and interesting about the data. This created a somewhat uncomfortable misalignment between my stated aims (e.g., the need for understanding the 'truth' of adaptive behaviour as a measurable construct) and the dawning realisation that what I found fascinating about the topic was the constructionist nature of the information obtained. Reflecting this situation, my supervisors also approached the research

in a way that emphasised these different aspects of the study, allowing me to both explore different epistemologies further, but also consider how they may be integrated throughout the research process. Through supervision and personal reflection, I can now appreciate the development of my thinking processes in positioning myself within the context of my research, whilst also being able to hold these different perspectives in mind.

Write-up

Once I had finished data collection, I felt somewhat overwhelmed by the wealth of insight that my participants had provided. The conflicting ideas felt difficult to synthesise at first. However, as I went back to my original theory and arguments, and began to construct the picture of how it could be integrated, guided by my thematic map and the systematic comparisons I had made between the data and comments, I began to feel like I had a better grasp of the construct than I had before and felt like I had started to own my own perspective. I felt a strong desire to represent the views of my participants, couched in my own understanding from the theoretical development work and my past experiences. Although this was daunting, in that this felt like a great pressure I was placing upon myself, ultimately I believe that this has made the research more coherent, viable, and has resulted in a valid contribution to knowledge in this area. Only towards the end of the process could I begin to track the development of this thinking and see how I have developed as a researcher.

The scientist-practitioner model suggests that in order to ensure effective clinical practice, clinicians must understand and implement ideas from scientific data and literature within a particular area. This idea emerges from a positivist tradition, valuing empirical data in the application of psychological principles. However, this understanding has developed over time to incorporate philosophical approaches to knowledge such as social constructionism and critical realism (Corrie & Callahan, 2000). This research worked within these models, using the subjectivity of the data and scientific approaches to the interpretation of these to generate new ideas that can contribute to researchers' understanding of a complex psychological construct, form an important part of a small evidence base, and

make recommendations grounded in these findings that will have implications for future clinical practice.

Word count: 37,525~~450~~

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Appendices

Appendix A

Author guidelines for submission of journal paper to 'Assessment'.

The editor invites high quality manuscripts covering a broad range of topics and techniques in the area of psychological assessment. These may include empirical studies of assessment of personality, psychopathology, cognitive functions or behavior, articles dealing with general methodological or psychometric topics relevant to assessment, or comprehensive literature reviews in any of these areas. This journal encourages submissions evaluating a) new assessment methodologies and techniques for both researchers and practitioners, b) how assessment methods and research informs understanding of major issues in clinical psychology such as the structure, classification, and mechanisms of psychopathology, and c) multi-method assessment research and the integration of assessment methods in research and practice. Additionally, the journal encourages submissions introducing useful, novel, and non-redundant instruments or demonstrating how existing instruments have applicability in new research or applied contexts. All submissions should provide strong rationales for their efforts and articulate important implications for assessment science and/or practice

Research participants may represent both clinical and nonclinical populations.

In general, regular articles should not exceed 30 pages of text, excluding Title Page, Abstract, Tables, Figures, Footnotes and Reference list.

Authors submitting manuscripts to the journal should not simultaneously submit them to another journal, nor should manuscripts have been published elsewhere, including the World Wide Web, in substantially similar form or with substantially similar content.

This journal is a member of the Committee on Publication Ethics (COPE)

Manuscript Submission:

Manuscripts must be submitted in Microsoft Word or Rich Text Format (rtf) electronically at https://mc.manuscriptcentral.com/asmnt. Figures may be submitted using any of the formats listed below. If requesting a masked blind review, please ensure that both a manuscript file with no identifying author information and a separate title page with author details are included in your submission. Questions should be directed to the ASSESSMENT Editorial Office by email: assessment.editorial@gmail.com.

Preparation of Manuscripts:

Authors should carefully prepare their manuscripts in accordance with the following instructions.

Authors should use the Publication Manual of the American Psychological Association (6th edition, 2009) as a guide for preparing manuscripts for

submission. All manuscript pages, including reference lists and tables, must be typed double-spaced.

The first page of the paper (the title page) should contain the article title, the names and affiliations of all authors, authors' notes or acknowledgments, and the names and complete mailing addresses of the corresponding author. If requesting a masked blind review, the first page should contain only the article title and the title page should be uploaded as a separate document.

The second page should contain an abstract of no more than 150 words and five to seven keywords that will be published following the abstract.

The following sections should be prepared as indicated:

Tables. Each table should be fully titled, double-spaced on a separate page, and placed at the end of the manuscript. Tables should be numbered consecutively with Arabic numerals. Footnotes to tables should be identified with superscript lowercase letters and placed at the bottom of the table. All tables should be referred to in the text.

Figures. Electronic copies of figures can be submitted in one of the following file formats: TIFF, EPS, JPEG, or PDF. All figures should be referred to in text. Each figure should appear on a separate page at the end of the manuscript but before the tables, and all titles should appear on a single, separate page.

Endnotes. Notes should appear on a separate page before the References section. Notes should be numbered consecutively and each endnote should be referred to in text with a corresponding superscript number.

References. Text citations and references should follow the style of the Publication Manual of the American Psychological Association (6th edition, 2009).

Authors who want to refine the use of English in their manuscripts might consider utilizing the services of SPi, a non-affiliated company that offers Professional Editing Services to authors of journal articles in the areas of science, technology, medicine or the social sciences. SPi specializes in editing and correcting English-language manuscripts written by authors with a primary language other than English. Visithttp://www.prof-editing.com for more information about SPi's Professional Editing Services, pricing, and turn-around times, or to obtain a free quote or submit a manuscript for language polishing.

Please be aware that SAGE has no affiliation with SPi and makes no endorsement of the company. An author's use of SPi's services in no way guarantees that his or her submission will ultimately be accepted. Any arrangement an author enters into will be exclusively between the author and SPi, and any costs incurred are the sole responsibility of the author.

Supplemental Materials:

Authors are encouraged to consider submitting ancillary analyses and other relevant information as electronic supplements. Such supplements should be

uploaded using the supplemental files tag in Scholar One. Only doc, docx., and .pdf files are accepted for published electronic supplements. Electronic supplemental information for published manuscripts should take the form of Tables and Figures, formatted and annotated just as they would be for a manuscript, but numbered as Table S1, S2, S3, etc. and Figure S1, S2, S3 etc. Article text should refer to material in electronic supplements as appropriate, just as they would a table or figure in the published article.

Appendix B

Questionnaire sent to participants for Delphi round 1

Delphi Consensus Round 1

We would like to know about the background of those who are participating in this research. All responses will be treated anonymously in the analysis and write-up:

Role: …….

Years working in deafness: ……

Deaf/ hearing: …….

I'm aiming to develop a new measure of adaptive behaviour specifically for use with deaf people who have a suspected intellectual disability. Adaptive behaviour is poorly defined within the literature. Current measures are based on the AAIDD definition: 'the collection of conceptual, social, and practical skills that all people learn in order to function in their daily lives'. The ABAS-II, a widely used adaptive behaviour tool conceptualises it as 'practical, everyday skills needed to function and meet the demands of one's environment, including the skills necessary to effectively and independently take care of oneself and to interact with other people'. However, Schalock (2004) defined adaptive behavior as the 'effectiveness and degree to which people meet the standard of personal independence and social responsibility expected of their age and cultural group'. I believe that the importance of cultural differences in adaptive behaviour is not addressed in current measures, and that this may be uniquely different for deaf people.

Adaptive behaviour measures are often used alongside a cognitive assessment when diagnosing intellectual disability, and can also be used to identify relative strengths and weaknesses in everyday functioning. This can be useful for identifying appropriate

support and interventions, but it is important that this is done in a way that accounts for the experiences of many deaf people that can impact on the development and expression of adaptive behaviour. For example, what is considered adaptive may be different for a deaf person when compared to a hearing person, or adaptive skills commonly tested in existing measures may require an additional level of complexity and skill for a deaf person.

You will be presented with a list of items about various skills associated with adaptive behaviour. Please rate each of these items on a scale of 1 to 5 (where 1 = not at all useful and 5 = very useful) to show how useful or relevant you feel these items may be at assessing the adaptive behaviour of a deaf person. Please try to answer each question even if you are unsure.

When deciding on your ratings, you may find it useful to consider the following points:

- How related is this item to the definitions of adaptive behaviour provided?
- Is the phrasing clear and easily understood?
- Are the items culturally relevant and linguistically appropriate?

You may also think that there are some areas that are missing and will have the opportunity to comment on this at the end of each section. Please also include any general or specific comments that you think are relevant to the assessment of adaptive behaviour with deaf people who have a suspected intellectual disability, and the suggested items.

TRAVEL - Item Rating

Does this item describe adaptive behaviour?

This section aims to account for planning and choices around how to negotiate problem-solving where communication may be problematic in the context of travelling. Questions focus on learning through observation and practice, and finding effective strategies to manage situations where interactions may occur. It also aims to assess whether these are based on anxiety/ confidence or whether the decisions have been made based on consideration of different factors such as complexity, cost, and timings.

For each item, please mark the box corresponding to your rating

	1 not at all useful	**2** not very useful	**3** neutral	**4** useful	**5** very useful
Understands where to go to buy basic amenities (e.g. groceries)					
Has an understanding of different modes of transport available to them (e.g. car, bus, train) and how to get to destinations using this					
Is aware of the need to go to other places for social purposes or work					
Chooses whether to go out for social clubs or activities					
Chooses whether to travel by different modes of transport if they are available to the person (e.g. car, bus, train)					
Decides if a journey is manageable based on length and complexity					
Plans travel to a destination, e.g. shops, pub, friend's house					
Plans to take other people on trips to nearby places, for example, takes a family member to the shops					
Independently plans where they need to go in their everyday life					
Researches options for booking a holiday or travelling away from home					
Looks at bus or train timetables to ensure a journey is possible in advance					
Checks a route before travelling to an unfamiliar destination					
Allows sufficient time for travelling to an appointment					
	1 not at all useful	**2** not very useful	**3** neutral	**4** useful	**5** very useful
Able to check for any problems on routes in advance of leaving home					

Checks to see whether there are faster or more efficient options for travel before choosing					
Makes transport choices based on cost, length, and complexity					
Able to travel at least ten miles to a familiar destination independently (by car, bus, train, etc.)					
Able to travel at least ten miles to an unfamiliar destination independently (by car, bus train, etc.)					
Drives or travels independently to planned destinations					
Leaves home to travel to other destinations					
Walks or rides bike alone to locations within a one mile or five block radius of home or work					
Does not frequently get distracted by other shops or places to visit on the way to somewhere specific					
Does not become late for important appointments by becoming distracted on the way to a place					
Is generally able to focus on arriving at a planned destination without getting distracted or lost					
Obeys traffic signals when riding a bike or driving a car					
Checks how many bus or train stops remain on a journey whilst travelling					
Recognises familiar landmarks on known routes and uses these to help find new locations					
Able to check a map to see how close they are to a planned destination					
Able to check directions or location to make sure planned route is being followed					
Works out new routes if lost when travelling to an unfamiliar destination					
Can find a way back to a familiar destination if lost					
	1 not at all useful	**2** not very useful	**3** neutral	**4** useful	**5** very useful

If a planned route is not available (e.g. road closure, train cancellation), finds an alternative way of getting to their destination					
Able to accurately recognise their goal destination when arrived or close by					
Gets off public transport at the required stop					
When shopping or activities are finished, finds their way home again					
Plans when they will need to return home according to public transport timetables					
Able to learn new routes after repeating on 2-3 occasions					
Routinely arrives at familiar places on time (e.g. work, doctor's surgery, dentist)					
Can independently check timetables to re-use routes previously taken					
Works out how to get to unfamiliar destinations in a familiar area					
Books and travels on holidays to a range of different destinations (e.g. in same county, country, or abroad)					
Able to catch the bus at a different stop to their usual one and still complete their journey effectively					

Comments:

FINANCE - Item Rating

Does this item describe adaptive behaviour?

This section aims to assess an understanding of value of money, how this is managed, and whether support is required in order to support the process of budgeting/ saving/ spending, or researching best options for finances.

For each item, please mark the box corresponding to your rating

	1 not at all useful	**2** not very useful	**3** neutral	**4** useful	**5** very useful
Has a preference for spending money on particular items related to a hobby or interest					
Can afford to maintain current lifestyle (e.g. lives somewhere with affordable rent, utilities, council tax)					
Understands how to manage their income and outgoings					
Recognises need to plan for the future financially					
Budgets money to cover expenses for at least one week					
Able to make sure that they do not spend more than they earn or have					
Able to decide whether to spend their money or save it for a later purchase					
Identifies objects to be purchased when out and about, or plans beforehand items to be purchased					
Makes shopping lists within weekly budget					
Recognises and prepares for unforeseen costs (e.g. unexpected charge, repair)					
Investigates different options for saving money					
Identifies need to save when big purchases are coming up (e.g. car tax, insurance, Christmas)					
Reviews spending to see what money is being spent on and identify areas for saving					
Understands financial implications of taking out loans before doing so (e.g. checking monthly repayments, interest rates					
	1 not at all useful	**2** not very useful	**3** neutral	**4** useful	**5** very useful
Checks whether it is feasible to make large purchases before buying something (e.g. looking at bank statements or savings accounts)					
Researches different options for buying items before making a purchase (e.g. different stores available, best price, quality of item)					

Reads important documents, for example, credit card applications or rental agreements before signing contract					
Takes out affordable loans					
Does not regularly over-spend money					
Takes enough spending money when travelling to familiar places (e.g. bus fare, small change)					
Gives shop assistant the necessary amount of money when purchasing items					
Completes forms for business or services (e.g. obtains a lease)					
Independently purchases items (online or in a shop)					
Organises own council tax arrangements					
Saves money to buy something special (e.g. a birthday present)					
Makes sure to pay for necessary goods and services (e.g. rent, bills) before spending any disposable income					
Knows whether they have the money to spend on items or services before choosing to do so					
Prioritises monthly payments (e.g. loan, rent, utilities) over spending on social activities or other leisure pursuits					
Checks for correct change after buying an item					
Monitors own spending and expenses					
Will seek monetary advice if getting into debt					
Checks own bank statements to monitor savings before a large purchase					
	1 not at all useful	**2** not very useful	**3** neutral	**4** useful	**5** very useful
Regularly checks how much is left of a loan to be paid off					
Researches whether utilities can be provided at a lower cost					
Recognises when they are in debt and seeks advice for managing this					
Makes a complaint if over-charged					

Switches between companies if they can receive the same service for a lower cost					
Checks that payments are made up to the end of pre-existing contracts (e.g. mobile phone, loans, credit card)					
Uses bank statements or cash machine to identify if there is enough money available to make a large purchase					
Is aware of current financial commitments and how long these will continue for (e.g. loan arrangements, mobile phone contracts)					
Cancels or renews agreements at the end of a contract					
Checks when loans have been repaid in full					
Cancels direct debits/ standing orders independently once services are no longer required					
Can they repeatedly save money for more than one purpose					
Uses previous experiences of successful budgeting to plan for future purchases					
Able to manage regular payments or purchases on an ongoing basis					
Once they have understood how to book a holiday or get a loan, can the person do this again independently					
Does the person learn from previous mistakes (e.g. getting into debt) and make plans to budget in future					
Can the person use knowledge from how to set up one service and apply this to other services					

Comments:

Recreation - Item Rating

Does this item describe adaptive behaviour?

Assesses whether interests and hobbies are maintained through personal preference rather than because these are from a limited range of accessible options. Assesses strategies for organisation and social interaction in group situations across deaf and hearing scenarios.

For each item, please mark the box corresponding to your rating

	1 not at all useful	**2** not very useful	**3** neutral	**4** useful	**5** very useful
Has interests that are fun and relaxing					
Able to find things to entertain themselves when bored					
Recognises when they are lonely or bored					
Decides independently whether to participate with others in playing a game or other group activity					
Decides whether to regularly attend a social group (e.g. Deaf club, Deaf pub)					
Able to make use of television or catch-up services to watch favourite TV shows					
Seeks out activities related to hobbies or interests					
Socialises with others at home or in the community					
Texts others to arrange to meet up					
Able to find out information through internet, library, or by asking others					
Plans ahead for fun activities on free days or afternoons					
Packs his/ her own clothing and supplies for overnight trips					
Checks information about purchases or services before buying, through research or asking others					
Finds suitable venues for a day or evening out					
Checks times for accessible film showings					
Finds contact details of others (e.g. by internet, address book)					
Locates important dates on a calendar, for example, birthdays or holidays					

	1 not at all useful	**2** not very useful	**3** neutral	**4** useful	**5** very useful
Chooses relevant items to take away on holiday					
Organises a game or other fun activity in a group of friends independently (e.g. bowling, pub, football)					
Reserves tickets in advance for activities (e.g. sports events, films)					
Attends nights out with friends (e.g. Deaf club, pub)					
Focusses on a game or activity without becoming distracted					
Stops a game or fun activity if something more important comes up					
Plans activities on days that do not conflict with other important scheduled events (e.g. weekends, days off work)					
Checks whether repairs or orders are ready (e.g. by text, or internet)					
Checks, or asks others to help check, travel plans in advance of leaving for a holiday (e.g. plane delays, road closures)					
Monitors whether communication is effective with other members of group activities					
Finds adequate transportation to preferred leisure activities					
Checks in advance of leaving whether a plan is still going ahead					
Leisure activities are what the person really wants to do, rather than being the only accessible option					
Moves plans to a different place if finding it difficult to follow conversations					
Able to tell others if adjustments need to be made to activities to make them more accessible					
Asks for help if struggling to follow what is going on					
Understands the rules of simple games and knows when they have won/ lost					

Understands the rules of complex games and knows when they have won/ lost					
Can the person organise a large event with different steps (e.g. an event for a social group) and recognise when everything has been done					
	1 not at all useful	**2** not very useful	**3** neutral	**4** useful	**5** very useful
Returns home independently after visiting friends or family					
Moves on to a new activity when a current project is completed					
Lets others know when they are ready to leave if out and about					
Retains information about what is needed when packing to go on holiday or travel away from home					
Uses effective strategies for managing interactions in a single or limited range of settings					
Uses knowledge of challenges faced in the past to explain to others necessary adjustments when in groups					
Has effective strategies for managing interactions in most settings (e.g. buying a film ticket, ordering a meal)					

Comments:

HEALTH AND SAFETY - Item Rating

Does this item describe adaptive behaviour?

Several questions aim to assess understanding of basic health and safety knowledge, as access to information in healthcare may be poor. Working from this awareness, the questions then work through complexity in terms of self-care in maintaining health and preventing illness. Also accounts for differences in response to emergencies/ alarms, or differences in 'independence' of making routine appointments etc.

For each item, please mark the box corresponding to your rating

	1 not at all useful	**2** not very useful	**3** neutral	**4** useful	**5** very useful
Understands rules for safety (e.g. at home, at work, in the community)					
Able to understand common signs (e.g. 'exit', 'no entry', or 'stop') and follows these directions					
Understands what food is healthy/ unhealthy					
Weighs up the decision whether to go and see a doctor about minor ailments					
Decides independently how often to see a dentist/ doctor/ other healthcare professional for routine appointments					
Chooses whether to eat healthily based on awareness of food and nutrition					
If the person has a medical condition (e.g. diabetes), are they able to follow medication regimes					
Organises own appointments					
Owns signalling devices at home as needed (e.g. flashing/ vibrating alarms for fire, smoke, clocks, door)					
Plans meals in order to get necessary nutrition					
Alerts others to the need for services (e.g. doctor, repairs)					
If necessary, asks others to help book appointments or finds alternative ways to make appointments (e.g. going to the GP surgery in person, online booking)					
Understands why it is important not to ask strangers for assistance with certain tasks (e.g. money management)					
	1 not at all useful	**2** not very useful	**3** neutral	**4** useful	**5** very useful
Books/ requests an interpreter as appropriate for doctor's appointments					

Considers risk before engaging in activities (e.g. driving dangerously, walking in the road, extreme sports)					
Carries personal identification when travelling to nearby places in the community					
Makes simples meals that require no cooking (e.g. sandwiches, salads)					
Cooks simple foods on a stove, for example, eggs or canned soup					
Follows safety rules for fire alarms at home or work					
Makes own appointments (e.g. doctors, dentists) independently or with the assistance of others					
Operates a microwave					
Looks both ways before crossing a street or car park					
Leaves current activities in an emergency situation					
Remembers to take medication at specified times					
Avoids situations at home or in the neighbourhood that are likely to result in trouble					
Recognises and checks for signs of infection in cuts and scrapes					
Checks expiration dates to help decide whether to use food					
Able to follow instructions to complete tasks with 2 or more steps					
Mixes and cooks fairly complex foods (e.g. cakes), following a recipe					
Goes to chemists to fill prescriptions given by GP					
Seeks assistance from others if health does not improve after a period of time					
Knows temperature is too high and takes action (e.g. ibuprofen, drink fluids)					
Researches or asks someone if unclear how to take a particular medicine					
	1 not at all useful	**2** not very useful	**3** neutral	**4** useful	**5** very useful

Cares for his/her minor injuries (e.g. paper cuts, knee scrapes, nosebleeds)					
Recognises when a situation may be an emergency and responds in a timely manner					
Cooks and prepares complex meals for self and others					
Stops taking medication once feeling better after an illness					
Turns off hob/ oven after cooking					
Returns to work or activities promptly after a disruption (e.g. fire drill)					
Has a plan for when a fire alarm goes off (e.g. vibrating alarm, fire buddy) and knows the plans for evacuation					
Remembers to fill regular prescriptions when these run out					
Uses strategies that have worked previously to make regular medical/ dental check-ups without prompting					
Able to teach self a new recipe based on previously held cooking knowledge					
Recognises signs and symptoms of serious illness (e.g. shortness of breath, chest pain) and seeks immediate help					

Comments:

SOCIAL AWARENESS AND COMPETENCE - Item Rating

Does this item describe adaptive behaviour?

Aims to account for potential difficulties experienced in maintaining close relationships with families, who may not have developed good communication strategies with one another. Tries to assess relationships within both deaf and hearing communities. Integration with hearing people is not necessarily an aim or adaptive for many deaf people so some consideration goes towards whether this is a choice or a product of anxiety about interaction.

For each item, please mark the box corresponding to your rating

	1 not at all useful	**2** not very useful	**3** neutral	**4** useful	**5** very useful
Expresses a sexual preference					
Has a strong sense of identity					
Has a desire for social interaction					
Able to identify emotions in self					
Able to seek out appropriate people for intimate relationships					
Decides alone whether to spend time socialising or doing things alone					
Chooses to befriend other deaf or hearing people					
Joins in with social clubs or events to meet new people (in Deaf community)					
Joins in with social clubs or events to meet new people (deaf/ hearing)					
When leaving home, informs others of destination and return time					
Invites others home for a fun activity					
Goes out to local places with others (e.g. pub, a social group, park)					
Invites others to join him/ her in playing games					
Stands a comfortable distance from others during conversations					
Takes into account other's signing space					
Is not deliberately hurtful towards others					
	1 not at all useful	**2** not very useful	**3** neutral	**4** useful	**5** very useful
Seeks friendships with others in his/ her own age group					
Attends fun activities at another's home					
Hosts guests at their home					
Attends fun community activities with others, for example, a movie					
Attends Deaf club or socialises with other Deaf people					
Offers guests food or beverages					

Places reasonable demands on friends (e.g. does not become upset when a friend goes out with another friend)					
Starts conversations on topics of interest to others					
Initiates games or selects TV programmes liked by friends or family members					
Attempts to maintain good relationships with family members					
Attempts to maintain intimate relationships					
Able to identify emotions in others					
Knows how to make up with friends after a disagreement					
Generally manages frustration if attempts at socialising are ineffective					
Makes others aware if they are going to be late					
Changes communication strategies to adapt to other person					
Recognises when a social problem has occurred and does something about it (e.g. apologises, tries to talk to them about it)					
Monitors reactions from others (e.g. change in body language) and changes the topic if it is upsetting someone					
Has one or more friends					
Keeps a stable group of friends					
	1 not at all useful	**2** not very useful	**3** neutral	**4** useful	**5** very useful
Has close relationships with others as well friends who are less close					
Does not become over-familiar with strangers (e.g. accepting gifts or giving personal information)					
Ends conversations appropriately					
Maintains boundaries with friends and family					

Knows how to entertain themselves if friends/ family are unavailable					
Remembers and utilises effective communication strategies					
Knows how to make and keep friends					
Changes strategies for resolving social problems based on the context (e.g. using different strategies with friends and staff, acting differently at work and at home)					

Comments:

COMMUNICATION - Item Rating

Does this item describe adaptive behaviour?

Attempts to assess a range of aspects of language, and its functional use in interaction. Some exploration of adaptability in a range of scenarios is explored, with questions about different aspects of language (e.g. grammar, comprehension, turn-taking) to assess where difficulties may arise. These questions are designed to account for a range of communication approaches, including those with low language ability.

For each item, please mark the box corresponding to your rating

	1 not at all useful	**2** not very useful	**3** neutral	**4** useful	**5** very useful
Has adequate motor skills to make clear handshapes					
Does the person understand and use symbolic language to identify others					
Generally correct sign orientation (e.g. placement correct)					
Shakes head 'yes' or 'no' in response to a simple question, for example, 'do you want something to drink?'					
Uses pointing or gesture to indicate whether something is wanted or not wanted					
Expresses a preference between choices					
Contacts people for social reasons or for a purpose (e.g. making appointments, complaints)					
Tells stories about real experiences, giving sufficient detail to be understood					
Tells imaginary stories, giving sufficient detail to be understood					
Works effectively with interpreters or communication support workers to express their needs/ opinions					
Pays attention during family or group discussions for as long as needed					
Gains information from a variety of sources (e.g. TV, internet, newspaper) to keep up with current events and areas of interest					
	1 not at all useful	**2** not very useful	**3** neutral	**4** useful	**5** very useful
Considers whether interaction may be difficult and has plans for this in advance (e.g. books interpreters, carries pen/ paper or phone to write things down)					

Decides whether to join in conversations with other deaf people					
Decides whether to join in conversations with hearing people					
Responds to conversations by answering questions or performing requested actions					
Nods or smiles to encourage others when they are talking					
Stays on topic in conversation rather than going off on a tangent					
Uses mobile phone to contact friends or family					
Sends texts to others					
Communicates about familiar others (e.g. mum, dad, carer) or topics of interest					
Able to engage in conversations for at least 5 minutes					
Pays attention to other people who talk/sign					
Looks at others' faces when communicating without becoming distracted					
Turn-takes in conversation					
Gives enough background information for communication to be understood, and provides additional details if prompted					
Monitors whether others understand what they are expressing					
Communicates clearly in a way that is intelligible to other deaf people					
Communicates clearly in a way that is intelligible to other hearing people					
Communicates clearly in a way that is intelligible to others who know the person well					
Able to adapt communication in a variety of ways (e.g. higher/ lower register signing, oral communication, writing things down)					
Makes others aware if they need prompts to keep up with conversation or are lost in conversation					
	1 not at all useful	**2** not very useful	**3** neutral	**4** useful	**5** very useful

Lets someone know if struggling to follow conversations on a fixed topic					
Able to negotiate an interaction to get a needed item (e.g. buying something in a shop)					
Understands grammar, e.g. the difference between 'the boy pushed the girl' and 'the girl pushed the boy'					
Makes complaints about a product or service and checks to make sure that action is taken					
Does not use signs/ phrases repetitively					
Withdraws from conversations when finished or no longer interested, rather than because the person is not following the discussion					
Able to communicate effectively with family members					
Able to communicate effectively with friends					
Able to communicate effectively with people unknown to the person					
Has strategies to communicate independently when out and about					
Uses a range of communication technologies to get in touch with others for social purposes (e.g. minicom, video apps, texting)					
Uses up-to-date information to discuss current events					

Comments:

WORK - Item Rating

Does this item describe adaptive behaviour?

This section aims to assess capacity to work and ability to learn in a work context. Questions attempt to assess adaptability to new tasks at work, strategies for interaction and effective use of supports at work, and task and time management.

For each item, please mark the box corresponding to your rating

	1 not at all useful	**2** not very useful	**3** neutral	**4** useful	**5** very useful
Recognises if there are home projects that need to be done (e.g. decorating, fixing things, gardening)					
Recognises if they are becoming isolated at work or during projects					
Works out what tasks need to be done and plans time to do these					
Discusses realistic future educational or career goals					
Decides whether to look for a job in an area of interest					
Independently chooses what to focus their time on					
Fills in job applications, with or without support					
Works on one home activity for at least 15 minutes					
Makes reminder notes or lists					
Gathers all supplies needed before beginning a cleaning or maintenance project at home					
Plans ahead to allow enough time to complete large projects					
Seeks employment that is suitable to skills and interests					
Considers whether a project is feasible (e.g. that there is enough time/ resources) before starting					
Plans for possible communication needs at work (e.g. books or requests interpreters/ notetakers/ lipspeakers as needed)					
Has a schedule which they are able to follow					
Uses interpreters/ support workers effectively at work					
Undertakes work or tasks within their skill set					
	1 not at all useful	**2** not very useful	**3** neutral	**4** useful	**5** very useful
Makes minor repairs to personal possessions (e.g. bikes or clothes)					

Completes household tasks independently (e.g. laundry, washing up, cleaning)					
Has looked for part-time, full-time, or voluntary work					
Is able to focus on work even if there are distractions					
Works quietly and does not disrupt or disturb the work of others					
Continues working productively if there is a change in routine					
Acquires new skills through observation					
Checks work against set targets and deadlines					
Easily moves between tasks and manages workload effectively					
Keeps working on hard tasks without becoming discouraged or quitting					
Sets or follows deadlines to ensure that a task is completed on time					
Makes plans for home projects in logical steps					
Able to prioritise activities if something urgent comes up					
Changes or attempts to change strategies for completing work following constructive feedback					
Adapts to new ways of doing tasks if shown a more efficient way					
Completes large projects (e.g. decorating, painting) on time					
Meets deadlines effectively					
Follows steps to complete a project (e.g. assembling furniture)					
Moves onto a new project or deadline once a piece of work is completed					
Independently decides to move onto something new when a piece of work is completed					
	1 not at all useful	**2** not very useful	**3** neutral	**4** useful	**5** very useful
Recognises when targets are met and moves on to another task					
Able to competently complete the same task repeatedly after it is learnt					
Carries out familiar work tasks without prompting					

Learns from previous mistakes at work					
Takes on board constructive feedback from supervisors and generalises to other work situations					
Uses prior knowledge to problem-solve in unfamiliar situations					

Comments:

Appendix C

Item ~~rankings~~ ratings demonstrating agreement/ disagreement from Delphi round 1

Travel

	1 %	**2** %	**3** %	**4** %	**5** %	**% 4 or more**	**%2 or less**	**Missing data %**
1. Understands where to go to buy basic amenities (e.g. groceries)	7.7	7.7	0	38.5	46.2	84.7	15.4	0
2. Has an understanding of different modes of transport available to them (e.g. car, bus, train) and how to get to destinations using this	7.7	0	0	30.8	53.8	84.3	7.7	7.7
3. Is aware of the need to go to other places for social purposes or work	7.7	15.4	15.4	30.8	30.8	61.6	23.1	0
4. Chooses whether to go out for social clubs or activities	7.7	7.7	23.1	46.2	15.4	61.6	15.4	0
5. Chooses whether to travel by different modes of transport if they are available to the person (e.g. car, bus, train)	23.1	0	23.1	30.8	23.1	53.9	23.1	0
6. Decides if a journey is manageable based on length and complexity	7.7	7.7	7.7	30.8	46.2	77	15.4	0
7. Plans travel to a destination, e.g. shops, pub, friend's house	7.7	7.7	7.7	38.5	38.5	77	15.4	0
8. Plans to take other people on trips to nearby places, for example, takes a family member to the shops	23.1	0	23.1	38.5	15.4	53.9	23.1	0
9. Independently plans where they need to go in their everyday life	0	0	23.1	30.8	46.2	77	0	0
10. Researches options for booking a holiday or travelling away from home	15.4	15.4	7.7	38.5	23.1	61.6	30.8	0
11. Looks at bus or train timetables to ensure a journey is possible in advance	0	15.4	15.4	38.5	30.8	69.3	15.4	0
12. Checks a route before travelling to an unfamiliar destination	7.7	0	7.7	38.5	46.2	84.7	7.7	0
13. Allows sufficient time for travelling to an appointment	0	0	7.7	46.2	30.8	77	0	15.4
14. Able to check for any problems on routes in advance of leaving home	7.7	30.8	23.1	7.7	30.8	38.5	38.5	0
15. Checks to see whether there are faster or more efficient options for travel before choosing	7.7	15.4	30.8	7.7	38.5	46.2	23.1	0
16. Makes transport choices based on cost, length, and complexity	7.7	23.1	23.1	7.7	38.5	46.2	30.8	0
17. Able to travel at least ten miles to a familiar destination independently (by car, bus, train, etc.)	7.7	15.4	7.7	38.5	30.8	69.3	23.1	0
18. Able to travel at least ten miles to an unfamiliar destination independently (by car, bus train, etc.)	7.7	23.1	0	38.5	30.8	69.3	30.8	0

19. Drives or travels independently to planned destinations	0	0	23.1	38.5	38.5	77	0	0
20. Leaves home to travel to other destinations	23.1	15.4	0	38.5	23.1	61.6	38.5	0
21. Walks or rides bike alone to locations within a one mile or five block radius of home or work	15.4	7.7	7.7	30.8	38.5	69.3	23.1	0
22. Does not frequently get distracted by other shops or places to visit on the way to somewhere specific	7.7	15.4	23.1	30.8	23.1	53.9	23.1	0
23. Does not become late for important appointments by becoming distracted on the way to a place	15.4	15.4	30.8	23.1	15.4	38.5	30.8	0
24. Is generally able to focus on arriving at a planned destination without getting distracted or lost	7.7	0	0	69.2	23.1	92.3	7.7	0
25. Obeys traffic signals when riding a bike or driving a car	7.7	7.7	15.4	46.2	23.1	69.3	15.4	0
26. Checks how many bus or train stops remain on a journey whilst travelling	7.7	15.4	46.2	15.4	15.4	30.8	23.1	0
27. Recognises familiar landmarks on known routes and uses these to help find new locations	0	0	15.4	53.8	30.8	84.6	0	0
28. Able to check a map to see how close they are to a planned destination	7.7	15.4	15.4	30.8	30.8	61.6	23.1	0
29. Able to check directions or location to make sure planned route is being followed	7.7	15.4	30.8	23.1	23.1	46.2	23.1	0
30. Works out new routes if lost when travelling to an unfamiliar destination	0	15.4	23.1	30.8	30.8	61.6	15.4	0
31. Can find a way back to a familiar destination if lost	0	0	0	61.5	38.5	100	0	0
32. If a planned route is not available (e.g. road closure, train cancellation), finds an alternative way of getting to their destination	7.7	7.7	7.7	53.8	23.1	76.9	0	0
33. Able to accurately recognise their goal destination when arrived or close by	0	0	30.8	46.2	23.1	69.3	0	0
34. Gets off public transport at the required stop	0	7.7	0	53.8	38.5	92.3	7.7	0
35. When shopping or activities are finished, finds their way home again	0	0	7.7	38.5	53.8	92.3	0	0
36. Plans when they will need to return home according to public transport timetables	0	7.7	15.4	30.8	38.5	69.3	7.7	7.7
37. Able to learn new routes after repeating on 2-3 occasions	0	0	0	69.2	30.8	100	0	0
38. Routinely arrives at familiar places on time (e.g. work, doctor's surgery, dentist)	0	0	7.7	46.2	46.2	92.4	0	0
39. Can independently check timetables to re-use routes previously taken	7.7	7.7	23.1	30.8	30.8	61.6	15.4	0
40. Works out how to get to unfamiliar destinations in a familiar area	7.7	15.4	15.4	30.8	30.8	61.6	23.1	0
41. Books and travels on holidays to a range of different destinations (e.g. in same county, country, or abroad)	15.4	23.1	7.7	38.5	15.4	53.9	38.5	0
42. Able to catch the bus at a different stop to their usual one and still complete their journey effectively	7.7	7.7	15.4	30.8	38.5	69.3	15.4	0

Finance

	1 %	2 %	3 %	4 %	5 %	% 4 or more	% 2 or less	Missing data %
1.Has a preference for spending money on particular items related to a hobby or interest	15.4	0	7.7	38.5	38.5	77	15.4	0
2.Can afford to maintain current lifestyle (e.g. lives somewhere with affordable rent, utilities, council tax)	7.7	7.7	7.7	46.2	30.8	77	15.4	0
3. Understands how to manage their income and outgoings	0	0	15.4	38.5	46.2	84.7	0	0
4. Recognises need to plan for the future financially	0	7.7	0	53.8	38.5	92.3	7.7	0
5. Budgets money to cover expenses for at least one week	7.7	0	0	53.8	38.5	92.3	7.7	0
6. Able to make sure that they do not spend more than they earn or have	7.7	0	7.7	53.8	30.8	84.6	7.7	7.7
7. Able to decide whether to spend their money or save it for a later purchase	7.7	7.7	0	53.8	30.8	84.6	15.4	0
8. Identifies objects to be purchased when out and about, or plans beforehand items to be purchased	0	7.7	15.4	46.2	30.8	77	7.7	0
9. Makes shopping lists within weekly budget	0	23.1	7.7	23.1	38.5	61.6	23.1	7.7
10.Recognises and prepares for unforeseen costs (e.g. unexpected charge, repair)	0	0	23.1	30.8	38.5	69.3	0	7.7
11. Investigates different options for saving money	7.7	7.7	23.1	30.8	30.8	61.6	15.4	0
12. Identifies need to save when big purchases are coming up (e.g. car tax, insurance, Christmas)	7.7	0	15.4	46.2	30.8	77	7.7	0
13. Reviews spending to see what money is being spent on and identify areas for saving	7.7	7.7	0	53.8	30.8	84.6	15.4	0
14. Understands financial implications of taking out loans before doing so (e.g. checking monthly repayments, interest rates	7.7	7.7	7.7	23.1	46.2	69.3	15.4	7.7
15. Checks whether it is feasible to make large purchases before buying something (e.g. looking at bank statements or savings accounts)	7.7	7.7	7.7	38.5	38.5	77	15.4	0
16. Researches different options for buying items before making a purchase (e.g. different stores available, best price, quality of item)	7.7	0	30.8	30.8	30.8	61.6	7.7	0
17. Reads important documents, for example, credit card applications or rental agreements before signing contract	15.4	15.4	15.4	23.1	30.8	53.9	30.8	0
18. Takes out affordable loans	7.7	7.7	30.8	38.5	15.4	53.9	15.4	0
19. Does not regularly over-spend money	15.4	7.7	7.7	38.5	30.8	69.3	23.1	0

20. Takes enough spending money when travelling to familiar places (e.g. bus fare, small change)	0	7.7	15.4	46.2	30.8	77	7.7	0
21. Gives shop assistant the necessary amount of money when purchasing items	7.7	0	15.4	53.8	23.1	76.1	7.7	0
22. Completes forms for business or services (e.g. obtains a lease)	15.4	23.1	30.8	15.4	15.4	30.8	38.5	0
23. Independently purchases items (online or in a shop)	7.7	0	15.4	38.5	38.5	77	7.7	0
24. Organises own council tax arrangements	7.7	23.1	7.7	30.8	30.8	61.6	30.8	0
25. Saves money to buy something special (e.g. a birthday present)	7.7	0	15.4	46.2	30.8	77	7.7	0
26. Makes sure to pay for necessary goods and services (e.g. rent, bills) before spending any disposable income	7.7	7.7	0	53.8	30.8	84.6	15.4	0
27. Knows whether they have the money to spend on items or services before choosing to do so	7.7	0	7.7	53.8	30.8	84.6	7.7	0
28. Prioritises monthly payments (e.g. loan, rent, utilities) over spending on social activities or other leisure pursuits	7.7	0	7.7	46.2	38.5	84.7	7.7	0
29. Checks for correct change after buying an item	15.4	0	7.7	53.8	23.1	76.9	15.4	0
30. Monitors own spending and expenses	7.7	0	7.7	53.8	30.8	84.6	7.7	0
31. Will seek monetary advice if getting into debt	7.7	7.7	23.1	30.8	30.8	61.6	15.4	0
32. Checks own bank statements to monitor savings before a large purchase	7.7	15.4	7.7	30.8	30.8	61.6	23.1	0
33. Regularly checks how much is left of a loan to be paid off	15.4	7.7	7.7	61.5	7.7	69.2	23.1	0
34. Researches whether utilities can be provided at a lower cost	15.4	7.7	46.2	15.4	15.4	30.8	23.1	0
35. Recognises when they are in debt and seeks advice for managing this	15.4	7.7	7.7	30.8	38.5	69.3	23.1	0
36. Makes a complaint if over-charged	23.1	23.1	0	30.8	23.1	53.9	46.2	0
37. Switches between companies if they can receive the same service for a lower cost	7.7	23.1	46.2	7.7	15.4	23.1	30.8	0
38. Checks that payments are made up to the end of pre-existing contracts (e.g. mobile phone, loans, credit card)	15.4	30.8	0	30.8	23.1	53.9	46.2	0
39. Uses bank statements or cash machine to identify if there is enough money available to make a large purchase	0	0	7.7	61.5	30.8	92.3	0	0
40. Is aware of current financial commitments and how long these will continue for (e.g. loan arrangements, mobile phone contracts)	7.7	7.7	23.1	30.8	30.8	61.6	15.4	0
41. Cancels or renews agreements at the end of a contract	7.7	23.1	15.4	23.1	30.8	53.9	30.8	0

42. Checks when loans have been repaid in full	15.4	0	7.7	46.2	30.8	77	15.4	0
43. Cancels direct debits/ standing orders independently once services are no longer required	15.4	7.7	15.4	23.1	38.5	61.6	23.1	0
44. Can they repeatedly save money for more than one purpose	15.4	0	7.7	46.2	30.8	77	154	0
45. Uses previous experiences of successful budgeting to plan for future purchases	0	7.7	7.7	61.5	23.1	84.6	7.7	0
46. Able to manage regular payments or purchases on an ongoing basis	7.7	0	15.4	46.2	30.8	77	7.7	0
47. Once they have understood how to book a holiday or get a loan, can the person do this again independently	15.4	15.4	15.4	30.8	23.1	53.9	30.8	0
48. Does the person learn from previous mistakes (e.g. getting into debt) and make plans to budget in future	0	0	23.1	30.8	38.5	69.3	0	7.7
49. Can the person use knowledge from how to set up one service and apply this to other services	7.7	15.4	0	38.5	30.8	69.3	23.1	7.7

Recreation

	1 %	2 %	3 %	4 %	5 %	%4 or more	%2 or less	Missing data %
1. Has interests that are fun and relaxing	7.7	0	0	69.2	23.1	92.3	7.7	0
2. Able to find things to entertain themselves when bored	7.7	0	7.7	61.5	23.1	84.6	7.7	0
3. Recognises when they are lonely or bored	0	7.7	23.1	61.5	7.7	69.2	7.7	0
4. Decides independently whether to participate with others in playing a game or other group activity	7.7	0	23.1	38.5	30.8	69.3	7.7	0
5. Decides whether to regularly attend a social group (e.g. Deaf club, Deaf pub)	0	7.7	7.7	69.2	15.4	84.6	7.7	0
6. Able to make use of television or catch-up services to watch favourite TV shows	0	7.7	30.8	46.2	15.4	61.6	7.7	0
7. Seeks out activities related to hobbies or interests	0	15.4	7.7	38.5	38.5	77	15.4	0
8. Socialises with others at home or in the community	15.4	7.7	15.4	38.5	23.1	61.6	23.1	0
9. Texts others to arrange to meet up	7.7	0	15.4	46.2	30.8	77	7.7	0
10 Able to find out information through internet, library, or by asking others	15.4	7.7	7.7	46.2	23.1	69.3	23.1	0
11. Plans ahead for fun activities on free days or afternoons	7.7	7.7	23.1	46.2	15.4	61.6	15.4	0
12. Packs his/ her own clothing and supplies for overnight trips	15.4	0	7.7	38.5	38.5	77	15.4	0
13. Checks information about purchases or services before buying, through research or asking others	30.8	15.4	7.7	23.1	15.4	38.5	46.2	7.7
14. Finds suitable venues for a day or evening out	23.1	7.7	7.7	38.5	23.1	61.6	30.8	0
15. Checks times for accessible film showings	7.7	0	23.1	46.2	23.1	69.3	7.7	0
16. Finds contact details of others (e.g. by internet, address book)	7.7	15.4	30.8	30.8	15.4	46.2	23.1	0
17. Locates important dates on a calendar, for example, birthdays or holidays	0	15.4	7.7	46.2	23.1	69.3	15.4	7.7
18. Chooses relevant items to take away on holiday	0	0	23.1	46.2	30.8	77	0	0
19. Organises a game or other fun activity in a group of friends independently (e.g. bowling, pub, football)	7.7	15.4	15.4	30.8	30.8	61.6	23.1	0
20. Reserves tickets in advance for activities (e.g. sports events, films)	0	0	23.1	53.8	23.1	76.9	0	0
21. Attends nights out with friends (e.g. Deaf club, pub)	0	7.7	7.7	53.8	30.8	84.6	7.7	0
22. Focusses on a game or activity without becoming distracted	0	15.4	15.4	46.2	23.1	69.3	15.4	0

23. Stops a game or fun activity if something more important comes up	0	15.4	7.7	61.5	15.4	76.9	15.4	0
24. Plans activities on days that do not conflict with other important scheduled events (e.g. weekends, days off work)	0	0	7.7	53.8	38.5	92.3	0	0
25. Checks whether repairs or orders are ready (e.g. by text, or internet)	7.7	7.7	23.1	38.5	23.1	61.6	15.4	0
26. Checks, or asks others to help check, travel plans in advance of leaving for a holiday (e.g. plane delays, road closures)	0	15.4	15.4	38.5	38.5	77	15.4	0
27. Monitors whether communication is effective with other members of group activities	15.4	7.7	0	46.2	23.1	69.3	23.1	7.7
28. Finds adequate transportation to preferred leisure activities	15.4	15.4	0	46.2	23.1	69.3	30.8	0
29. Checks in advance of leaving whether a plan is still going ahead	0	7.7	30.8	30.8	30.8	61.6	7.7	0
30. Leisure activities are what the person really wants to do, rather than being the only accessible option	15.4	7.7	15.4	30.8	30.8	61.6	23.1	0
31. Moves plans to a different place if finding it difficult to follow conversations	7.7	15.4	15.4	30.8	23.1	53.9	23.1	7.7
32. Able to tell others if adjustments need to be made to activities to make them more accessible	7.7	7.7	0	38.5	46.2	84.7	15.4	0
33. Asks for help if struggling to follow what is going on	15.4	0	0	30.8	46.2	77	15.4	7.7
34. Understands the rules of simple games and knows when they have won/ lost	0	0	38.5	30.8	30.8	61.6	0	0
35. Understands the rules of complex games and knows when they have won/ lost	0	0	30.8	46.2	23.1	69.3	0	0
36. Can the person organise a large event with different steps (e.g. an event for a social group) and recognise when everything has been done	23.1	15.4	0	38.5	15.4	53.9	38.5	7.7
37. Returns home independently after visiting friends or family	0	7.7	15.4	38.5	38.5	77	7.7	0
38. Moves on to a new activity when a current project is completed	7.7	0	15.4	61.5	15.4	76.9	7.7	0
39. Lets others know when they are ready to leave if out and about	0	15.4	23.1	46.2	15.4	61.6	15.4	0
40. Retains information about what is needed when packing to go on holiday or travel away from home	0	7.7	15.4	61.5	15.4	76.9	7.7	0
41. Uses effective strategies for managing interactions in a single or limited range of settings	7.7	23.1	7.7	23.1	30.8	53.9	30.8	7.7
42. Uses knowledge of challenges faced in the past to explain to others necessary adjustments when in groups	7.7	7.7	0	38.5	38.5	77	15.4	7.7
43. Has effective strategies for managing interactions in most settings (e.g. buying a film ticket, ordering a meal)	7.7	0	15.4	23.1	38.5	61.6	7.7	15.4

Health and Safety

	1 %	2 %	3 %	4 %	5 %	%4 or more	%2 or less	Missing data %
1. Understands rules for safety (e.g. at home, at work, in the community)	8.3	8.3	8.3	41.7	33.3	75	16.6	0
2. Able to understand common signs (e.g. 'exit', 'no entry', or 'stop') and follows these directions	0	0	8.3	41.7	50	91.7	0	0
3. Understands what food is healthy/ unhealthy	0	8.3	0	41.7	50	91.7	8.3	0
4. Weighs up the decision whether to go and see a doctor about minor ailments	0	16.7	0	41.7	41.7	83.4	16.7	0
5. Decides independently how often to see a dentist/ doctor/ other healthcare professional for routine appointments	8.3	8.3	8.3	41.7	33.3	75	16.6	0
6. Chooses whether to eat healthily based on awareness of food and nutrition	8.3	0	16.7	41.7	33.3	75	8.3	0
7. If the person has a medical condition (e.g. diabetes), are they able to follow medication regimes	0	25	0	33.3	41.7	75	25	0
8. Organises own appointments	16.7	16.7	25	16.7	25	41.7	33.4	0
9. Owns signalling devices at home as needed (e.g. flashing/ vibrating alarms for fire, smoke, clocks, door)	8.3	0	0	33.3	58.3	91.6	8.3	0
10. Plans meals in order to get necessary nutrition	16.7	8.3	16.7	33.3	25	58.3	25	0
11. Alerts others to the need for services (e.g. doctor, repairs)	0	8.3	25	41.7	25	66.7	8.3	0
12. If necessary, asks others to help book appointments or finds alternative ways to make appointments (e.g. going to the GP surgery in person, online booking)	0	0	8.3	58.3	33.3	91.6	0	0
13. Understands why it is important not to ask strangers for assistance with certain tasks (e.g. money management)	0	0	25	33.3	41.7	75	0	0
14. Books/ requests an interpreter as appropriate for doctor's appointments	8.3	16.7	0	16.7	58.3	75	25	0
15. Considers risk before engaging in activities (e.g. driving dangerously, walking in the road, extreme sports)	0	0	16.7	41.7	41.7	83.4	0	0
16. Carries personal identification when travelling to nearby places in the community	16.7	8.3	33.3	16.7	25	41.7	25	0
17. Makes simples meals that require no cooking (e.g. sandwiches, salads)	0	8.3	16.7	25	50	75	8.3	0
18. Cooks simple foods on a stove, for example, eggs or canned soup	0	8.3	16.7	25	50	75	8.3	0
19. Follows safety rules for fire alarms at home or work	8.3	0	8.3	41.7	41.7	83.4	8.3	0

20. Makes own appointments (e.g. doctors, dentists) independently or with the assistance of others	0	8.3	16.7	50	16.7	66.7	8.3	8.3
21. Operates a microwave	0	16.7	8.3	50	25	75	16.7	0
22. Looks both ways before crossing a street or car park	0	0	8.3	41.7	50	91.7	0	0
23. Leaves current activities in an emergency situation	8.3	8.3	8.3	33.3	41.7	75	16.7	0
24. Remembers to take medication at specified times	8.3	0	8.3	33.3	50	83.3	8.3	0
25. Avoids situations at home or in the neighbourhood that are likely to result in trouble	0	8.3	25	41.7	25	66.7	8.3	0
26. Recognises and checks for signs of infection in cuts and scrapes	8.3	0	16.7	41.7	33.3	75	8.3	0
27. Checks expiration dates to help decide whether to use food	0	8.3	16.7	33.3	41.7	75	8.3	0
28. Able to follow instructions to complete tasks with 2 or more steps	0	25	0	25	41.7	66.7	25	8.3
29. Mixes and cooks fairly complex foods (e.g. cakes), following a recipe	0	16.7	16.7	33.3	33.3	66.6	16.7	0
30. Goes to chemists to fill prescriptions given by GP	8.3	0	16.7	50	25	75	8.3	0
31. Seeks assistance from others if health does not improve after a period of time	8.3	8.3	8.3	50	25	75	16.6	0
32. Knows temperature is too high and takes action (e.g. ibuprofen, drink fluids)	8.3	0	16.7	58.3	16.7	75	8.30	0
33. Researches or asks someone if unclear how to take a particular medicine	16.7	8.3	0	33.3	41.7	75	25	0
34. Cares for his/her minor injuries (e.g. paper cuts, knee scrapes, nosebleeds)	8.3	0	8.3	41.7	41.7	83.4	8.3	0
35. Recognises when a situation may be an emergency and responds in a timely manner	8.3	0	0	58.3	33.3	91.6	8.3	0
36. Cooks and prepares complex meals for self and others	16.7	0	8.3	41.7	33.3	75	16.7	0
37. Stops taking medication once feeling better after an illness	8.3	8.3	8.3	50	25	75	16.6	0
38. Turns off hob/ oven after cooking	0	0	16.7	33.3	50	83.3	0	0
39. Returns to work or activities promptly after a disruption (e.g. fire drill)	8.3	8.3	25	25	33.3	58.3	16.6	0
40. Has a plan for when a fire alarm goes off (e.g. vibrating alarm, fire buddy) and knows the plans for evacuation	0	0	8.3	50	41.7	91.7	0	0
41. Remembers to fill regular prescriptions when these run out	8.3	0	25	50	16.7	66.7	8.3	0
42. Uses strategies that have worked previously to make regular medical/ dental check-ups without prompting	8.3	0	0	75	16.7	91.7	8.3	0
43. Able to teach self a new recipe based on previously held cooking knowledge	16.7	8.3	16.7	33.3	25	58.3	25	0

44. Recognises signs and symptoms of serious illness (e.g. shortness of breath, chest pain) and seeks immediate help	0	8.3	0	50	41.7	91.7	8.3	0

Social Awareness and Competence

	1 %	2 %	3 %	4 %	5 %	%4 or more	%2 or less	Missing data %
1 Expresses a sexual preference	0	16.7	25	41.7	16.7	58.4	16.7	0
2 Has a strong sense of identity	8.3	33.3	16.7	25	16.7	41.7	41.6	0
3 Has a desire for social interaction	0	25	8.3	41.7	25	66.7	25	0
4 Able to identify emotions in self	8.3	8.3	0	33.3	50	83.3	16.6	0
5 Able to seek out appropriate people for intimate relationships	8.3	0	8.3	41.7	41.7	83.4	8.3	0
6 Decides alone whether to spend time socialising or doing things alone	0	0	25	50	25	75	0	0
7 Chooses to befriend other deaf or hearing people	8.3	8.3	8.3	58.3	16.7	75	16.6	0
8 Joins in with social clubs or events to meet new people (in Deaf community)	8.3	8.3	16.7	33.3	33.3	66.6	16.6	0
9 Joins in with social clubs or events to meet new people (deaf/ hearing)	16.7	8.3	8.3	25	41.7	66.7	25	0
10. When leaving home, informs others of destination and return time	8.3	16.7	25	41.7	8.3	50	25	0
11. Invites others home for a fun activity	0	25	16.7	50	8.3	58.3	25	0
12. Goes out to local places with others (e.g. pub, a social group, park)	8.3	8.3	8.3	58.3	16.7	75	16.6	0
13. Invites others to join him/ her in playing games	0	33.3	16.7	33.3	16.7	50	33.3	0
14. Stands a comfortable distance from others during conversations	0	25	0	41.7	33.3	75	25	0
15. Takes into account other's signing space	0	0	0	66.7	33.3	100	0	0
16. Is not deliberately hurtful towards others	8.3	8.3	16.7	50	16.7	66.7	16.6	0
17. Seeks friendships with others in his/ her own age group	0	16.7	16.7	33.3	25	58.3	16.7	8.3
18. Attends fun activities at another's home	0	25	16.7	41.7	8.3	50	25	8.3
19. Hosts guests at their home	8.3	8.3	25	41.7	8.3	50	16.7	8.3
20. Attends fun community activities with others, for example, a movie	0	0	33.3	50	16.7	66.7	0	0
21. Attends Deaf club or socialises with other Deaf people	8.3	16.7	8.3	41.7	25	66.7	25	0
22. Offers guests food or beverages	0	8.3	8.3	75	8.3	83.3	8.3	0

23. Places reasonable demands on friends (e.g. does not become upset when a friend goes out with another friend)	8.3	0	0	50	41.7	91.7	8.3	0
24. Starts conversations on topics of interest to others	0	8.3	8.3	50	33.3	83.3	8.3	0
25. Initiates games or selects TV programmes liked by friends or family members	0	8.3	33.3	58.3	0	58.3	8.3	0
26. Attempts to maintain good relationships with family members	8.3	25	8.3	41.7	16.7	58.4	33.3	0
27. Attempts to maintain intimate relationships	0	16.7	16.7	33.3	33.3	66.6	16.7	0
28. Able to identify emotions in others	8.3	8.3	0	33.3	50	83.3	16.6	0
29. Knows how to make up with friends after a disagreement	8.3	0	0	50	41.7	91.7	8.3	0
30. Generally manages frustration if attempts at socialising are ineffective	8.3	16.7	0	41.7	33.3	75	25	0
31. Makes others aware if they are going to be late	0	16.7	33.3	41.7	8.3	50	16.7	0
32. Changes communication strategies to adapt to other person	8.3	0	8.3	50	25	75	8.3	8.3
33. Recognises when a social problem has occurred and does something about it (e.g. apologises, tries to talk to them about it)	0	16.7	0	41.7	41.7	83.4	16.7	0
34. Monitors reactions from others (e.g. change in body language) and changes the topic if it is upsetting someone	0	8.3	8.3	33.3	50	83.3	8.3	0
35. Has one or more friends	0	16.7	16.7	50	16.7	66.7	16.7	0
36. Keeps a stable group of friends	0	16.7	16.7	41.7	16.7	58.4	16.7	8.3
37. Has close relationships with others as well friends who are less close	0	25	25	33.3	16.7	50	25	0
38. Does not become over-familiar with strangers (e.g. accepting gifts or giving personal information)	0	8.3	8.3	41.7	41.7	83.4	8.3	0
39. Ends conversations appropriately	0	25	8.3	50	16.7	66.7	25	0
40. Maintains boundaries with friends and family	8.3	8.3	16.7	41.7	25	66.7	16.6	0
41. Knows how to entertain themselves if friends/ family are unavailable	0	16.7	16.7	50	16.7	66.7	16.7	0
42. Remembers and utilises effective communication strategies	8.3	8.3	0	41.7	33.3	75	16.6	8.3
43. Knows how to make and keep friends	0	8.3	8.3	58.3	25	83.3	8.3	0
44. Changes strategies for resolving social problems based on the context (e.g. using different strategies with friends and staff, acting differently at work and at home)	8.3	8.3	0	50	33.3	83.3	16.6	0

Communication

	1	2	3	4	5	%4 or more	%2 or less	Missing data %
1Has adequate motor skills to make clear handshapes	0	0	0	58.3	41.7	100	0	0
2 Does the person understand and use symbolic language to identify others	8.3	8.3	8.3	25	41.7	66.7	16.6	8.3
3. Generally correct sign orientation (e.g. placement correct)	0	8.3	0	50	41.7	91.7	8.3	0
4. Shakes head 'yes' or 'no' in response to a simple question, for example, 'do you want something to drink?'	0	8.3	8.3	41.7	41.7	83.4	8.3	0
5. Uses pointing or gesture to indicate whether something is wanted or not wanted	0	0	16.7	41.7	41.7	83.4	0	0
6. Expresses a preference between choices	0	8.3	8.3	41.7	41.7	83.4	8.3	0
7. Contacts people for social reasons or for a purpose (e.g. making appointments, complaints)	16.7	8.3	8.3	41.7	25	66.7	25	0
8. Tells stories about real experiences, giving sufficient detail to be understood	8.3	0	0	50	41.7	91.7	8.3	0
9. Tells imaginary stories, giving sufficient detail to be understood	0	25	33.3	8.3	25	33.3	25	8.3
10. Works effectively with interpreters or communication support workers to express their needs/ opinions	0	0	0	50	41.7	91.7	0	8.3
11. Pays attention during family or group discussions for as long as needed	0	16.7	16.7	41.7	25	66.7	16.7	0
12. Gains information from a variety of sources (e.g. TV, internet, newspaper) to keep up with current events and areas of interest	8.3	16.7	16.7	41.7	16.7	58.4	25	0
13. Considers whether interaction may be difficult and has plans for this in advance (e.g. books interpreters, carries pen/ paper or phone to write things down)	8.3	8.3	0	41.7	33.3	75	16.6	8.3
14. Decides whether to join in conversations with other deaf people	0	8.3	8.3	41.7	41.7	83.4	8.3	0
15. Decides whether to join in conversations with hearing people	16.7	8.3	16.7	33.3	25	58.3	25	0
16. Responds to conversations by answering questions or performing requested actions	8.3	0	8.3	58.3	25	83.3	8.3	0
17. Nods or smiles to encourage others when they are talking	0	16.7	8.3	41.7	25	66.7	16.7	0
18. Stays on topic in conversation rather than going off on a tangent	0	8.3	8.3	58.3	25	83.3	8.3	0
19. Uses mobile phone to contact friends or family	8.3	0	8.3	50	33.3	83.3	8.3	0
20. Sends texts to others	0	0	0	58.3	41.7	100	0	0

21. Communicates about familiar others (e.g. mum, dad, carer) or topics of interest	0	8.3	8.3	50	33.3	83.3	8.3	0
22. Able to engage in conversations for at least 5 minutes	0	0	8.3	66.7	25	91.7	0	0
23. Pays attention to other people who talk/sign	0	16.7	8.3	41.7	33.3	75	16.7	0
24. Looks at others' faces when communicating without becoming distracted	0	8.3	0	66.7	25	91.7	8.3	0
25. Turn-takes in conversation	0	8.3	0	41.7	50	91.7	8.3	0
26. Gives enough background information for communication to be understood, and provides additional details if prompted	0	8.3	0	50	41.7	91.7	8.3	0
27. Monitors whether others understand what they are expressing	0	16.7	0	33.3	50	83.3	16.7	0
28. Communicates clearly in a way that is intelligible to other deaf people	0	16.7	0	25	58.3	83.3	16.7	0
29. Communicates clearly in a way that is intelligible to other hearing people	25	8.3	33.3	8.3	25	33.3	33.3	0
30. Communicates clearly in a way that is intelligible to others who know the person well	8.3	0	25	33.3	33.3	66.6	8.3	0
31. Able to adapt communication in a variety of ways (e.g. higher/ lower register signing, oral communication, writing things down)	16.7	0	8.3	33.3	41.7	75	16.7	0
32. Makes others aware if they need prompts to keep up with conversation or are lost in conversation	8.3	8.3	8.3	25	41.7	66.7	16.6	8.3
33. Lets someone know if struggling to follow conversations on a fixed topic	8.3	8.3	8.3	33.3	41.7	75	16.6	0
34. Able to negotiate an interaction to get a needed item (e.g. buying something in a shop)	8.3	16.7	0	41.7	33.3	75	25	0
35. Understands grammar, e.g. the difference between 'the boy pushed the girl' and 'the girl pushed the boy'	16.7	0	8.3	25	41.7	66.7	16.7	8.3
36. Makes complaints about a product or service and checks to make sure that action is taken	16.7	16.7	16.7	25	25	50	33.4	0
37. Does not use signs/ phrases repetitively	0	0	41.7	33.3	25	58.3	0	0
38. Withdraws from conversations when finished or no longer interested, rather than because the person is not following the discussion	8.3	8.3	8.3	33.3	33.3	66.6	16.6	8.3
39. Able to communicate effectively with family members	8.3	8.3	0	50	25	75	16.6	8.3
40. Able to communicate effectively with friends	0	0	8.3	58.3	33.3	91.6	0	0
41. Able to communicate effectively with people unknown to the person	16.7	16.7	16.7	33.3	16.7	50	33.4	0
42. Has strategies to communicate independently when out and about	0	8.3	8.3	33.3	50	83.3	8.3	0
43. Uses a range of communication technologies to get in touch with others for social purposes (e.g. minicom, video apps, texting)	0	8.3	0	50	41.7	91.7	8.3	0

44. Uses up-to-date information to discuss current events	8.3	25	25	16.7	25	41.7	33.3	0

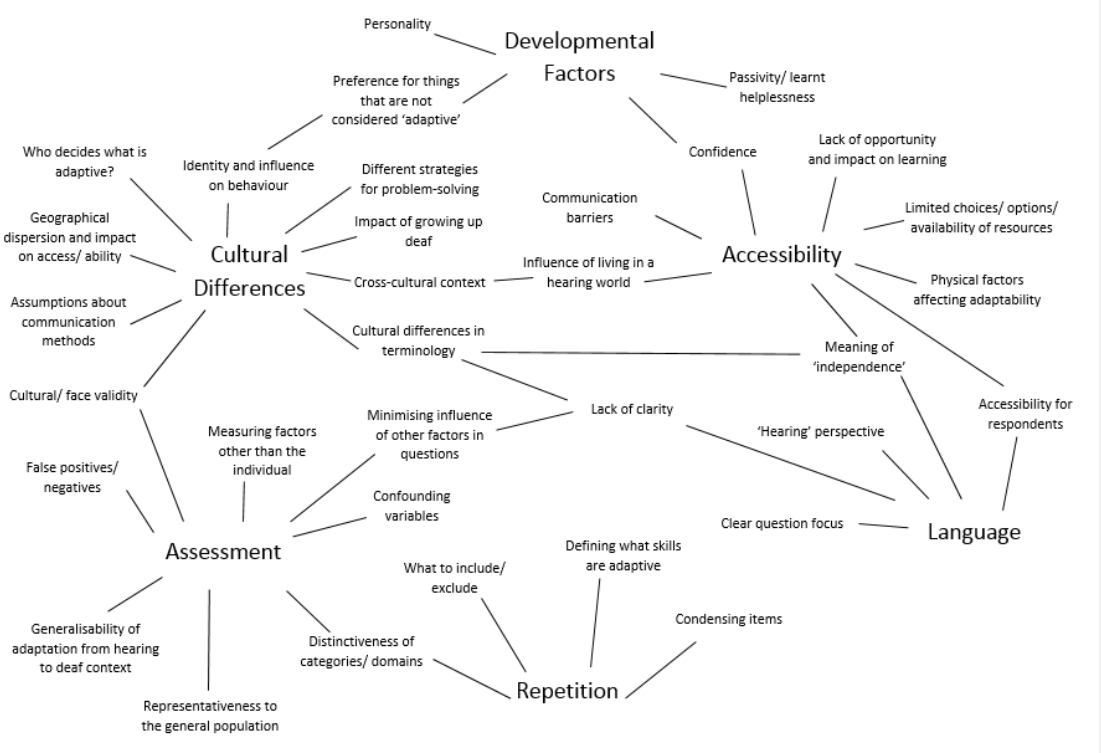
Work

	1 %	2 %	3 %	4 %	5 %	%4 or more	%2 or less	Missing data %
1Recognises if there are home projects that need to be done (e.g. decorating, fixing things, gardening)	8.3	0	8.3	58.3	25	83.3	8.3	0
2. Recognises if they are becoming isolated at work or during projects	8.3	16.7	0	50	25	75	25	0
3. Works out what tasks need to be done and plans time to do these	8.3	0	0	50	41.7	91.7	8.3	0
4. Discusses realistic future educational or career goals	8.3	0	16.7	50	25	75	8.3	0
5. Decides whether to look for a job in an area of interest	8.3	0	16.7	50	25	75	8.3	0
6. Independently chooses what to focus their time on	8.3	0	8.3	50	33.3	83.3	8.3	0
7. Fills in job applications, with or without support	0	8.3	8.3	50	33.3	83.3	8.3	0
8. Works on one home activity for at least 15 minutes	0	0	16.7	50	33.3	83.3	0	0
9. Makes reminder notes or lists	0	16.7	25	41.7	16.7	58.4	16.7	0
10. Gathers all supplies needed before beginning a cleaning or maintenance project at home	8.3	8.3	8.3	50	25	75	16.6	0
11. Plans ahead to allow enough time to complete large projects	8.3	0	16.7	41.7	33.3	75	8.3	0
12. Seeks employment that is suitable to skills and interests	8.3	0	8.3	50	33.3	83.3	8.3	0
13. Considers whether a project is feasible (e.g. that there is enough time/ resources) before starting	8.3	0	25	33.3	33.3	66.6	8.3	0
14. Plans for possible communication needs at work (e.g. books or requests interpreters/ notetakers/ lipspeakers as needed)	8.3	0	0	41.7	50	91.7	8.3	0
15. Has a schedule which they are able to follow	8.3	8.3	0	41.7	41.7	83.4	16.7	0
16. Uses interpreters/ support workers effectively at work	8.3	0	8.3	33.3	50	83.3	8.3	0
17. Undertakes work or tasks within their skill set	8.3	16.7	0	33.3	41.7	75	25	0
18. Makes minor repairs to personal possessions (e.g. bikes or clothes)	8.3	0	0	66.7	25	91.7	8.3	0
19. Completes household tasks independently (e.g. laundry, washing up, cleaning)	0	8.3	8.3	33.3	50	83.3	8.3	0
20. Has looked for part-time, full-time, or voluntary work	8.3	0	8.3	58.3	25	83.3	8.3	0
21. Is able to focus on work even if there are distractions	8.3	8.3	8.3	50	25	75	16.6	0
22. Works quietly and does not disrupt or disturb the work of others	8.3	0	0	66.7	25	91.7	8.3	0

23. Continues working productively if there is a change in routine	8.3	8.3	0	58.3	25	83.3	16.6	0
24. Acquires new skills through observation	0	0	16.7	41.7	41.7	83.4	0	0
25. Checks work against set targets and deadlines	8.3	0	0	50	41.7	91.7	8.3	0
26. Easily moves between tasks and manages workload effectively	16.7	0	0	50	33.3	83.3	16.7	0
27. Keeps working on hard tasks without becoming discouraged or quitting	8.3	8.3	8.3	50	25	75	16.6	0
28. Sets or follows deadlines to ensure that a task is completed on time	8.3	8.3	16.7	41.7	25	66.7	16.6	0
29. Makes plans for home projects in logical steps	8.3	16.7	16.7	33.3	25	58.3	25	0
30. Able to prioritise activities if something urgent comes up	8.3	0	8.3	50	33.3	83.3	8.3	0
31. Changes or attempts to change strategies for completing work following constructive feedback	8.3	8.3	16.7	33.3	33.3	66.6	16.6	0
32. Adapts to new ways of doing tasks if shown a more efficient way	0	0	16.7	58.3	25	83.3	0	0
33. Completes large projects (e.g. decorating, painting) on time	8.3	8.3	16.7	41.7	25	66.7	16.6	0
34. Meets deadlines effectively	0	0	16.7	58.3	25	83.3	0	0
35. Follows steps to complete a project (e.g. assembling furniture)	8.3	0	33.3	33.3	25	58.3	8.3	0
36. Moves onto a new project or deadline once a piece of work is completed	8.3	0	25	41.7	25	66.7	8.3	0
37. Independently decides to move onto something new when a piece of work is completed	0	8.3	8.3	58.3	25	83.3	8.3	0
38. Recognises when targets are met and moves on to another task	0	16.7	8.3	50	25	75	16.7	0
39. Able to competently complete the same task repeatedly after it is learnt	0	0	8.3	58.3	33.3	91.6	0	0
40. Carries out familiar work tasks without prompting	0	0	8.3	50	41.7	91.7	0	0
41. Learns from previous mistakes at work	0	0	8.3	33.3	50	83.3	0	8.3
42. Takes on board constructive feedback from supervisors and generalises to other work situations	0	8.3	0	41.7	50	91.7	8.3	0
43. Uses prior knowledge to problem-solve in unfamiliar situations	0	8.3	0	58.3	33.3	91.6	8.3	0

Appendix D

A thematic map showing the themes and sub-themes derived from the thematic analysis process



Appendix E

A summary of the search terms and databases used within the systematic review conducted by Moore et al. (2016)

Medline Search Strategy

1. exp Deafness/ cl, cn, di, ed, is, pa, px, sn [classification, congenital, diagnosis, education, instrumentation, pathology, psychology, statistics & numerical data]
2. Deaf*
3. manual communication
4. sign$ language or Sign Language/
5. exp Hearing loss/cl, cn, di, pa, px [classification, congenital, diagnosis, pathology, psychology]
6. Hearing impair*
7. Persons With Hearing Impairments/cl, px, sn [classification, psychology, statistics & numerical data]
8. exp Deaf-blind disorders/px [psychology]
9. or 1-8
10. adaptive behavio$r
11. exp 'activities of daily living'
12. Social adjustment
13. Adaptation, psychological/ cl, ed, sn [classification, education, statistics & numerical data]
14. or 10-13
15. cognitive functioning
16. exp Psychological tests/cl, di, ed, is, sn [classification, diagnosis, education, instrumentation, statistics & numerical data]
17. exp Intelligence tests/ cl, is, mt, st, sn [classification, instrumentation, methods, standards, statistics & numerical data]
18. Intelligen*
19. IQ
20. Learning disability
21. or 15-20
22. exp Intellectual Disability/
23. mental retardation.mp.
24. 22 or 23
25. 14 or 21 or 24
26. 9 and 25
27. limit 26 to (English language and 'all adult (19 plus year)' and last 10 years)

Embase Search Strategy

1. Deaf*
2. exp Hearing impairment/
3. sign$ language or Sign Language/
4. or 1-3
5. adaptive behavio$r or exp adaptive behavior/

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6. exp daily life activity
7. social adjustment.mp or social adaptation/
8. psychological adaptation.mp
9. or 5-8
10. cognitive functioning.mp
11. social cognition/ or cognition/
12. psychologic test/
13. intelligence test/
14. intellige*
15. intelligence quotient/
16. learning disorder/ di, ep [diagnosis, epidemiology]
17. or 10-16
18. intellectual disability.mp or intellectual impairment/
19. mental retardation.mp or mental deficiency/
20. 18 or 19
21. 9 or 17 or 20
22. 4 and 21
23. limit 22 to (English language and adult <18 to 64 years> and last 10 years)

PsycINFO Search Strategy

1. exp Deaf/
2. deaf*.mp
3. exp Deaf blind/
4. Manual Communication/
5. sign$ language or exp Sign Language/
6. exp hearing disorders/
7. hearing impair*
8. or 1-7
9. adaptive behavio$r or exp Adaptive Behavior/
10. exp Activities of Daily Living/
11. exp Social Adjustment/
12. psychological adaptation.mp
13. or 9-12
14. cognitive functioning.mp
15. exp Cognitive Ability/
16. exp Psychological Assessment
17. Psychometrics/
18. exp Intelligence Measures/
19. Intelligen*.mp
20. Intelligence Quotient/
21. Learning disabilities/
22. or 14-21
23. exp intellectual developmental disorder/ or intellectual disability.mp
24. mental retardation.mp
25. 23 or 24
26. 13 or 22 or 25
27. 8 and 26
28. limit 27 to (English language and adulthood <18+ years> and last 30 years)

PsycARTICLES Search Strategy

1. Deaf*.mp [mp = title, abstract, full text, caption text]
2. Hearing loss.mp
3. Hearing impair*
4. Manual communication
5. Sign$ language
6. deaf-blind
7. or 1-6
8. adaptive behavio$r
9. Activities of Daily Living
10. Social adjust*
11. Social adapt*
12. Psychological adapt*
13. or 8-12
14. cognit* function*
15. Psychological tests
16. Psychological assess*
17. Intelligence tests
18. intellige*
19. IQ
20. learning disab*
21. or 14-20
22. intellectual disability
23. intellectual disabilities
24. mental retardation
25. or 22-24
26. 13 or 21 or 25
27. 7 and 26
28. limit 27 to last 10 years

Appendix ~~E~~F

A table showing the development of all items included with the Delphi consensus procedure.

Travel

	ABAS-II (Harrison & Oakland, 2003)	**Vineland-II (Sparrow, Balla, & Cicchetti, 2005)**	**Good Lives Model (Purvis, Willis, & Ward, 2011)**	**Other research influences**	**Sbordonne (2000) executive functioning table**
1. Understands where to go to buy basic amenities (e.g. groceries)	N/A	N/A	Connected to 'knowledge' and feeling informed about things important to everyday life	This is a practical competence skill, transportation is an area addressed in both the ABAS-II and Vineland-II	*Volitional* Awareness of needs and wants
2. Has an understanding of different modes of transport available to them (e.g. car, bus, train) and how to get to destinations using this	N/A	N/A	Connected to 'knowledge' and 'agency' in understanding choices and being autonomous and self-directed	This is a practical competence skill, transportation is an area addressed in both the ABAS-II and Vineland-II	*Volitional* Awareness of needs and wants
3. Is aware of the need to go to other places for social purposes or work	N/A	N/A	Connected to 'knowledge' and feeling informed about things important to everyday life	N/A	*Volitional* Awareness of needs and wants
4. Chooses whether to go out for social clubs or activities	Adapted from 'Decides alone to join an organised group, for example, a club, sports team, or	N/A	Connected to 'agency' and 'community' in making autonomous decisions about	This is a conceptual competence skill, related to self-direction	*Volitional* Decide whether to gratify need/ want

	musical group' to account for the different opportunities available to Deaf people		whether to engage with wider groups		
5. Chooses whether to travel by different modes of transport if they are available to the person (e.g. car, bus, train)	Adapted from 'Relies on himself/ herself for travel in the community, for example, walks or uses public transportation, a bicycle, or a car' to account for accessibility	N/A	Connected to 'knowledge' and 'agency in understanding choices and being autonomous and self-directed	This is a practical competence skill, transportation is an area addressed in both the ABAS-II and Vineland-II	*Volitional* Decide whether to gratify need/ want
6. Decides if a journey is manageable based on length and complexity	N/A	N/A	Connected to 'knowledge' and 'agency' in being able to make informed decisions about one's life	Adapted form of other transportation questions modified to capture whether anxiety may be an issue in deciding to travel	*Volitional* Decide whether to gratify need/ want
7. Plans travel to a destination, e.g. shops, pub, friend's house	N/A	N/A	Connected to 'agency' and 'community' in making decisions about one's life and choosing the extent of	This is a practical competence skill, transportation is an area addressed in both the ABAS-II and Vineland-II	*Volitional* Form a specific goal

			engagement with wider community		
8. Plans to take other people on trips to nearby places, for example, takes a family member to the shops	Adapted from 'Takes other people on trips to nearby places, for example, takes a child or family member to a park'	N/A	Connected to 'relatedness' and 'pleasure' in finding enjoyment in relationships	This is a practical competence skill, transportation is an area addressed in both the ABAS-II and Vineland-II	*Volitional* Form a specific goal
9. Independently plans where they need to go in their everyday life	N/A	N/A	Connected to 'agency' in being autonomous and self-directed	This is a practical competence skill, transportation is an area addressed in both the ABAS-II and Vineland-II	*Volitional* Form a specific goal
10. Researches options for booking a holiday or travelling away from home	N/A	N/A	Connected to 'knowledge' and 'agency' in understanding choices and being autonomous and self-directed	This is a conceptual competence skill, related to self-direction	*Planning* Plan to achieve goals
11. Looks at bus or train timetables to ensure a journey is possible in advance	N/A	N/A	Connected to 'agency' in being autonomous and self-directed	This is a conceptual skill, related to concepts of time in the context of planning travel	*Planning* Plan to achieve goals
12. Checks a route before travelling to an unfamiliar destination	N/A	N/A	Connected to 'knowledge' in making informed	This is a practical competence skill, transportation is an area addressed in	*Planning* Plan to achieve goals

			decisions about one's everyday life	both the ABAS-II and Vineland-II	
13. Allows sufficient time for travelling to an appointment	N/A	N/A	Connected to 'knowledge' in making informed decisions about one's everyday life	This is a conceptual competence skill, related to time in the context of planning travel	*Planning* Evaluation of plans
14. Able to check for any problems on routes in advance of leaving home	N/A	N/A	Connected to 'knowledge' in making informed decisions about one's everyday life	This is a practical competence skill, transportation is an area addressed in both the ABAS-II and Vineland-II	*Planning* Evaluation of plans
15. Checks to see whether there are faster or more efficient options for travel before choosing	N/A	N/A	Connected to 'knowledge' and 'agency' in understanding choices and being autonomous and self-directed	This is a conceptual skill, related to self-direction	*Planning* Evaluation of plans
16. Makes transport choices based on cost, length, and complexity	N/A	N/A	Connected to 'knowledge' and 'agency' in understanding choices and being autonomous and self-directed	This is a conceptual competence skill, being self-directed in making decision based on understanding of concepts of money and time.	*Planning* Select appropriate plans
17. Able to travel at least ten miles to a familiar destination independently (by car, bus, train, etc.)	N/A	Adapted from Vineland-II item, 'travels at least 5 to 10 miles to familiar destination (that is,	Connected to 'knowledge' and 'agency' in understanding choices and being	This is a practical competence skill, transportation is an area addressed in	*Planning* Select appropriate plans

		bikes, uses public transportation, or drives self)'	autonomous and self-directed	both the ABAS-II and Vineland-II	
18. Able to travel at least ten miles to an unfamiliar destination independently (by car, bus train, etc.)	N/A	Adapted from Vineland-II item, 'travels at least 5 to 10 miles to unfamiliar destination (that is, bikes, uses public transportation, or drives self)'	Connected to 'knowledge' and 'agency' in understanding choices and being autonomous and self-directed	This is a practical competence skill, transportation is an area addressed in both the ABAS-II and Vineland-II	*Planning* Select appropriate plans
19. Drives or travels independently to planned destinations	N/A	N/A	Connected to 'agency' in being autonomous and self-directed	This is a practical competence skill, transportation is an area addressed in both the ABAS-II and Vineland-II	*Purposive action* Initiate plans
20. Leaves home to travel to other destinations	N/A	N/A	Connected to 'community' in extent of engagement with wider groups	This is a practical competence skill, transportation is an area addressed in both the ABAS-II and Vineland-II	*Purposive action* Initiate plans
21. Walks or rides bike alone to locations within a one mile or five block radius of home or work	This is an ABAS-II item	N/A	Connected to 'agency' in being autonomous and self-directed	This is a practical competence skill, transportation is an area addressed in both the ABAS-II and Vineland-II	*Purposive action* Initiate plans
22. Does not frequently get distracted by other shops or places to visit on the way to somewhere specific	N/A	N/A	N/A	This is a social competence skill in understanding	*Purposive action*

				responsibility and following rules	Ignore irrelevant or competing needs/ wants/ plans
23. Does not become late for important appointments by becoming distracted on the way to a place	N/A	N/A	N/A	This is a social competence skill in understanding responsibility and following rules	*Purposive action* Ignore irrelevant or competing needs/ wants/ plans
24. Is generally able to focus on arriving at a planned destination without getting distracted or lost	N/A	N/A	N/A	This is a social competence skill in understanding responsibility and following rules	*Purposive action* Ignore irrelevant or competing needs/ wants/ plans
25. Obeys traffic signals when riding a bike or driving a car	This is an ABAS-II item	N/A	Connected to 'knowledge' in making informed decisions about one's everyday life	This is a social competence skill in understanding responsibility and following rules	*Effective performance* Monitor progress
26. Checks how many bus or train stops remain on a journey whilst travelling	N/A	N/A	Connected to 'knowledge and 'agency' in making informed choices and being autonomous and self-directed	This is a practical competence skill, transportation is an area addressed in both the ABAS-II and Vineland-II	*Effective performance* Monitor progress
27. Recognises familiar landmarks on known routes and uses these to help find new locations	N/A	N/A	Connected to 'knowledge' in making informed decisions about one's everyday life	This is a practical competence skill, transportation is an area addressed in both the ABAS-II and Vineland-II	*Effective performance* Monitor progress

28. Able to check a map to see how close they are to a planned destination	N/A	N/A	Connected to 'knowledge' in making informed decisions about one's everyday life	This is a practical competence skill, transportation is an area addressed in both the ABAS-II and Vineland-II	*Effective performance* Compare progress to goal
29. Able to check directions or location to make sure planned route is being followed	N/A	N/A	Connected to 'knowledge' in making informed decisions about one's everyday life	This is a practical competence skill, transportation is an area addressed in both the ABAS-II and Vineland-II	*Effective performance* Compare progress to goal
30. Works out new routes if lost when travelling to an unfamiliar destination	N/A	N/A	Connected to 'knowledge and 'agency' in making informed choices and being autonomous and self-directed	This is a conceptual competence skill, being self-directed in problem-solving	*Effective performance* Modify plan if ineffective
31. Can find a way back to a familiar destination if lost	N/A	N/A	Connected to 'knowledge and 'agency' in making informed choices and being autonomous and self-directed	This is a conceptual competence skill, being self-directed in problem-solving	*Effective performance* Modify plan if ineffective
32. If a planned route is not available (e.g. road closure, train cancellation), finds an alternative way of getting to their destination	N/A	N/A	Connected to 'knowledge and 'agency' in making informed choices and being autonomous and self-directed	This is a conceptual competence skill, being self-directed in problem-solving	*Effective performance* Modify plan if ineffective

33. Able to accurately recognise their goal destination when arrived or close by	N/A	N/A	Connected to 'knowledge' in making informed decisions about one's everyday life	This is a practical competence skill, transportation is an area addressed in both the ABAS-II and Vineland-II	*Effective performance* Recognise when goal is met
34. Gets off public transport at the required stop	N/A	N/A	Connected to 'knowledge' in making informed decisions about one's everyday life	This is a practical competence skill, transportation is an area addressed in both the ABAS-II and Vineland-II	*Effective performance* Recognise when goal is met
35. When shopping or activities are finished, finds their way home again	N/A	N/A	Connected to 'knowledge and 'agency' in making informed choices and being autonomous and self-directed	This is a conceptual competence skill, being self-directed in problem-solving	*Effective performance* Terminate plan when goal is met
36. Plans when they will need to return home according to public transport timetables	N/A	N/A	Connected to 'knowledge and 'agency' in making informed choices and being autonomous and self-directed	This is a conceptual competence skill, being self-directed in problem-solving	*Effective performance* Terminate plan when goal is met
37. Able to learn new routes after repeating on 2-3 occasions	N/A	N/A	Connected to 'knowledge and 'agency' in making informed choices and being autonomous and self-directed	This is a practical competence skill, transportation is an area addressed in both the ABAS-II and Vineland-II	*Effective performance* Store and retrieve plan for later

38. Routinely arrives at familiar places on time (e.g. work, doctor's surgery, dentist)	This is an ABAS-II item, but adapted to include some example 'places'	N/A	Connected to 'agency' and 'community' in being self-directed and engaging with wider groups	This is a conceptual competence skill, requiring understanding of the concept of time	*Effective performance* Store and retrieve plan for later
39. Can independently check timetables to re-use routes previously taken	N/A	N/A	Connected to 'knowledge and 'agency' in making informed choices and being autonomous and self-directed	This is a practical competence skill, transportation is an area addressed in both the ABAS-II and Vineland-II	*Effective performance* Store and retrieve plan for later
40. Works out how to get to unfamiliar destinations in a familiar area	N/A	N/A	Connected to 'knowledge and 'agency' in making informed choices and being autonomous and self-directed	This is a conceptual competence skill, being self-directed in problem-solving	*Effective performance* Generalise plan to similar situations
41. Books and travels on holidays to a range of different destinations (e.g. in same county, country, or abroad)	N/A	N/A	Connected to 'knowledge and 'agency' in making informed choices and being autonomous and self-directed	This is a practical competence skill, transportation is an area addressed in both the ABAS-II and Vineland-II	*Effective performance* Generalise plan to similar situations
42. Able to catch the bus at a different stop to their usual one and still complete their journey effectively	N/A	N/A	Connected to 'knowledge and 'agency' in making informed choices and being	This is a practical competence skill, transportation is an area addressed in both the ABAS-II and Vineland-II	*Effective performance* Generalise plan to similar situations

			autonomous and self-directed		

Finance

1.Has a preference for spending money on particular items related to a hobby or interest	N/A	N/A	Connected to 'agency' and 'excellence in play' in making independent choices about areas of interest	This is a practical competence skill, related to the use of money	*Volitional* Aware of needs and wants
2.Can afford to maintain current lifestyle (e.g. lives somewhere with affordable rent, utilities, council tax)	N/A	N/A	Connected to 'knowledge' and 'excellence in work' in terms of understanding monetary value and managing this effectively	This is a conceptual competence skill, related to understanding the concept of money	*Volitional* Aware of needs and wants
3. Understands how to manage their income and outgoings	N/A	Adapted from VABS item 'has checking account and uses it responsibly'	Connected to 'knowledge' and 'excellence in work' in terms of understanding monetary value and managing this effectively	This is a practical competence skill, related to the use of money	*Volitional* Aware of needs and wants
4. Recognises need to plan for the future financially	N/A	N/A	Connected to 'knowledge' and 'autonomy' in making informed choices and being autonomous and self-directed	This is a conceptual competence skill, related to understanding the concept of money	*Volitional* Aware of needs and wants

5. Budgets money to cover expenses for at least one week	This is an ABAS-II item	N/A	Connected to 'knowledge' and 'autonomy' in making informed choices and being autonomous and self-directed	This is a conceptual competence skill, related to understanding the concept of money	*Volitional* Decide whether to gratify need/ want
6. Able to make sure that they do not spend more than they earn or have	Adapted from 'Balances checkbook' to modernise this item and increase applicability to a UK population	N/A	Connected to 'knowledge' and 'autonomy' in making informed choices and being autonomous and self-directed	This is a practical competence skill, related to the use of money	*Volitional* Decide whether to gratify need/ want
7. Able to decide whether to spend their money or save it for a later purchase	N/A	Adapted from VABS item 'has checking account and uses it responsibly'	Connected to 'agency' in being autonomous and self-directed	This is a conceptual competence skill, related to understanding the concept of money	*Volitional* Decide whether to gratify need/ want
8. Identifies objects to be purchased when out and about, or plans beforehand items to be purchased	N/A	N/A	Connected to 'agency' in being autonomous and self-directed	This is a practical competence skill, related to the use of money	*Volitional* Form a specific goal
9. Makes shopping lists within weekly budget	N/A	Adapted from VABS item 'has checking account and uses it responsibly'	Connected to 'knowledge' and 'excellence in work' in terms of understanding monetary value and managing this effectively	This is a conceptual competence skill, related to understanding the concept of money	*Volitional* Form a specific goal
10.Recognises and prepares for unforeseen costs (e.g. unexpected charge, repair)	N/A	N/A	Connected to 'knowledge' and	N/A	*Volitional* Form a specific goal

			'excellence in work' in terms of understanding monetary value and managing this effectively		
11. Investigates different options for saving money	N/A	N/A	Connected to 'knowledge' and 'agency' in making informed choices and being autonomous and self-directed	N/A	*Planning* Plan to achieve goals
12. Identifies need to save when big purchases are coming up (e.g. car tax, insurance, Christmas)	N/A	N/A	Connected to 'knowledge' and 'agency' in making informed choices and being autonomous and self-directed	This is a conceptual competence skill, related to understanding the concept of money	*Planning* Plan to achieve goals
13. Reviews spending to see what money is being spent on and identify areas for saving	N/A	Adapted from VABS item 'has checking account and uses it responsibly'	Connected to 'knowledge' and 'excellence in work' in terms of understanding monetary value and managing this effectively	This is a conceptual competence skill, related to understanding the concept of money	*Planning* Plan to achieve goals
14. Understands financial implications of taking out loans before doing so (e.g. checking monthly repayments, interest rates	N/A	N/A	Connected to 'knowledge' and 'excellence in work' in terms of understanding	This is a conceptual competence skill, related to understanding the concept of money	*Planning* Evaluation of plans

			monetary value and managing this effectively	and dependent to some extent on literacy	
15. Checks whether it is feasible to make large purchases before buying something (e.g. looking at bank statements or savings accounts)	N/A	N/A	Connected to 'knowledge' and 'excellence in work' in terms of understanding monetary value and managing this effectively	This is a practical competence skill, related to the use of money	*Planning* Evaluation of plans
16. Researches different options for buying items before making a purchase (e.g. different stores available, best price, quality of item)	N/A	N/A	Connected to 'knowledge' and 'excellence in work' in terms of understanding monetary value and managing this effectively	This is a conceptual competence skill, related to understanding the concept of money and dependent to some extent on literacy	*Planning* Evaluation of plans
17. Reads important documents, for example, credit card applications or rental agreements before signing contract	This is an ABAS-II item	N/A	Connected to 'knowledge' and 'excellence in work' in terms of understanding monetary value and managing this effectively	This is a conceptual competence skill, related to understanding the concept of money and dependent on literacy	*Planning* Evaluation of plans
18. Takes out affordable loans	N/A	N/A	Connected to 'knowledge' and 'excellence in work' in terms of understanding monetary value	This is a conceptual competence skill, related to understanding the concept of money	*Planning* Select appropriate plans

			and managing this effectively		
19. Does not regularly over-spend money	N/A	Adapted from VABS item 'has checking account and uses it responsibly'	Connected to 'knowledge' and 'excellence in work' in terms of understanding monetary value and managing this effectively	This is a practical competence skill, related to the use of money	*Planning* Select appropriate plans
20. Takes enough spending money when travelling to familiar places (e.g. bus fare, small change)	N/A	N/A	Connected to 'knowledge' and 'excellence in work' in terms of understanding monetary value and managing this effectively	This is a practical competence skill, related to the use of money	*Planning* Select appropriate plans
21. Gives shop assistant the necessary amount of money when purchasing items	Adapted from 'Gives clerk the necessary amount of money when purchasing items' to improve applicability to UK population	N/A	N/A	This is a practical competence skill, related to the use of money	*Purposive action* Initiate plans
22. Completes forms for business or services (e.g. obtains a lease)	This is an ABAS-II item	N/A	Connected to 'knowledge' and feeling informed about things important to everyday life	This is a conceptual competence skill, related to understanding the concept of money and dependent on literacy	*Purposive action* Initiate plans

23. Independently purchases items (online or in a shop)	N/A	N/A	Connected to 'agency' in being autonomous and self-directed	This is a practical competence skill, related to the use of money	*Purposive action* Initiate plans
24. Organises own council tax arrangements	N/A	N/A	Connected to 'agency' in being autonomous and self-directed	This is a practical competence skill, related to the use of money	*Purposive action* Initiate plans
25. Saves money to buy something special (e.g. a birthday present)	N/A	N/A	Connected to 'pleasure' and in feeling good about choices	This is a practical competence skill, related to the use of money	*Purposive action* Initiate plans
26. Makes sure to pay for necessary goods and services (e.g. rent, bills) before spending any disposable income	N/A	N/A	Connected to 'knowledge' and 'excellence in work' in terms of understanding monetary value and managing this effectively	This is a practical competence skill, related to the use of money	*Purposive action* Ignore irrelevant or competing needs/ wants/ plans
27. Knows whether they have the money to spend on items or services before choosing to do so	N/A	N/A	Connected to 'knowledge' and feeling informed about things important to everyday life	This is a conceptual competence skill, related to understanding the concept of money	*Purposive action* Ignore irrelevant or competing needs/ wants/ plans
28. Prioritises monthly payments (e.g. loan, rent, utilities) over spending on social activities or other leisure pursuits	N/A	Adapted from VABS item 'has checking account and uses it responsibly'	Connected to 'knowledge' and 'excellence in work' in terms of understanding monetary value	This is a practical competence skill, related to the use of money	*Purposive action* Ignore irrelevant or competing needs/ wants/ plans

			and managing this effectively		
29. Checks for correct change after buying an item	This is an ABAS-II item	N/A	Connected to 'knowledge' and feeling informed about things important to everyday life	This is a practical competence skill, related to the use of money	*Effective performance* Monitor progress
30. Monitors own spending and expenses	N/A	Adapted from Vineland-II item, 'manages own money (for example, pays most or all own expenses, uses check or money orders for purchases as needed, etc.)'	Connected to 'knowledge' and 'excellence in work' in terms of understanding monetary value and managing this effectively	This is a conceptual competence skill, related to understanding the concept of money	*Effective performance* Monitor progress
31. Will seek monetary advice if getting into debt	N/A	N/A	Connected to 'agency' in being autonomous and self-directed	This is a conceptual competence skill, related to understanding the concept of money, with some elements of social competence in seeking appropriate support	*Effective performance* Monitor progress
32. Checks own bank statements to monitor savings before a large purchase	N/A	N/A	Connected to 'knowledge' and 'excellence in work'	This is a practical competence skill,	*Effective performance*

			in terms of understanding monetary value and managing this effectively	related to the use of money	Compare progress to goal
33. Regularly checks how much is left of a loan to be paid off	N/A	N/A	Connected to 'knowledge' and 'excellence in work' in terms of understanding monetary value and managing this effectively	This is a conceptual competence skill, related to understanding the concept of money and dependent to some extent on literacy	*Effective performance* Compare progress to goal
34. Researches whether utilities can be provided at a lower cost	N/A	N/A	Connected to 'knowledge' and 'excellence in work' in terms of understanding monetary value and managing this effectively	This is a conceptual competence skill, related to understanding the concept of money and dependent on literacy	*Effective performance* Compare progress to goal
35. Recognises when they are in debt and seeks advice for managing this	N/A	N/A	Connected to 'knowledge' and 'excellence in work' in terms of understanding monetary value and managing this effectively, and 'agency' in being autonomous and self-directed	This is a conceptual competence skill, related to understanding the concept of money, with some elements of social competence in seeking appropriate support	*Effective performance* Modify plan if ineffective

36. Makes a complaint if over-charged	N/A	N/A	Connected to 'agency' in being self-directed and assertive	This is a conceptual competence skill, related to understanding the concept of money, with some elements of social competence in seeking appropriate support	*Effective performance* Modify plan if ineffective
37. Switches between companies if they can receive the same service for a lower cost	N/A	N/A	Connected to 'agency' in being autonomous and self-directed	This is a conceptual competence skill, related to understanding the concept of money	*Effective performance* Modify plan if ineffective
38. Checks that payments are made up to the end of pre-existing contracts (e.g. mobile phone, loans, credit card)	N/A	N/A	Connected to 'knowledge' and 'excellence in work' in terms of understanding monetary value and managing this effectively	This is a practical competence skill, related to the use of money	*Effective performance* Recognise when goal is met
39. Uses bank statements or cash machine to identify if there is enough money available to make a large purchase	N/A	Adapted from Vineland-II item, 'uses savings or checking account responsibly (for example, keeps some money in account, tracks	Connected to 'knowledge' and feeling informed about things important to everyday life	This is a practical competence skill, related to the use of money	*Effective performance* Recognise when goal is met

		balance carefully, etc.)'			
40. Is aware of current financial commitments and how long these will continue for (e.g. loan arrangements, mobile phone contracts)	N/A	N/A	Connected to 'knowledge' and 'excellence in work' in terms of understanding monetary value and managing this effectively	This is a conceptual competence skill, related to understanding the concept of money	*Effective performance* Recognise when goal is met
41. Cancels or renews agreements at the end of a contract	N/A	N/A	Connected to 'agency' in being autonomous and self-directed	This is a practical competence skill, related to the use of money	*Effective performance* Terminate plan when goal is met
42. Checks when loans have been repaid in full	N/A	N/A	Connected to 'knowledge' and feeling informed about things important to everyday life	This is a practical competence skill, related to the use of money	*Effective performance* Terminate plan when goal is met
43. Cancels direct debits/ standing orders independently once services are no longer required	N/A	N/A	Connected to 'knowledge' and 'excellence in work' in terms of understanding monetary value and managing this effectively	This is a practical competence skill, related to the use of money	*Effective performance* Terminate plan when goal is met
44. Can they repeatedly save money for more than one purpose	N/A	N/A	Connected to 'knowledge' and 'excellence in work' in terms of	This is a conceptual competence skill, related to	*Effective performance* Store and retrieve plan for later

			understanding monetary value and managing this effectively	understanding the concept of money	
45. Uses previous experiences of successful budgeting to plan for future purchases	N/A	N/A	Connected to 'knowledge' and 'excellence in work' in terms of understanding monetary value and managing this effectively	This is a conceptual competence skill, related to understanding the concept of money	*Effective performance* Store and retrieve plan for later
46. Able to manage regular payments or purchases on an ongoing basis	N/A	Adapted from VABS item 'has checking account and uses it responsibly'	Connected to 'agency' in being autonomous and self-directed	This is a practical competence skill, related to the use of money	*Effective performance* Store and retrieve plan for later
47. Once they have understood how to book a holiday or get a loan, can the person do this again independently	N/A	N/A	Connected to 'knowledge' and 'excellence in work' in terms of understanding monetary value and managing this effectively	This is a conceptual competence skill, related to understanding the concept of money	*Effective performance* Generalise plan to similar situations
48. Does the person learn from previous mistakes (e.g. getting into debt) and make plans to budget in future	N/A	N/A	Connected to 'knowledge' and 'excellence in work' in terms of understanding monetary value and managing this effectively	This is a conceptual competence skill, related to understanding the concept of money	*Effective performance* Generalise plan to similar situations

49. Can the person use knowledge from how to set up one service and apply this to other services	N/A	N/A	Connected to 'knowledge' and 'excellence in work' in terms of understanding monetary value and managing this effectively	This is a conceptual competence skill, related to understanding the concept of money	*Effective performance* Generalise plan to similar situations

Recreation

1. Has interests that are fun and relaxing	Adapted from 'Listens to music for fun and relaxation' to decrease emphasis on specific activity relying on ability to hear	N/A	Connected to 'excellence in play', 'pleasure', and 'creativity' in finding pursuits that are enjoyable and allow for creative expression.	This is a conceptual competence skill, related to being self-directed in everyday activities	*Volitional* Aware of needs and wants
2. Able to find things to entertain themselves when bored	N/A	N/A	Connected to 'excellence in play', 'pleasure', and 'agency' in autonomously deciding to find enjoyable activities	This is a conceptual competence skill, related to being self-directed in everyday activities	*Volitional* Aware of needs and wants
3. Recognises when they are lonely or bored	N/A	N/A	Connected to 'knowledge' in recognising one's own emotional state	Social cognitive processes (Reschly et al., 2002) – recognising emotions in self	*Volitional* Aware of needs and wants
4. Decides independently whether to participate with others in playing a game or other group activity	N/A	Adapted from Vineland-II item, 'chooses to play with other children for example, does not stay on the edge of a group or avoid others)'	Connected to 'agency', 'pleasure', and 'relatedness' in autonomously making enjoyable connections with others	This is a conceptual competence skill, related to being self-directed in everyday activities	*Volitional* Decide whether to gratify need/ want

5. Decides whether to regularly attend a social group (e.g. Deaf club, Deaf pub)	N/A	N/A	Connected to 'agency', 'community', and 'relatedness' in autonomously making enjoyable connections with others in wider groups	This is a social competence skill in having good interpersonal skills in group situations	*Volitional* Decide whether to gratify need/ want
6. Able to make use of television or catch-up services to watch favourite TV shows	Adapted from 'States time and day of favourite television shows' to modernise this item	N/A	Connected to 'pleasure' in engaging in enjoyable activities	This is a conceptual competence skill, related to being self-directed in everyday activities	*Volitional* Decide whether to gratify need/ want
7. Seeks out activities related to hobbies or interests	N/A	N/A	Connected to 'excellence in play', 'pleasure', and 'agency' in autonomously deciding to find enjoyable activities	This is a conceptual competence skill, related to being self-directed in everyday activities	*Volitional* Form a specific goal
8. Socialises with others at home or in the community	N/A	N/A	Connected to 'relatedness' and 'community' in engaging positively with relationships and wider groups	This is a social competence skill in having good interpersonal skills in group situations	*Volitional* Form a specific goal
9. Texts others to arrange to meet up	N/A	N/A	Connected to 'relatedness' and 'community' in engaging positively	This is a social competence skill in having good interpersonal skills	*Volitional* Form a specific goal

			with relationships and wider groups		
10 Able to find out information through internet, library, or by asking others	Adapted from 'Uses the local library to check out books, use reference materials, or for other purposes' to modernise this item	N/A	Connected to 'knowledge' in using strategies to keep informed about things that are important to everyday life	This is a conceptual competence skill, related to being self-directed to find out information	*Planning* Plan to achieve goals
11. Plans ahead for fun activities on free days or afternoons	This is an ABAS-II item	N/A	Connected to 'agency', 'excellence in play', and 'pleasure' in finding enjoyable activities to engage with	This is a conceptual competence skill, related to being self-directed in everyday activities	*Planning* Plan to achieve goals
12. Packs his/ her own clothing and supplies for overnight trips	This is an ABAS-II item	N/A	Connected to 'agency' in being autonomous and self-directed	This is a conceptual competence skill, related to being self-directed in everyday activities	*Planning* Plan to achieve goals
13. Checks information about purchases or services before buying, through research or asking others	Adapted from 'Reads classified ads for purchases and services' to modernise this item and decrease emphasis on literacy	N/A	Connected to 'knowledge' and 'excellence in work' in terms of understanding monetary value and managing this effectively	N/A	*Planning* Evaluation of plans

14. Finds suitable venues for a day or evening out	N/A	N/A	Connected to 'agency' and 'community' in being autonomous and self-directed within a community setting	This is a conceptual competence skill, related to being self-directed in organising enjoyable events	*Planning* Evaluation of plans
15. Checks times for accessible film showings	N/A	N/A	Connected to 'agency' and 'community' in being autonomous and self-directed within a community setting	This is a conceptual competence skill, related to being self-directed in accessing everyday activities	*Planning* Evaluation of plans
16. Finds contact details of others (e.g. by internet, address book)	Adapted from 'Finds somebody's telephone number in the phone book' to	N/A	Connected with 'agency' in being autonomous and self-directed	N/A	*Planning* Select appropriate plans
17. Locates important dates on a calendar, for example, birthdays or holidays	This is an ABAS-II item	N/A	N/A	N/A	*Planning* Select appropriate plans
18. Chooses relevant items to take away on holiday	N/A	N/A	Connected with 'knowledge' and 'agency' in making informed choices and being autonomous and self-directed	This is a conceptual competence skill, related to being self-directed in everyday activities	*Planning* Select appropriate plans
19. Organises a game or other fun activity in a group of friends independently (e.g. bowling, pub, football)	Adapted from 'Organises a	N/A	Connected with 'agency',	This is a conceptual competence skill,	*Purposive action* Initiate plans

	game or other fun activity in a group of friends without help from others'		'pleasure', and 'relatedness' in independently seeking out enjoyable activities with others	related to being self-directed in organising everyday activities	
20. Reserves tickets in advance for activities (e.g. sports events, films)	Adapted from 'Reserves tickets in advance for activities, for example, concerts or sports events'	N/A	N/A	This is a conceptual competence skill, related to being self-directed in accessing everyday activities	*Purposive action* Initiate plans
21. Attends nights out with friends (e.g. Deaf club, pub)	N/A	Adapted from Vineland-II item, 'goes places with friends in evening without adult supervision (for example, to a concert, lecture, sporting event, movie, etc.)'	Connected with 'relatedness' and 'pleasure' in engaging with enjoyable activities with others	This is a social competence skill, demonstrating good interpersonal skills	*Purposive action* Initiate plans
22. Focusses on a game or activity without becoming distracted	N/A	N/A	N/A	This is a social competence skill in following rules	*Purposive action* Ignore irrelevant or competing needs/ wants/ plans
23. Stops a game or fun activity if something more important comes up	Adapted from 'Stops a fun activity, without complaints, when	N/A	N/A	This is a social competence skill in understanding responsibility	*Purposive action* Ignore irrelevant or competing needs/ wants/ plans

	time is up' to emphasise ability to move between tasks effectively and attend to most important activities				
24. Plans activities on days that do not conflict with other important scheduled events (e.g. weekends, days off work)	N/A	N/A	Connected with 'agency' and 'excellence in work' in terms of independently making plans but also recognising prior responsibilities	This is a social competence skill in understanding responsibility	*Purposive action* Ignore irrelevant or competing needs/ wants/ plans
25. Checks whether repairs or orders are ready (e.g. by text, or internet)	Adapted from 'Calls to find out if a repair or order is ready' to emphasise different strategies for monitoring progress of actions	N/A	Connected to 'agency' in being autonomous and self-directed	N/A	*Effective performance* Monitor progress
26. Checks, or asks others to help check, travel plans in advance of leaving for a holiday (e.g. plane delays, road closures)	N/A	N/A	Connected to 'agency' in being self-directed and assertive	This is a practical competence skill, related to transportation	*Effective performance* Monitor progress
27. Monitors whether communication is effective with other members of group activities	N/A	N/A	Connected to 'relatedness' in managing	This is a social competence skill,	*Effective performance* Monitor progress

			interactions effectively	focussed on social problem-solving	
28. Finds adequate transportation to preferred leisure activities	N/A	N/A	Connected to 'agency' in being self-directed and autonomous	This is a practical competence skill, related to transportation	*Effective performance* Compare progress to goal
29. Checks in advance of leaving whether a plan is still going ahead	N/A	N/A	Connected to 'knowledge' in making informed choices about things important to everyday life	This is a social competence skill, focussed on social problem-solving	*Effective performance* Compare progress to goal
30. Leisure activities are what the person really wants to do, rather than being the only accessible option	N/A	N/A	N/A	General research in this area suggests that leisure activities may be difficult for deaf people to routinely participate in (Coco-Ripp, 2005; Lieberman & MacVicar, 2003)	*Effective performance* Compare progress to goal
31. Moves plans to a different place if finding it difficult to follow conversations	N/A	N/A	Connected to 'agency' in being self-directed and assertive and 'relatedness' in managing relationships with others	This is a social competence skill, focussed on social problem-solving	*Effective performance* Modify plan if ineffective
32. Able to tell others if adjustments need to be made to activities to make them more accessible	N/A	N/A	Connected to 'agency' in being	This is a social competence skill,	*Effective performance*

			self-directed and assertive and 'relatedness' in managing relationships with others	focussed on social problem-solving	Modify plan if ineffective
33. Asks for help if struggling to follow what is going on	N/A	N/A	Connected to 'agency' in being self-directed and assertive	This is a social competence skill, focussed on social problem-solving	*Effective performance* Modify plan if ineffective
34. Understands the rules of simple games and knows when they have won/ lost	Adapted from 'Follows the rules in games and other fun activities' in order to emphasise the necessity of knowing rules before these can be followed	N/A	Connected to 'knowledge' in recognising rules and 'excellence in play' in engaging with recreational pursuits	This is a social competence skill in following rules	*Effective performance* Recognise when goal is met
35. Understands the rules of complex games and knows when they have won/ lost	Adapted from 'Follows the rules in games and other fun activities' in order to emphasise the necessity of knowing rules before these can be followed	N/A	Connected to 'knowledge' in recognising rules and 'excellence in play' in engaging with recreational pursuits	This is a social competence skill in following rules	*Effective performance* Recognise when goal is met

36. Can the person organise a large event with different steps (e.g. an event for a social group) and recognise when everything has been done	N/A	Adapted from Vineland-II item, 'plans fun activities with more than two things to be arranged (for example, a trip to a beach or park that requires planning transportation, food, recreational items, etc.)'	Connected to 'agency', 'pleasure' and 'relatedness' in being autonomous in organising an enjoyable activity with others	This is a conceptual competence skill, related to being self-directed in organising everyday activities	*Effective performance* Recognise when goal is met
37. Returns home independently after visiting friends or family	N/A	N/A	Connected to 'agency' in being autonomous and self-directed	This is a conceptual competence skill, related to being self-directed in everyday activities	*Effective performance* Terminate plan when goal is met
38. Moves on to a new activity when a current project is completed	N/A	N/A	Connected to 'excellence in work' in completing projects effectively	This is a conceptual competence skill, related to being self-directed in everyday activities	*Effective performance* Terminate plan when goal is met
39. Lets others know when they are ready to leave if out and about	N/A	N/A	Connected to 'agency' in being self-directed and assertive	This is a social competence skill, demonstrating good interpersonal skills	*Effective performance* Terminate plan when goal is met
40. Retains information about what is needed when packing to go on holiday or travel away from home	N/A	N/A	Connected to 'knowledge' and 'agency' in making informed choices and being	This is a conceptual competence skill, related to being self-directed in everyday activities	*Effective performance* Store and retrieve plan for later

			autonomous and self-directed		
41. Uses effective strategies for managing interactions in a single or limited range of settings	N/A	N/A	Connected to 'agency' in being self-directed and assertive and 'relatedness' in managing relationships with others	This is a social competence skill, focussed on social problem-solving	*Effective performance* Store and retrieve plan for later
42. Uses knowledge of challenges faced in the past to explain to others necessary adjustments when in groups	N/A	N/A	Connected to 'agency' in being self-directed and assertive and 'relatedness' in managing relationships with others	This is a social competence skill, focussed on social problem-solving	*Effective performance* Generalise plan to similar situations
43. Has effective strategies for managing interactions in most settings (e.g. buying a film ticket, ordering a meal)	N/A	N/A	Connected to 'agency' in being self-directed and assertive and 'relatedness' in managing relationships with others	This is a social competence skill, focussed on social problem-solving	*Effective performance* Generalise plan to similar situations

Health and Safety

1. Understands rules for safety (e.g. at home, at work, in the community)	N/A	N/A	Connected to 'knowledge' and	This is a social competence skill,	*Volitional*

			'life' in understanding how to function healthily	demonstrating the ability to following rules	Aware of needs and wants
2. Able to understand common signs (e.g. 'exit', 'no entry', or 'stop') and follows these directions	Adapted from 'Reads and obeys common signs, for example, 'do not enter', 'exit', or 'stop'' to decrease emphasise on literacy skills	N/A	Connected to 'knowledge' and 'life' in understanding how to function healthily	This is a social competence skill, demonstrating the ability to following rules	*Volitional* Aware of needs and wants
3. Understands what food is healthy/ unhealthy	N/A	N/A	Connected to 'knowledge' and 'life' in understanding how to function healthily	This is a practical competence skill related to maintaining healthy living	*Volitional* Aware of needs and wants
4. Weighs up the decision whether to go and see a doctor about minor ailments	N/A	N/A	Connected to 'agency' and 'life' in being autonomous and self-directed in maintaining healthy living	This is a practical competence skill related to maintaining healthy living	*Volitional* Decide whether to gratify need/ want
5. Decides independently how often to see a dentist/ doctor/ other healthcare professional for routine appointments	N/A	N/A	Connected to 'agency' and 'life' in being autonomous and self-directed in maintaining healthy living	This is a practical competence skill related to maintaining healthy living	*Volitional* Decide whether to gratify need/ want

6. Chooses whether to eat healthily based on awareness of food and nutrition	N/A	N/A	Connected to 'agency', 'knowledge', and 'life' in being autonomous and self-directed in maintaining healthy living	This is a practical competence skill related to maintaining healthy living	*Volitional* Decide whether to gratify need/ want
7. If the person has a medical condition (e.g. diabetes), are they able to follow medication regimes	N/A	Adapted from Vineland-II item, 'keeps track of medications (non-prescription and prescription) and refills'	Connected to 'knowledge' and 'life' in understanding how to function healthily	This is a practical competence skill related to maintaining healthy living	*Volitional* Form a specific goal
8. Organises own appointments	Adapted from 'Calls a doctor or hospital when ill or hurt' to allow for alternative organisational strategies	N/A	Connected to 'agency' in being autonomous and self-directed	This is a conceptual competence skill related to being self-directed in maintaining health.	*Volitional* Form a specific goal
9. Owns signalling devices at home as needed (e.g. flashing/ vibrating alarms for fire, smoke, clocks, door)	N/A	N/A	Connected to 'agency' and 'life' in being self-directed and assertive in maintaining safety	This is a practical competence skill related to maintaining safety	*Volitional* Form a specific goal
10. Plans meals in order to get necessary nutrition	This is an ABAS-II item	N/A	Connected to 'agency', 'knowledge', and 'life' in being autonomous and	This is a conceptual competence skill related to being self-directed in maintaining health.	*Planning* Plan to achieve goals

			self-directed in maintaining healthy living		
11. Alerts others to the need for services (e.g. doctor, repairs)	Adapted from 'Calls a repairperson if, for example, the air conditioner or heating is not working'	N/A	Connected to 'agency' and 'relatedness' in working with others to achieve goals	This is a practical competence skill related to maintaining healthy living	*Planning* Plan to achieve goals
12. If necessary, asks others to help book appointments or finds alternative ways to make appointments (e.g. going to the GP surgery in person, online booking)	N/A	Adapted from Vineland-II item, 'makes appointments for regular medical and dental checkups'	Connected to 'agency' and 'relatedness' in working with others to achieve goals	This is a social competence skill, related to problem-solving with the assistance of others	*Planning* Plan to achieve goals
13. Understands why it is important not to ask strangers for assistance with certain tasks (e.g. money management)	N/A	N/A	Connected with 'knowledge' and 'life' in understanding how to maintain safety	This is a social competence skill related to not demonstrating naivety	*Planning* Evaluation of plans
14. Books/ requests an interpreter as appropriate for doctor's appointments	N/A	N/A	Connected to 'agency' and 'relatedness' in working with others to achieve goals	This is a social competence skill, related to problem-solving with the assistance of others	*Planning* Evaluation of plans
15. Considers risk before engaging in activities (e.g. driving dangerously, walking in the road, extreme sports)	N/A	Adapted from Vineland-II item, 'chooses to avoid dangerous or risky	Connected to 'agency' and 'knowledge' in	This is a practical competence skill related to maintaining safety	*Planning* Evaluation of plans

		activities (for example, jumping off high places, picking up a hitchhiker, driving recklessly, etc.)'	understanding and avoiding danger		
16. Carries personal identification when travelling to nearby places in the community	This is an ABAS-II item	N/A	N/A	N/A	*Planning* Select appropriate plans
17. Makes simples meals that require no cooking (e.g. sandwiches, salads)	This is an ABAS-II item	N/A	Connected to 'life' in maintaining healthy living	This is a practical competence skill related to maintaining healthy living	*Planning* Select appropriate plans
18. Cooks simple foods on a stove, for example, eggs or canned soup	This is an ABAS-II item	N/A	Connected to 'life' in maintaining healthy living	This is a practical competence skill related to maintaining healthy living	*Planning* Select appropriate plans
19. Follows safety rules for fire alarms at home or work	Adapted from 'Follows general safety rules at home' to emphasise skill in transferring knowledge between situations	N/A	Connected to 'agency' in being self-directed in avoiding danger	This is a social competence skill related to following rules	*Purposive action* Initiate plans
20. Makes own appointments (e.g. doctors, dentists) independently or with the assistance of others	N/A	N/A	Connected to 'agency' and 'relatedness' in working with	This is a social competence skill, related to problem-solving with the	*Purposive action* Initiate plans

			others to achieve goals	assistance of others	
21. Operates a microwave	This is an ABAS-II item	N/A	N/A	N/A	*Purposive action* Initiate plans
22. Looks both ways before crossing a street or car park	Adapted from 'Looks both ways before crossing a street or parking lot' to increase applicability to UK population	N/A	Connected to 'agency' in being self-directed in avoiding danger	This is a practical competence skill related to maintaining safety	*Purposive action* Ignore irrelevant or competing needs/ wants/ plans
23. Leaves current activities in an emergency situation	N/A	N/A	Connected to 'agency' in being self-directed in avoiding danger	This is a practical competence skill related to maintaining safety	*Purposive action* Ignore irrelevant or competing needs/ wants/ plans
24. Remembers to take medication at specified times	N/A	N/A	Connected to 'agency', 'knowledge', and 'life' in being autonomous and self-directed in maintaining healthy living	This is a practical competence skill related to maintaining healthy living	*Purposive action* Ignore irrelevant or competing needs/ wants/ plans
25. Avoids situations at home or in the neighbourhood that are likely to result in trouble	This is an ABAS-II item	N/A	Connected to 'agency' in being self-directed in avoiding danger	This is a social competence skill related to avoiding being victimised	*Effective performance* Monitor progress
26. Recognises and checks for signs of infection in cuts and scrapes	N/A	N/A	Connected to 'knowledge' and 'life' in understanding how	This is a practical competence skill related to	*Effective performance* Monitor progress

			to function healthily	maintaining healthy living	
27. Checks expiration dates to help decide whether to use food	N/A	N/A	Connected to 'knowledge' and 'life' in understanding how to function healthily	This is a practical competence skill related to maintaining healthy living	*Effective performance* Monitor progress
28. Able to follow instructions to complete tasks with 2 or more steps	Adapted from 'Reads and follows instructions to assemble new purchases' to minimise emphasis on literacy	N/A	N/A	N/A	*Effective performance* Compare progress to goal
29. Mixes and cooks fairly complex foods (e.g. cakes), following a recipe	This is an ABAS-II item	N/A	Connected to 'life' in maintaining healthy living	This is a practical competence skill related to maintaining healthy living	*Effective performance* Compare progress to goal
30. Goes to chemists to fill prescriptions given by GP	N/A	N/A	Connected to 'agency' and 'life' in being self-directed and autonomous in maintaining health	This is a practical competence skill related to maintaining healthy living	*Effective performance* Compare progress to goal
31. Seeks assistance from others if health does not improve after a period of time	N/A	N/A	Connected to 'agency' and 'relatedness' in working with	This is a practical competence skill related to maintaining healthy living	*Effective performance* Modify plan if ineffective

			others to achieve goals		
32. Knows temperature is too high and takes action (e.g. ibuprofen, drink fluids)	N/A	N/A	Connected to 'knowledge', 'agency', and 'life' in understanding and being self-directed in maintaining health	This is a practical competence skill related to maintaining healthy living	*Effective performance* Modify plan if ineffective
33. Researches or asks someone if unclear how to take a particular medicine	N/A	N/A	Connected to 'agency', 'life', and 'relatedness' in being proactive and working within others to maintain health	This is a practical competence skill related to maintaining healthy living	*Effective performance* Modify plan if ineffective
34. Cares for his/her minor injuries (e.g. paper cuts, knee scrapes, nosebleeds)	This is an ABAS-II item	N/A	Connected to 'agency' and 'life' in being proactive in maintaining health	This is a practical competence skill related to maintaining healthy living	*Effective performance* Recognise when goal is met
35. Recognises when a situation may be an emergency and responds in a timely manner	N/A	N/A	Connected to 'knowledge' and 'life' in recognising emergencies and responding to maintain health	This is a practical competence skill related to maintaining safety	*Effective performance* Recognise when goal is met
36. Cooks and prepares complex meals for self and others	N/A	N/A	Connected to 'life', 'relatedness', and 'pleasure' in maintaining healthy living	This is a practical competence skill related to maintaining healthy living	*Effective performance* Recognise when goal is met

			whilst enjoying the company of others		
37. Stops taking medication once feeling better after an illness	N/A	N/A	Connected to 'knowledge' and 'life' in understanding how to take prescribed medications and maintaining health	This is a practical competence skill related to maintaining healthy living	*Effective performance* Terminate plan when goal is met
38. Turns off hob/ oven after cooking	N/A	N/A	Connected to 'knowledge' and 'life' in recognising safety needs and responding to maintain health	This is a practical competence skill related to maintaining safety	*Effective performance* Terminate plan when goal is met
39. Returns to work or activities promptly after a disruption (e.g. fire drill)	N/A	N/A	Related to 'excellence in work' in maintaining focus after disruptions	This is a conceptual competence skill related to being self-directed	*Effective performance* Terminate plan when goal is met
40. Has a plan for when a fire alarm goes off (e.g. vibrating alarm, fire buddy) and knows the plans for evacuation	N/A	N/A	Related to 'knowledge', 'agency', and 'life' in being assertive in making sure clearly understood plans are in place for safety	This is a practical competence skill related to maintaining safety	*Effective performance* Store and retrieve plan for later
41. Remembers to fill regular prescriptions when these run out	Adapted from 'Buys over-the-counter medications when needed for	N/A	Connected to 'knowledge' and 'life' in recognising health needs and	This is a practical competence skill related to maintaining healthy living	*Effective performance* Store and retrieve plan for later

	illness' to decrease emphasis on the interaction in buying something		responding to maintain health		
42. Uses strategies that have worked previously to make regular medical/ dental check-ups without prompting	N/A	N/A	Connected to 'agency' and 'life' in being self-directed in strategies to maintain health	This is a practical competence skill related to maintaining healthy living	*Effective performance* Store and retrieve plan for later
43. Able to teach self a new recipe based on previously held cooking knowledge	N/A	N/A	Connected to 'knowledge' and 'life' in being able to apply held knowledge to new situations to maintain health	This is a practical competence skill related to maintaining healthy living	*Effective performance* Generalise plan to similar situations
44. Recognises signs and symptoms of serious illness (e.g. shortness of breath, chest pain) and seeks immediate help	N/A	N/A	Connected to 'knowledge', 'agency', and 'life' in being assertive in recognising and seeking help to maintain health	This is a practical competence skill related to maintaining healthy living	*Effective performance* Generalise plan to similar situations

Social Awareness and Competence

1 Expresses a sexual preference	N/A	N/A	Connected to 'agency' and 'relatedness' in	This is a conceptual competence skill	*Volitional* Aware of needs and wants

			recognising and being self-directed in expressing preferences in relating to others	related to being self-directed	
2 Has a strong sense of identity	N/A	N/A	N/A	Fischer and McWhirter (2001) used the Deaf Identity Developmental Scale (Glickman, 1993) to demonstrate the impact that identity has on behaviour; assessing this was felt to be important in terms of how adaptability is conceptualised	*Volitional* Aware of needs and wants
3 Has a desire for social interaction	N/A	N/A	Connected to 'relatedness' and 'pleasure' in recognising and choosing to interact with others	This is a social competence skill, demonstrating interpersonal skills	*Volitional* Aware of needs and wants
4 Able to identify emotions in self	Adaptation of ABAS-II items that relate to regulating emotions, such as	N/A	Connected to 'knowledge' and 'inner peace' in recognising emotions	Social-cognitive processes (Reschly et al., 2002) – encoding of social cues	*Volitional* Aware of needs and wants

	'Controls disappointment when a favourite activity is cancelled', or 'Controls feelings when not getting his/ her own way'				
5 Able to seek out appropriate people for intimate relationships	N/A	N/A	Connected to 'relatedness' and 'knowledge' in making informed choices about relationships with others	This is a social competence skill in avoiding being victimised and demonstrating good interpersonal skills	*Volitional* Decide whether to gratify need/ want
6 Decides alone whether to spend time socialising or doing things alone	Adapted from 'Decides alone to participate with others in playing a game or other group activity' and 'Tells others when he/ she needs free time to relax alone'	N/A	Connected to 'agency', 'pleasure', and 'relatedness' in choosing to do what makes the person happy and conveying this to others effectively	This is a social competence skill related to demonstrating interpersonal skills	*Volitional* Decide whether to gratify need/ want
7 Chooses to befriend other deaf or hearing people	N/A	N/A	Connected to 'agency' and 'relatedness' in showing autonomy in independently choosing who to maintain relationships with	Fischer and McWhirter (2001) used the Deaf Identity Developmental Scale (Glickman, 1993) to demonstrate the	*Volitional* Decide whether to gratify need/ want

				impact that identity has on behaviour; assessing this was felt to be important in terms of how adaptability is conceptualised	
8 Joins in with social clubs or events to meet new people (in Deaf community)	N/A	N/A	Connected to 'agency', 'community', and 'relatedness' in showing autonomy in independently livingchoosing who to maintain relationships with	Fischer and McWhirter (2001) used the Deaf Identity Developmental Scale (Glickman, 1993) to demonstrate the impact that identity has on behaviour; assessing this was felt to be important in terms of how adaptability is conceptualised	*Volitional* Form a specific goal
9 Joins in with social clubs or events to meet new people (deaf/ hearing)	N/A	N/A	Connected to 'agency', 'community', and 'relatedness' in showing autonomy in independently choosing who to maintain relationships with	Captures choice between different settings and account for attrition	*Volitional* Form a specific goal

10. When leaving home, informs others of destination and return time	N/A	N/A	Connected to 'relatedness' and 'agency' in being autonomous and recognising the needs of others	Social-cognitive processes (Reschly et al., 2002) – generation of strategies to solve social problems	*Volitional* Form a specific goal
11. Invites others home for a fun activity	This is an ABAS-II item	N/A	Connected to 'relatedness' and 'pleasure' in	This is a social competence skill related to demonstrating interpersonal skills	*Planning* Plan to achieve goals
12. Goes out to local places with others (e.g. pub, a social group, park)	N/A	N/A	Connected to 'relatedness' and 'pleasure' in enjoying activities with others	This is a social competence skill related to demonstrating interpersonal skills	*Planning* Plan to achieve goals
13. Invites others to join him/ her in playing games	Adapted from 'Invites others to join him/her in playing games and other fun activities'	N/A	Connected to 'relatedness' and 'pleasure' in enjoying activities with others	This is a social competence skill related to demonstrating interpersonal skills	*Planning* Plan to achieve goals
14. Stands a comfortable distance from others during conversations	This is an ABAS-II item	N/A	Connected to 'relatedness' in demonstrating interpersonal skills	This is a social competence skill related to demonstrating interpersonal skills	*Planning* Evaluation of plans
15. Takes into account other's signing space	N/A	N/A	N/A	This is influenced by the ABAS-II questions regarding principles of conversation, use	*Planning* Evaluation of plans

				of functional language, and represents social competence	
16. Is not deliberately hurtful towards others	Adapted from 'Refrains from saying something that might embarrass or hurt others' to minimise emphasis on speech and make language in question more accessible	N/A	N/A	Social-cognitive processes (Reschly et al., 2002) – strategy evaluation and selection – anticipate consequences of interaction	*Planning* Evaluation of plans
17. Seeks friendships with others in his/ her own age group	This is an ABAS-II item	N/A	Connected to 'knowledge', 'agency', and 'relatedness' in demonstrating interpersonal skills by understanding the need to socialise with peers and seeking out relationships of this kind	This is a social competence skill in avoiding being victimised and demonstrating good interpersonal skills	*Planning* Select appropriate plans
18. Attends fun activities at another's home	This is an ABAS-II item	N/A	Connected to 'relatedness' and 'pleasure' in enjoying activities with others	This is a social competence skill in demonstrating good interpersonal skills	*Planning* Select appropriate plans

19. Hosts guests at their home	N/A	N/A	Connected to 'relatedness' and 'pleasure' in enjoying activities with others	This is a social competence skill in demonstrating good interpersonal skills	*Planning* Select appropriate plans
20. Attends fun community activities with others, for example, a movie	Adapted from 'Attends fun community activities with others, for example, a movie or a concert' to decrease emphasis on events that rely on hearing	N/A	Connected to 'relatedness', 'community', and 'pleasure' in enjoying activities with others	This is a social competence skill in demonstrating good interpersonal skills	*Purposive action* Initiate plans
21. Attends Deaf club or socialises with other Deaf people	N/A	N/A	Connected to 'relatedness', 'community' and 'pleasure' in enjoying activities with others in the wider community	Attempting to account for Deaf/ hearing differences and assess social competence in a variety of settings	*Purposive action* Initiate plans
22. Offers guests food or beverages	This is an ABAS-II item	N/A	Connected to 'relatedness' in showing good interpersonal skills	This is a social competence skill in demonstrating good interpersonal skills	*Purposive action* Initiate plans
23. Places reasonable demands on friends (e.g. does not become upset when a friend goes out with another friend)	This is an ABAS-II item	N/A	Connected to 'relatedness' in showing good interpersonal skills	This is a social competence skill in demonstrating good interpersonal skills	*Purposive action* Ignore irrelevant or competing needs/ wants/ plans

24. Starts conversations on topics of interest to others	This is an ABAS-II item	N/A	Connected to 'relatedness' and 'pleasure' in enjoying activities with others	This is a social competence skill in demonstrating good interpersonal skills	*Purposive action* Ignore irrelevant or competing needs/ wants/ plans
25. Initiates games or selects TV programmes liked by friends or family members	This is an ABAS-II item	N/A	Connected to 'relatedness' and 'pleasure' in enjoying activities with others	This is a social competence skill in demonstrating good interpersonal skills	*Purposive action* Ignore irrelevant or competing needs/ wants/ plans
26. Attempts to maintain good relationships with family members	Adapted from 'Has good relationships with family members' to account for possible attachment or communication factors	N/A	Connected to 'relatedness' in attempting to maintain good relationships with family	This is a social competence skill in demonstrating good interpersonal skills	*Effective performance* Monitor progress
27. Attempts to maintain intimate relationships	N/A	N/A	Connected to 'relatedness' in attempting to maintain good relationships with significant others	Influenced by ABAS-II questions about maintaining relationships but attempts to capture high end of social competence	*Effective performance* Monitor progress
28. Able to identify emotions in others	Adapted from 'States when others seem happy, sad, scared, or angry' to minimise the	N/A	Connected to 'knowledge' and 'inner peace' in recognising emotions	Social cognitive processes (Reschly et al., 2002) – interpretation of social cues	*Effective performance* Monitor progress

	emphasis on talking				
29. Knows how to make up with friends after a disagreement	N/A	Adapted from Vineland-II item, 'says he or she is sorry after making unintentional mistakes or errors in judgement (for example, when unintentionally leaving someone out of a game, etc.)'	Connected to 'relatedness', 'knowledge', and 'autonomy' in making decisions about how to maintain relationships with others if desired	Social cognitive processes (Reschly et al., 2002) – strategy evaluation and selection – understanding of long-term consequences (e.g. maintaining friendship)	*Effective performance* Compare progress to goal
30. Generally manages frustration if attempts at socialising are ineffective	N/A	N/A	Connected to 'inner peace' and 'relatedness' in managing emotions effectively to maintain relationships	This is a social competence skill in demonstrating good interpersonal skills	*Effective performance* Compare progress to goal
31. Makes others aware if they are going to be late	Adapted from 'Calls family or others when late'	N/A	Connected to 'relatedness' and 'agency' in being autonomous and recognising the needs of others	Social-cognitive processes (Reschly et al., 2002) – generation of strategies to solve social problems	*Effective performance* Compare progress to goal
32. Changes communication strategies to adapt to other person	N/A	N/A	Connected to 'relatedness' and 'agency' in monitoring and finding strategies	Social cognitive processes (Reschly et al., 2002) – strategy evaluation and selection	*Effective performance* Modify plan if ineffective

			for communicating with others		
33. Recognises when a social problem has occurred and does something about it (e.g. apologises, tries to talk to them about it)	Adapted from 'Apologises if he/ she hurts the feelings of others' but emphasises importance of recognising emotions in others before being able to take action	N/A	Connected to 'inner peace' and 'relatedness' in reducing emotional distress in the context of relationships with others	Social cognitive processes (Reschly et al., 2002) – encoding of social cues and strategy generation	*Effective performance* Modify plan if ineffective
34. Monitors reactions from others (e.g. change in body language) and changes the topic if it is upsetting someone	N/A	N/A	Connected to 'relatedness' and 'knowledge' in ability to understand social cues and respond to these to maintain relationships	Social cognitive processes (Reschly et al., 2002) – interpretation of social cues	*Effective performance* Modify plan if ineffective
35. Has one or more friends	This is an ABAS-II item	N/A	Connected to 'inner peace', 'relatedness', and 'pleasure' in having enjoyable relationships with supportive others	This is a social competence skill in demonstrating good interpersonal skills	*Effective performance* Recognise when goal is met
36. Keeps a stable group of friends	This is an ABAS-II item	N/A	Connected to 'inner peace', 'relatedness', and 'pleasure' in having	Social cognitive processes (Reschly et al., 2002) – strategy evaluation	*Effective performance* Recognise when goal is met

			enjoyable relationships with supportive others	and selection – long-term goal of maintaining friendships and acting consistently with goal	
37. Has close relationships with others as well friends who are less close	N/A	N/A	Connected to 'inner peace', 'relatedness', and 'pleasure' in having a spectrum of support networks	This is a social competence skill in demonstrating good interpersonal skills	*Effective performance* Recognise when goal is met
38. Does not become over-familiar with strangers (e.g. accepting gifts or giving personal information)	N/A	Adapted from VABS item 'demonstrates understanding that it is unsafe to accept rides, food, or money from strangers'	Connected to 'knowledge' and 'relatedness' in understanding what are appropriate relationships	Social cognitive processes (Reschly et al., 2002) – interpretation of social cues – understanding of other's intention and emotions – different strategies based on social context	*Effective performance* Terminate plan when goal is met
39. Ends conversations appropriately	This is an ABAS-II item	N/A	N/A	May be differences between Deaf/ hearing cultural ways of doing this so important to assess in both contexts	*Effective performance* Terminate plan when goal is met
40. Maintains boundaries with friends and family	N/A	N/A	Connected to 'agency' and 'relatedness' in	Social cognitive processes (Reschly et al., 2002) –	*Effective performance*

			choosing how to manage relationships effectively	interpretation of social cues – understanding of others' intention and emotions – different strategies based on social context	Terminate plan when goal is met
41. Knows how to entertain themselves if friends/ family are unavailable	N/A	N/A	Connected to 'inner peace', 'creativity', and 'relatedness' in having alternative ways of relaxing without need for others	This is a social competence skill in demonstrating good interpersonal skills	*Effective performance* Store and retrieve plan for later
42. Remembers and utilises effective communication strategies	N/A	N/A	Connected to 'knowledge' and 'relatedness' in understanding how to effectively manage interactions	Social cognitive processes (Reschly et al., 2002) – strategy generation and evaluation	*Effective performance* Store and retrieve plan for later
43. Knows how to make and keep friends	N/A	N/A	Connected to 'knowledge' and 'relatedness' in understanding how to effectively manage relationships	Social cognitive processes (Reschly et al., 2002) – strategy evaluation and selection – long-term goals	*Effective performance* Generalise plan to similar situations
44. Changes strategies for resolving social problems based on the context (e.g. using different strategies	N/A	N/A	Connected to 'knowledge' and 'relatedness' in	Social cognitive processes (Reschly et al., 2002) –	*Effective performance*

with friends and staff, acting differently at work and at home)			understanding how to effectively manage relationships	strategy evaluation and selection – different strategies based on social context	Generalise plan to similar situations

Communication

1. Has adequate motor skills to make clear handshapes	N/A	N/A	N/A	This is a motor competence skill, related to gross and fine motor movements	*Volitional* Aware of needs and wants
2. Does the person understand and use symbolic language to identify others	Adapted from ABAS-II item 'Says the names of other people, for example 'mama', 'daddy', or friends' names' to decrease emphasise on speech	N/A	Connected to 'relatedness' in being able to discuss familiar others	N/A	*Volitional* Aware of needs and wants
3. Generally correct sign orientation (e.g. placement correct)	N/A	N/A	N/A	Research into children with autism who are also deaf may typically reverse sign orientation (Sheilds & Meier, 2014)	*Volitional* Aware of needs and wants
4. Shakes head 'yes' or 'no' in response to a simple question, for example, 'do you want something to drink?'	This is an ABAS-II item	N/A	N/A	This is a social competence skill in demonstrating good interpersonal skills	*Volitional* Decide whether to gratify need/ want
5. Uses pointing or gesture to indicate whether something is wanted or not wanted	N/A	Adapted from VABS item	N/A	Goldin-Meadow (1993) suggested	*Volitional*

		'gestures appropriately to indicate 'yes', 'no', and 'I want'		that gesture is a fundamental functional use of language for deaf young people	Decide whether to gratify need/ want
6. Expresses a preference between choices	N/A	Adapted from VABS item 'indicates preference when offered a choice'	Connected to 'agency' in having and being able to express preferences	This is a conceptual competence skill related to being self-directed	*Volitional* Decide whether to gratify need/ want
7. Contacts people for social reasons or for a purpose (e.g. making appointments, complaints)	Adapted from 'Places local telephone calls' to account for contacting others without emphasising auditory methods	N/A	Connected to 'relatedness' and 'agency' in choosing who to socialise with	This is a conceptual competence skill related to being self-directed	*Volitional* Form a specific goal
8. Tells stories about real experiences, giving sufficient detail to be understood	N/A	Adapted from VABS item 'relates experiences in detail when asked'	N/A	N/A	*Volitional* Form a specific goal
9. Tells imaginary stories, giving sufficient detail to be understood	N/A	Adapted from Vineland-II item 'tells basic parts of a story, fairy tale, or television show plot; does not need to include great detail or recount in perfect order'	N/A	N/AV	*Volitional* Form a specific goal

10. Works effectively with interpreters or communication support workers to express their needs/ opinions	Adapted from 'Works independently and only asks for help when necessary' to emphasise working with interpreters as effective strategy for meeting demands	N/A	Connected to 'agency' and 'relatedness' in working with others to achieve goals	This is a social competence skill in problem-solving in social situations so that their needs are met	*Planning* Plan to achieve goals
11. Pays attention during family or group discussions for as long as needed	This is an ABAS-II item	N/A	N/A	Vaccari and Marschark (1997) suggested that communication between deaf and hearing family members may be difficult, suggesting it may be important to assess in understanding behaviour in this context	*Planning* Plan to achieve goals
12. Gains information from a variety of sources (e.g. TV, internet, newspaper) to keep up with current events and areas of interest	Adapted from 'Uses up-to-date information to discuss current events'	N/A	Connected to 'knowledge' in using different sources to make informed choices in everyday life	This is a conceptual competence skill in demonstrating self-directedness in obtaining information	*Planning* Plan to achieve goals

13. Considers whether interaction may be difficult and has plans for this in advance (e.g. books interpreters, carries pen/ paper or phone to write things down)	N/A	N/A	Connected to 'agency' and 'relatedness' in working with others to achieve goals	This is a social competence skill in problem-solving in social situations so that their needs are met	*Planning* Evaluation of plans
14. Decides whether to join in conversations with other deaf people	N/A	N/A	Connected to 'agency' and 'relatedness' in choosing who to maintain relationships with	This is a conceptual competence skill in being self-directed in relationships	*Planning* Evaluation of plans
15. Decides whether to join in conversations with hearing people	N/A	N/A	Connected to 'agency' and 'relatedness' in choosing who to maintain relationships with	This is a conceptual competence skill in being self-directed in relationships	*Planning* Evaluation of plans
16. Responds to conversations by answering questions or performing requested actions	Adapted from 'Answers the telephone appropriately' to account for possible inability to use a telephone	N/A	N/A	This is a social competence skill in demonstrating interpersonal skills	*Planning* Select appropriate plans
17. Nods or smiles to encourage others when they are talking	This is an ABAS-II item	N/A	N/A	This is a social competence skill in demonstrating interpersonal skills	*Planning* Select appropriate plans
18. Stays on topic in conversation rather than going off on a tangent	N/A	Adapted from Vineland-II item, 'stays on topic in	N/A	This is a social competence skill in	*Planning* Select appropriate plans

		conversations; does not go off on tangents'		demonstrating interpersonal skills	
19. Uses mobile phone to contact friends or family	N/A	N/A	Connected to 'relatedness' in having strategies to communicate effectively with others	This is a social competence skill in demonstrating interpersonal skills	*Purposive action* Initiate plans
20. Sends texts to others	Adapted from 'Writes letters, note, or emails' to modernise this item	N/A	Connected to 'relatedness' in having strategies to communicate effectively with others	This is a social competence skill in demonstrating interpersonal skills	*Purposive action* Initiate plans
21. Communicates about familiar others (e.g. mum, dad, carer) or topics of interest	Adaptation of an ABAS-II item 'Says the names of other people, for example 'mama', 'daddy', or friends' names' to account for the emphasis on speech	N/A	Connected to 'relatedness' in being able to discuss familiar others	This is a social competence skill in demonstrating interpersonal skills	*Purposive action* Initiate plans
22. Able to engage in conversations for at least 5 minutes	Adapted from 'Listens closely for at least five minutes when people talk' to decrease emphasis on ability to hear	N/A	N/A	This is a social competence skill in demonstrating interpersonal skills	*Purposive action* Ignore irrelevant or competing needs/ wants/ plans

23. Pays attention to other people who talk/sign	Adapted from 'Looks at others' faces with talking' to decrease emphasis on speech	N/A	N/A	This is a social competence skill in demonstrating interpersonal skills	*Purposive action* Ignore irrelevant or competing needs/ wants/ plans
24. Looks at others' faces when communicating without becoming distracted	Adapted from 'Looks at others' faces when talking' to decrease emphasis on speech	N/A	N/A	This is a social competence skill in demonstrating interpersonal skills	*Purposive action* Ignore irrelevant or competing needs/ wants/ plans
25. Turn-takes in conversation	Adapted from 'Waits for a pause in a conversation before expressing his/her own ideas' to account for possible differences in communication	N/A	N/A	This is a social competence skill in demonstrating interpersonal skills	*Effective performance* Monitor progress
26. Gives enough background information for communication to be understood, and provides additional details if prompted	N/A	Adapted from VABS item 'relates experience in detail if asked'	Connected to 'knowledge' and 'relatedness' in knowing how to use language to communicate meaning effectively	Functional use of language	*Effective performance* Monitor progress
27. Monitors whether others understand what they are expressing	N/A	N/A	Connected to 'knowledge' and	This is a social competence skill in	*Effective performance*

			'relatedness' in knowing how to use language to communicate meaning effectively	being able to problem-solve in social situations	Monitor progress
28. Communicates clearly in a way that is intelligible to other deaf people	This is adapted from the item 'Speaks clearly and distinctly' to decrease emphasis on speech and consider person's ability to communicate and adapt to different situations	N/A	Connected to 'knowledge' and 'relatedness' in knowing how to use language to communicate meaning effectively	This is a social competence skill in being able to problem-solve in social situations	*Effective performance* Compare progress to goal
29. Communicates clearly in a way that is intelligible to other hearing people	This is adapted from the item 'Speaks clearly and distinctly' to decrease emphasis on speech and consider person's ability to communicate and adapt to different situations	N/A	Connected to 'knowledge' and 'relatedness' in knowing how to use language to communicate meaning effectively	This is a social competence skill in being able to problem-solve in social situations	*Effective performance* Compare progress to goal
30. Communicates clearly in a way that is intelligible to others who know the person well	This is adapted from the item	N/A	Connected to 'knowledge' and	This is a social competence skill in	*Effective performance*

	'Speaks clearly and distinctly' to decrease emphasis on speech and consider person's ability to communicate and adapt to different situations		'relatedness' in knowing how to use language to communicate meaning effectively	being able to problem-solve in social situations	Compare progress to goal
31. Able to adapt communication in a variety of ways (e.g. higher/ lower register signing, oral communication, writing things down)	N/A	N/A	Connected to 'knowledge' and 'relatedness' in knowing how to use language to communicate meaning effectively	This is a social competence skill in being able to problem-solve in social situations	*Effective performance* Modify plan if ineffective
32. Makes others aware if they need prompts to keep up with conversation or are lost in conversation	N/A	N/A	Connected to 'agency' and 'relatedness' in being self-directed and assertive in meeting communication needs	This is a social competence skill in being able to problem-solve in social situations	*Effective performance* Modify plan if ineffective
33. Lets someone know if struggling to follow conversations on a fixed topic	N/A	N/A	Connected to 'agency' and 'relatedness' in being self-directed and assertive in meeting	This is a social competence skill in being able to problem-solve in social situations	*Effective performance* Modify plan if ineffective

			communication needs		
34. Able to negotiate an interaction to get a needed item (e.g. buying something in a shop)	N/A	N/A	Connected to 'agency' and 'relatedness' in being self-directed and assertive in meeting communication needs	This is a social competence skill in being able to problem-solve in social situations	*Effective performance* Recognise when goal is met
35. Understands grammar, e.g. the difference between 'the boy pushed the girl' and 'the girl pushed the boy'	Adapted from ABAS-II item 'Uses sentences with a noun and a verb' to emphasise the use of grammatical language with an example	N/A	Connected to 'knowledge' in understanding how to use language effectively	N/A	*Effective performance* Recognise when goal is met
36. Makes complaints about a product or service and checks to make sure that action is taken	N/A	N/A	Connected to 'agency' in being self-directed and assertive in ensuring needs are met	This is a social competence skill in being able to problem-solve in social situations	*Effective performance* Recognise when goal is met
37. Does not use signs/ phrases repetitively	N/A	N/A	N/A	Shield and Meier (2014) suggested that repetitive use of signs can be typical of deaf children with autism	*Effective performance* Terminate plan when goal is met

38. Withdraws from conversations when finished or no longer interested, rather than because the person is not following the discussion	N/A	N/A	Connected to 'relatedness' and 'inner peace' in understanding one's own emotional state and using this to maintain relationships with others	This is a social competence skill in demonstrating interpersonal skills	*Effective performance* Terminate plan when goal is met
39. Able to communicate effectively with family members	N/A	N/A	Connected to 'relatedness' in managing interactions with others	This is a social competence skill in being able to problem-solve in social situations	*Effective performance* Store and retrieve plan for later
40. Able to communicate effectively with friends	N/A	N/A	Connected to 'relatedness' in managing interactions with others	This is a social competence skill in being able to problem-solve in social situations	*Effective performance* Store and retrieve plan for later
41. Able to communicate effectively with people unknown to the person	N/A	N/A	Connected to 'relatedness' in managing interactions with others	This is a social competence skill in being able to problem-solve in social situations	*Effective performance* Store and retrieve plan for later
42. Has strategies to communicate independently when out and about	Adapted from 'Finds and uses a pay phone' to modernise the question and assess whether the individual has strategies to	N/A	Connected to 'relatedness' in managing interactions with others	This is a social competence skill in being able to problem-solve in social situations	*Effective performance* Generalise plan to similar situations

	contact others whilst away from home				
43. Uses a range of communication technologies to get in touch with others for social purposes (e.g. minicom, video apps, texting)	N/A	N/A	Connected to 'relatedness' in managing interactions with others	This is a social competence skill in being able to problem-solve in social situations	*Effective performance* Generalise plan to similar situations
44. Uses up-to-date information to discuss current events	This is an ABAS-II item	N/A	Connected to 'knowledge' and 'relatedness' in being informed about current events and managing interactions with others	This is a conceptual competence skill in demonstrating self-directedness in obtaining information	*Effective performance* Generalise plan to similar situations

Work

1. Recognises if there are home projects that need to be done (e.g. decorating, fixing things, gardening)	N/A	N/A	Connected to 'knowledge' and 'excellence in work' in understanding responsibilities and having the skills to fulfil these	This is a conceptual competence skill related to being self-directed	*Volitional* Aware of needs and wants
2. Recognises if they are becoming isolated at work or during projects	N/A	N/A	Connected to 'knowledge' and 'excellence in work' in understanding emotions and managing this effectively in a work setting	This is a social competence skill in assessing self-esteem	*Volitional* Aware of needs and wants
3. Works out what tasks need to be done and plans time to do these	N/A	N/A	Connected to 'knowledge' and 'excellence in work' in organising work tasks and completing these effectively	This is a conceptual competence skill related to being self-directed	*Volitional* Aware of needs and wants
4. Discusses realistic future educational or career goals	Adapted from 'Talks about realistic future educational or career goals' to decrease emphasis on speech	N/A	Connected to 'knowledge' and 'excellence in work' in making informed choices about work opportunities	This is a social competence skill demonstrating interpersonal skills	*Volitional* Decide whether to gratify need/ want

5. Decides whether to look for a job in an area of interest	Adapted from 'Finds full-time or part-time jobs for himself/herself' to account for possible differences in employment opportunities	N/A	Connected to 'agency' and 'excellence in work' in being self-directed and autonomous in finding jobs	Bowe, McMahon, Chang, and Louvi (2005) indicated that deaf people may experience resistance from employers, but that being articulate and clear about adjustments may improve employability.	*Volitional* Decide whether to gratify need/ want
6. Independently chooses what to focus their time on	Adapted from 'Changes from one job-related task to another without special instructions from supervisor' to emphasise time management skills and modify language in question	N/A	Connected to 'agency', 'pleasure', and 'creativity' in finding activities or interests to devote one's time towards	This is a conceptual competence skill related to being self-directed	*Volitional* Decide whether to gratify need/ want
7. Fills in job applications, with or without support	N/A	N/A	Connected to 'agency', 'excellence in work' and 'relatedness' in being self-directed in achieving work-related goals with or without the support of others	This is a social competence skill in being able to problem-solve in social situations	*Volitional* Form a specific goal

8. Works on one home activity for at least 15 minutes	This is an ABAS-II item	N/A	N/A	This is a practical competence skill related to demonstrating occupational skills	*Volitional* Form a specific goal
9. Makes reminder notes or lists	This is an ABAS-II item	N/A	N/A	N/A	*Planning* Plan to achieve goals
10. Gathers all supplies needed before beginning a cleaning or maintenance project at home	This is an ABAS-II item	N/A	Connected to 'knowledge' in understanding what preparations need to be made for tasks	N/A	*Planning* Plan to achieve goals
11. Plans ahead to allow enough time to complete large projects	This is an ABAS-II item	N/A	N/A	This is a conceptual competence skill demonstrating effective time management	*Planning* Plan to achieve goals
12. Seeks employment that is suitable to skills and interests	Adapted from 'Chooses work consistent with his/ her own skills and abilities' to acknowledge that choices and opportunities may be limited	N/A	Connected to 'knowledge' and 'excellence in work' in making informed choices about work opportunities	This is a practical competence skill related to demonstrating occupational skills	*Planning* Evaluation of plans
13. Considers whether a project is feasible (e.g. that there is enough time/ resources) before starting	N/A	N/A	Connected to 'knowledge' in understanding	This is a conceptual competence skill demonstrating	*Planning* Evaluation of plans

			what preparations need to be made for tasks	effective time management	
14. Plans for possible communication needs at work (e.g. books or requests interpreters/ notetakers/ lipspeakers as needed)	N/A	N/A	Connected to 'agency', 'excellence in work' and 'relatedness' in being self-directed in achieving work-related goals with or without the support of others	This is a social competence skill in being able to problem-solve in social situations	*Planning* Evaluation of plans
15. Has a schedule which they are able to follow	Adapted from 'Reads and follows a daily work or other type of schedule' to minimise emphasis on literacy	N/A	N/A	This is a conceptual competence skill demonstrating effective time management	*Planning* Select appropriate plans
16. Uses interpreters/ support workers effectively at work	N/A	N/A	Connected to 'agency', 'excellence in work' and 'relatedness' in being self-directed in achieving work-related goals with or without the support of others	This is a social competence skill in being able to problem-solve in social situations	*Planning* Select appropriate plans
17. Undertakes work or tasks within their skill set	N/A	N/A	Connected to 'knowledge' and 'excellence in work' in making informed	This is a practical competence skill related to	*Planning* Select appropriate plans

			choices about work opportunities	demonstrating occupational skills	
18. Makes minor repairs to personal possessions (e.g. bikes or clothes)	This is an ABAS-II item	N/A	N/A	This is a practical competence skill related to activities of daily living	*Purposive action* Initiate plans
19. Completes household tasks independently (e.g. laundry, washing up, cleaning)	N/A	N/A	Connected to 'knowledge' and 'excellence in work' in understanding responsibilities and having the skills to fulfil these	This is a practical competence skill related to activities of daily living	*Purposive action* Initiate plans
20. Has looked for part-time, full-time, or voluntary work	N/A	N/A	Connected to 'knowledge' and 'agency' in being self-directed in looking for appropriate employment opportunities	This is a practical competence skill related to demonstrating occupational skills	*Purposive action* Initiate plans
21. Is able to focus on work even if there are distractions	N/A	N/A	N/A	This is a practical competence skill related to demonstrating occupational skills	*Purposive action* Ignore irrelevant or competing needs/ wants/ plans
22. Works quietly and does not disrupt or disturb the work of others	This is an ABAS-II item	N/A	N/A	This is a practical competence skill related to demonstrating occupational skills	*Purposive action* Ignore irrelevant or competing needs/ wants/ plans
23. Continues working productively if there is a change in routine	N/A	N/A	N/A	This is a practical competence skill	*Purposive action*

				related to demonstrating occupational skills	Ignore irrelevant or competing needs/ wants/ plans
24. Acquires new skills through observation	N/A	N/A	N/A	Kritzer (2009) suggested that deaf children learn through direct observation, whilst hearing children may not have to attend to learning explicitly as they have access to other forms of learning (e.g. overhearing, incidental learning)	*Effective performance* Monitor progress
25. Checks work against set targets and deadlines	Adapted from 'Completes work assignments in required time limits' to emphasise monitoring of performance	N/A	Connected to 'knowledge' in understanding what preparations need to be made for tasks	This is a practical competence skill related to demonstrating occupational skills	*Effective performance* Monitor progress
26. Easily moves between tasks and manages workload effectively	N/A	N/A	Connected to 'agency' and 'excellence in work' in being self-directed in a work environment	This is a conceptual skill related to being self-directed	*Effective performance* Monitor progress

27. Keeps working on hard tasks without becoming discouraged or quitting	N/A	N/A	Connected to 'agency' and 'excellence in work' in being self-directed in a work environment	This is a practical competence skill related to demonstrating occupational skills	*Effective performance* Compare progress to goal
28. Sets or follows deadlines to ensure that a task is completed on time	Adapted from 'Works faster on the job as needed, for example, to keep on schedule or meet a deadline' to emphasise monitoring of performance	N/A	Connected to 'agency' and 'excellence in work' in being self-directed in a work environment	This is a practical competence skill related to demonstrating occupational skills	*Effective performance* Compare progress to goal
29. Makes plans for home projects in logical steps	This is an ABAS-II item	N/A	Connected to 'knowledge' in understanding what preparations need to be made for tasks	This is a conceptual competence skill in being self-directed	*Effective performance* Compare progress to goal
30. Able to prioritise activities if something urgent comes up	N/A	N/A	Connected to 'agency' and 'excellence in work' in being self-directed in a work environment	This is a practical competence skill related to demonstrating occupational skills	*Effective performance* Modify plan if ineffective
31. Changes or attempts to change strategies for completing work following constructive feedback	N/A	Adapted from Vineland-II item, 'attempts to improve job performance after	Connected to 'agency' and 'excellence in work' in being self-	This is a practical competence skill related to demonstrating occupational skills	*Effective performance* Modify plan if ineffective

		receiving constructive criticism from supervisor'	directed in a work environment		
32. Adapts to new ways of doing tasks if shown a more efficient way	N/A	N/A	Connected to 'agency' and 'excellence in work' in being self-directed in a work environment	This is a practical competence skill related to demonstrating occupational skills	*Effective performance* Modify plan if ineffective
33. Completes large projects (e.g. decorating, painting) on time	This is an ABAS-II item, adapted to include some examples of 'projects'	N/A	Connected to 'knowledge' and 'excellence in work' in understanding time and deadlines and fulfilling these effectively	This is a practical competence skill related to demonstrating occupational skills	*Effective performance* Recognise when goal is met
34. Meets deadlines effectively	N/A	N/A	Connected to 'knowledge' and 'excellence in work' in understanding time and deadlines and fulfilling these effectively	This is a conceptual competence skill related to understanding the concept of time	*Effective performance* Recognise when goal is met
35. Follows steps to complete a project (e.g. assembling furniture)	Adapted from 'Assists in big clean-up projects at home or work, for example, spring cleaning or cleaning storage rooms' to emphasise skills	N/A	Connected to 'knowledge' in understanding what preparations need to be made for tasks	This is a practical competence skill related to demonstrating occupational skills	*Effective performance* Recognise when goal is met

	in planning and completing tasks effectively				
36. Moves onto a new project or deadline once a piece of work is completed	N/A	N/A	Connected to 'agency' and 'excellence in work' in being self-directed in finding new things to do at work	This is a conceptual competence skill demonstrating skills in time management	*Effective performance* Terminate plan when goal is met
37. Independently decides to move onto something new when a piece of work is completed	N/A	N/A	Connected to 'agency' and 'excellence in work' in being self-directed in finding new things to do at work	This is a conceptual competence skill in being self-directed	*Effective performance* Terminate plan when goal is met
38. Recognises when targets are met and moves on to another task	N/A	N/A	Connected to 'knowledge', 'agency' and 'excellence in work' in being recognising goals are met, and being self-directed in finding new things to do at work	This is a practical competence skill related to demonstrating occupational skills	*Effective performance* Terminate plan when goal is met
39. Able to competently complete the same task repeatedly after it is learnt	N/A	N/A	Connected to 'knowledge' and 'excellence in work' in using previously learnt skills to	This is a practical competence skill related to demonstrating occupational skills	*Effective performance* Store and retrieve plan for later

			effective undertake work tasks		
40. Carries out familiar work tasks without prompting	N/A	N/A	Connected to 'knowledge' and 'excellence in work' in using previously learnt skills to effective undertake work tasks	This is a practical competence skill related to demonstrating occupational skills	*Effective performance* Store and retrieve plan for later
41. Learns from previous mistakes at work	N/A	N/A	Connected to 'knowledge' and 'excellence in work' in using previously learnt skills to effective undertake work tasks	This is a practical competence skill related to demonstrating occupational skills	*Effective performance* Generalise plan to similar situations
42. Takes on board constructive feedback from supervisors and generalises to other work situations	Adapted from 'Follows supervisor's suggestions to improve work' to capture the skill of being able to generalise this across contexts	N/A	Connected to 'knowledge' and 'excellence in work' in using previously learnt skills to effective undertake work tasks	This is a practical competence skill related to demonstrating occupational skills	*Effective performance* Generalise plan to similar situations
43. Uses prior knowledge to problem-solve in unfamiliar situations	N/A	N/A	Connected to 'knowledge' and 'excellence in work' in using previously learnt skills to effective undertake work tasks	This is a practical competence skill related to demonstrating occupational skills	*Effective performance* Generalise plan to similar situations

Appendix G~~F~~

Ethical approval granted on 11.02.15

From: Soprec
Sent: 11 February 2015 13:03
To: Kathryn Moore (13451718)
Cc: Hannah Lena Merdian
Subject: FW: Application for ethical approval

Dear Kate

This is to confirm your changes have been approved.

Regards

SOPREC

-----Original Message-----
From: Kathryn Moore (13451718)
Sent: 06 February 2015 16:23
To: Soprec
Cc: Hannah Lena Merdian
Subject: Re: Application for ethical approval

Hello

Many thanks for confirming that this study has been granted approval.

I have attached the application with the changes requested made and highlighted in yellow.

Please do let me know if you need anything else.

Many thanks,

Kate

From: Soprec
Sent: 03 February 2015 10:08
To: Kathryn Moore (13451718)
Cc: Hannah Lena Merdian
Subject: Application for ethical approval

Dear Kathryn

Thanks for your application for ethical approval. This has been approved, pending the following:

- Debrief sheet to be submitted to committee for consideration (this should be emailed

to soprec@lincoln.ac.uk<mailto:soprec@lincoln.ac.uk>)

· Participants should be informed that if they withdraw, then their comments won't be quoted, but that the data will still be used

· Adding soprec@lincoln.ac.uk<mailto:soprec@lincoln.ac.uk> email address to information sheet in case participants have a query on the ethics application

Kind regards

SOPREC

[cid:image001.gif@01D03FC7.EEF7E690]<http://www.lincoln.ac.uk/>

Mrs. Zoe Mead | Senior Administrator/PA

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staff profile<http://staff.lincoln.ac.uk/id/001471> | |
facebook.com<http://www.facebook.com/universityoflincoln> |
twitter.com<http://www.twitter.com/unilincoln> | lincoln.ac.uk<http://www.lincoln.ac.uk>

Appendix H~~G~~

Ethics amendment 1 to include individual interviewing to research methodology, approved on 30.03.15.

From: Soprec
Sent: 30 March 2015 10:57
To: Kathryn Moore (13451718)
Subject: RE: Application for ethical approval

Dear Kathryn

Thanks for your email. This is to confirm that it is acceptable to include individual interviews.

Kind regards
SOPREC

From: Kathryn Moore (13451718)
Sent: 26 March 2015 10:20
To: Soprec
Subject: Fw: Application for ethical approval

Hello

I was just wondering if there is any update to my email request from 12th March? I would be very grateful if you could confirm for me that it would be acceptable to include individual interviews in my research methodology, as outlined below.

Many thanks

Kate

From: Kathryn Moore (13451718)
Sent: 12 March 2015 13:23
To: Soprec
Subject: Re: Application for ethical approval

Hello

Regarding my study as approved on 11.02.15, we have been struggling to recruit for a Delphi consensus focus group for the experts in psychology and deafness. The planned meeting referred to in the main study application has been postponed until May. I would like to interview professionals individually in addition to this group, using the sample interview proforma submitted and approved with the original application. Could you please confirm that this would be acceptable?

Many thanks

Kate

Appendix ~~H~~ I

Ethics amendment 2 confirming changes to information sheets clarifying Delphi consensus process, approved on 05.06.15.

From: Soprec
Sent: 05 June 2015 08:33
To: Kathryn Moore (13451718)
Subject: RE: Application for ethical approval

Dear Kathryn

Thanks for your email. We can confirm that these changes are acceptable.

Kind regards

SOPREC

From: Kathryn Moore (13451718)
Sent: 04 June 2015 09:59
To: Soprec
Subject: Fw: Application for ethical approval
Hello

I was just wondering if there is any update to my email request from 28th May? I would be very grateful if you could confirm for me that it would be acceptable to amend these forms to reflect a methodology whereby I contact Delphi consensus participants with email questionnaires rather than as a one-off group, as outlined below.

Many thanks

Kate

From: Kathryn Moore (13451718)
Sent: 28 May 2015 14:56
To: Soprec
Subject: Re: Application for ethical approval

Hello

I would like to amend my information sheet and consent form to clarify that my Delphi consensus methodology will take place by email rather than as a group meeting. The amendments are track changed on the documents attached.

Many thanks

Kate

Appendix J

Ethics amendment 3 confirming changes to debrief sheet, approved on 21.10.15

To:
Kathryn Moore (13451718);

Cc:
Hannah Lena Merdian;

Wed 21/10/2015 08:57

Dear Kathryn

Thanks for your email. An email had gone out to confirm that the changes had been approved and it was sent from zmead@lincoln.ac.uk . I can confirm that the changes have been accepted.

Kind regards

SOPREC

From: Kathryn Moore (13451718)
Sent: 17 October 2015 11:07
To: Soprec
Cc: Hannah Lena Merdian
Subject: Re: Amendment to Debrief Sheet

Hello

Many thanks for the confirmation that the changes are being reviewed. Are you able to provide me with any further information as to when I am likely to hear an outcome of this decision? I am coming towards the end of recruitment for my study and would like to give debrief sheets to participants as soon as possible.

Best wishes

Kate

From: Soprec
Sent: 05 October 2015 10:35
To: Kathryn Moore (13451718)
Cc: Hannah Lena Merdian
Subject: RE: Amendment to Debrief Sheet

Dear Kathryn

Thank you for your email. The changes are currently with the reviewers for consideration.

Regards

SOPREC

To:
Soprec;

Cc:
Hannah Lena Merdian;

Sat 17/10/2015 11:06

Hello

Many thanks for the confirmation that the changes are being reviewed. Are you able to provide me with any further information as to when I am likely to hear an outcome of this decision? I am coming towards the end of recruitment for my study and would like to give debrief sheets to participants as soon as possible.

Best wishes

Kate

To:
Kathryn Moore (13451718);

Cc:
Hannah Lena Merdian;

Mon 05/10/2015 10:35

Dear Kathryn

Thank you for your email. The changes are currently with the reviewers for consideration.

Regards

SOPREC

Soprec;

Fri 02/10/2015 11:47
Sent Items

Hello

Please could you confirm whether the changes proposed as outlined in my previous email are acceptable so that I may send out my revised debrief sheet to participants completing my research?

Many thanks,

Kate

From: Kathryn Moore (13451718)
Sent: 25 September 2015 11:26
To: Soprec
Subject: Re: Application for ethical approval

Hello

I would like to amend my debrief sheet to participants by removing a small amount of information and clarifying the research process that was undertaken. Please can you confirm that these changes are acceptable?

Many thanks

Kate

Appendix K~~J~~

Information sheets provided to all potential study participants

Participant Information Sheet (Expert consultation)
Version 2: 04.06.15

Title of Study: Developing a Measure of Adaptive Behaviour for Deaf Adults

Name of Researcher: Kate Moore

What is the purpose of the study?
We are looking at whether it is possible to improve upon the assessment of adaptive behaviour for Deaf people, and want to create a new test to make it easier for psychologists to do this accurately.

Why have I been invited?
You are being invited to take part because you are a professional with knowledge of mental health and deafness or a professional with knowledge of adaptability and behavioural assessments. If you decide to take part you will be asked to sign a consent form. If you decide to take part you can withdraw at any time, without giving a reason.

What will happen if I take part?
If you take part, we will ask you to take part in an online survey. We will ask questions about adaptive behaviour in Deaf people, learning disability in Deaf people, and whether this might be different to hearing people. Some of the questions might be rating the ideas we have developed, others will ask you to think if you have any other comments or thoughts on our ideas. The questionnaire will take around 30 minutes to complete, and you will be contacted on 2-3 further occasions to repeat similar versions of the questionnaire as we collate and summarise the feedback each time.

What are the possible disadvantages and risks of taking part?
We are not able to reimburse people for their time participating in this study.

What are the possible benefits of taking part?
The information we get from this study may help Deaf people who might have a learning disability, by improving how adaptive behaviour is assessed in a way that is culturally and linguistically appropriate. You would be helping us to develop ideas about this and improve tests for the future.

What if there is a problem?
If you are concerned about any aspect of this study, you should ask to speak to Kate Moore, who will do their best to answer your questions. If you remain unhappy, you should contact the study supervisors. Researcher contact details are given at the end of this information sheet.

Will my taking part in the study be kept confidential?
If you join the study, some parts of the data collected for the study will be looked at by authorised persons from the University of Lincoln who are organising the research. They may also be looked at by authorised people to check that the study is being carried out correctly. All will have a duty of confidentiality to you as a research participant and we will do our best to meet this duty.

All information which is collected about you during the course of the research will be kept confidential, stored in a secure and locked office, and on a password protected database. Any information about you will have your name and address removed (anonymised).

Your personal information (address, telephone number) will be kept for 6 months after the end of the study so that we are able to contact you about the findings of the study. All other information you give during the study will be kept securely for 7 years. After this time your data will be disposed of securely. During this time, only members of the research team will have access to your personal data.

What will happen if I don't want to carry on with the study?
Your participation is voluntary and you can withdraw at any time, without giving any reason. If you withdraw then the information collected so far cannot be erased. Your comments will not be quoted, but the data collected will still be used.

What will happen to the results of the research study?
When the study is finished, the results will be published in a journal. This will likely happen in 2016/7. No names will be mentioned in the final reports, and any information you give us will be kept confidential. The results of this study will be submitted as a Doctorate in Clinical Psychology thesis.

Who is organising and funding the research?
This research is being organised by the University of Nottingham and is being funded by the Doctorate in Clinical Psychology programme.

Further information and contact details
If you would like to talk to someone about taking part in the research, or want to ask any questions you can contact Kate Moore on:

Email: lwxkamo@nottingham.ac.uk
Text/ phone: (to be added once study phone purchased)

If you wish to contact this study's supervisor, you can contact them using the following details:

Dr Mark Gresswell
Email: mgresswell@lincoln.ac.uk
Phone: 01522 886820
Address: University of Lincoln
Brayford Pool
Lincoln
Lincolnshire

LN6 7TS

This study has been granted ethical approval by the University of Lincoln. If you wish to contact the research ethics committee regarding this study or the ethics application, you can do so by emailing soprec@lincoln.ac.uk.

Appendix L~~K~~

Consent forms provided to participants for taking part in the study.

CONSENT FORM (expert consultation)
Draft Version 2: 04.06.15

Title of Study: Investigating Assessment of Adaptive Behaviour with Deaf Adults

REC ref:

Name of Researcher: Kate Moore

Name of Participant: **Please initial box**

1. I understand that my participation is voluntary and that I can withdraw at any time, without giving a reason. I understand that if I withdraw, information you have already provided cannot be erased. Your comments will not be quoted, but the data collected will still be used. ☐
2. I understand that my participation is voluntary and that I can withdraw at any time, without giving a reason. I understand that if I withdraw, information you have already provided cannot be erased. Your comments will not be quoted, but the data collected will still be used. ☐
3. I understand that data collected in the study may be looked at by authorised individuals from the University of Lincoln, the research group and regulatory authorities where it is relevant to my taking part in this study. I give permission for these individuals to have access to the research data and to collect, store, analyse and publish information obtained from my participation in this study. I understand that my personal details will be kept confidential. ☐
4. I agree to take part in the above study. ☐

_____	_____	_____
Name of Participant	Date	Signature
_____	_____	_____
Name of Person taking consent	Date	Signature

Appendix ML

Debrief sheet sent to all participants following the end of participation in the study.

Debrief Sheet

Title: Investigating Assessment of Adaptive Behaviour with Deaf Adults

This study was designed to develop a theory of adaptability for Deaf people that can be used to inform clinical assessments of adaptive behaviour with this population. Although many assessments of adaptive behaviour exist already, some of the questions may not be relevant to a Deaf person, or disadvantage them in some way because of deafness. We have sought to remove these questions and replace them with items that account for behaviour in a way that takes account of these factors. This research seeks to design a questionnaire that can be used to assess behaviour in Deaf people in a way that accounts for cultural and linguistic differences.

In order to do this, a literature review was conducted to see how clinicians currently make these assessments. This showed that people try to do this in lots of different ways, and there is no consensus on how it should be done. Each approach had limitations. Following this, adaptive behaviour assessments were considered for face validity (e.g. assessing whether the items were confounded by aspects associated with deafness) and content validity (e.g. the extent to which the items are relevant to adaptive behaviour).

From this point, the research sought the opinion of experts working with Deaf people to help develop consensus on how well the items assess adaptive behaviour in this population. Participants were also asked to help clarify a definition of adaptive behaviour appropriate for use with Deaf people, to help further our understanding of the construct and how this may subsequently be assessed.

If you wish to contact a researcher about this study, please email Kate Moore, Trainee Clinical Psychologist, on: lwxkamo@nottingham.ac.uk.

Thank you for participating in this research study.

Appendix N~~M~~

Example of the process of coding questionnaire data and development of themes

Extract	**Codes**	**Reflections/ emerging themes**
The word 'plans' would not be clearly understood in this question. Does it mean they want to go to that location? Or the actual process of how they would arrive there	Ambiguity Sentence structure	**Language**
Again I rate those items with complex language demands as being potentially less useful. I know very few adults, deaf or otherwise, who would read all the important documents and small print before proceeding with purchases – but this would theoretically be more difficult for a deaf person	Literacy issues Personal preferences Typical behaviour of wider population Some tasks more complex due to deafness	**Accessibility** **Developmental Factors** **Assessment**
Most deaf people give larger denomination and get change as they can't hear how much the cashier is asking for	Difference in behaviour to problem-solve Different choices made due to situation Lack of accessible options	**Cultural Differences** **Accessibility**
This does have some underlying assumptions – eg that it is adaptive for the person to belong to the Deaf Community – however many Deaf people choose not to do this due to gossip or 'backstabbing' or because they are not welcomed, eg if they have an additional disability. However, capturing someone who tries to fit in with the hearing world and rejects deafness might be useful as this identity of attempting to 'pass' as a hearing person has been shown to be the least	Assumptions about what is adaptive Personal preference Rejection of ways of behaving – choice impacts observed behaviour Identity choices – hearing, HoH, deaf, Deaf	**Developmental Factors** **Cultural Differences** **Assessment** **Developmental Factors**

adaptive in various studies.		
This is two things in one question. I think this should be split in two questions because I think some deaf people will struggle to answer this one.	Ambiguity Sentence structure	**Language**
Some of these items may tap into personality aspects rather than adaptive functioning abilities – e.g. wanting to socialise may be due to a range of other factors not related to adaptive functioning. Also identity as a Deaf person or as a hearing person with hearing impairment.	Personality factors Personal preferences False negatives/ positives Identity choices – hearing, HoH, deaf, Deaf	**Developmental Factors** **Asssessment** **Cultural Differenes**
Some of this seems to be about money and transport already covered.	Questions covered in other sections	**Repetition**

Appendix O~~N~~

Delphi Round 2 response template.

Delphi Ranking

For the second part of the Delphi process, I would like you to again consider the items, but this time please think of a client of yours who is deaf and of average intellectual ability. This may help to address some important features identified by the analysis:

1) *Some items are by default harder for a deaf person to negotiate than a hearing person (e.g. using public transport).*

Although this is a valid criticism of the content of the items, it could be that this can be addressed through norming of a culturally sensitive assessment. If it is indeed more difficult, it is possibly still an item that represents higher-order functioning and therefore is an important feature of an assessment that can identify mild impairments as well as those that are more severe. The rankings from the first round showed that 'adaptability' is not well agreed upon, and how this is expressed in observable behaviour may differ. I am attempting to develop a standardised assessment that would provide a foundation 'base score' for a new measure by finding out what a normal standard would be for this population.

2) *As one of the key parts of the definitions identify that cultural relativity is a factor in adaptive behaviour*.

This is a key feature of developing a new measure, in determining different cultural factors and how these should be considered as a part of the assessment procedure. The context of deaf people living both a deaf and hearing context (to differing degrees) sets this group apart from others, and the aim of this procedure is to explore this further.

Please consider whether this client would be able to perform the skills outlined in each item (select yes/no) both in a hearing context (e.g. everyone in the scenario is hearing) and a deaf context (e.g. everyone in the scenario is deaf). Although it is recognised that this is unlikely to be the case in many of the scenarios outlined (e.g. those that do not involve a large degree of interaction, or where the interaction is unlikely to occur in an entirely deaf context) this will help us establish whether differences in adaptation exist between these environments.

Travel

	Hearing		Deaf	
	YES	NO	YES	NO
Understands where to go to buy basic amenities (e.g. groceries)				
Has an understanding of different modes of transport available to them (e.g. car, bus, train) and how to get to destinations using this				
Is aware of the need to go to other places for social purposes or work				
Chooses whether to go out for social clubs or activities				
Chooses whether to travel by different modes of transport if they are available to the person (e.g. car, bus, train)				
Decides if a journey is manageable based on length and complexity				
Plans travel to a destination, e.g. shops, pub, friend's house				
Plans to take other people on trips to nearby places, for example, takes a family member to the shops				
Independently plans where they need to go in their everyday life				
Researches options for booking a holiday or travelling away from home				
Looks at bus or train timetables to ensure a journey is possible in advance				
Checks a route before travelling to an unfamiliar destination				
Allows sufficient time for travelling to an appointment				
Able to check for any problems on routes in advance of leaving home				
Checks to see whether there are faster or more efficient options for travel before choosing				
Makes transport choices based on cost, length, and complexity				
	Hearing		Deaf	
	YES	NO	YES	NO
Able to travel at least ten miles to a familiar destination independently (by car, bus, train, etc.)				

Able to travel at least ten miles to an unfamiliar destination independently (by car, bus train, etc.)				
Drives or travels independently to planned destinations				
Leaves home to travel to other destinations				
Walks or rides bike alone to locations within a one mile or five block radius of home or work				
Does not frequently get distracted by other shops or places to visit on the way to somewhere specific				
Does not become late for important appointments by becoming distracted on the way to a place				
Is generally able to focus on arriving at a planned destination without getting distracted or lost				
Obeys traffic signals when riding a bike or driving a car				
Checks how many bus or train stops remain on a journey whilst travelling				
Recognises familiar landmarks on known routes and uses these to help find new locations				
Able to check a map to see how close they are to a planned destination				
Able to check directions or location to make sure planned route is being followed				
Works out new routes if lost when travelling to an unfamiliar destination				
Can find a way back to a familiar destination if lost				
If a planned route is not available (e.g. road closure, train cancellation), finds an alternative way of getting to their destination				
Able to accurately recognise their goal destination when arrived or close by				
Gets off public transport at the required stop				
	Hearing		Deaf	
	YES	NO	YES	NO
When shopping or activities are finished, finds their way home again				

Plans when they will need to return home according to public transport timetables				
Able to learn new routes after repeating on 2-3 occasions				
Routinely arrives at familiar places on time (e.g. work, doctor's surgery, dentist)				
Can independently check timetables to re-use routes previously taken				
Works out how to get to unfamiliar destinations in a familiar area				
Books and travels on holidays to a range of different destinations (e.g. in same county, country, or abroad)				
Able to catch the bus at a different stop to their usual one and still complete their journey effectively				

Finance

	Hearing		Deaf	
	YES	NO	YES	NO
Has a preference for spending money on particular items related to a hobby or interest				
Can afford to maintain current lifestyle (e.g. lives somewhere with affordable rent, utilities, council tax)				
Understands how to manage their income and outgoings				
Recognises need to plan for the future financially				
Budgets money to cover expenses for at least one week				
Able to make sure that they do not spend more than they earn or have				
Able to decide whether to spend their money or save it for a later purchase				
Identifies objects to be purchased when out and about, or plans beforehand items to be purchased				
Makes shopping lists within weekly budget				
Recognises and prepares for unforeseen costs (e.g. unexpected charge, repair)				
Investigates different options for saving money				
Identifies need to save when big purchases are coming up (e.g. car tax, insurance, Christmas)				
Reviews spending to see what money is being spent on and identify areas for saving				
Understands financial implications of taking out loans before doing so (e.g. checking monthly repayments, interest rates				
Checks whether it is feasible to make large purchases before buying something (e.g. looking at bank statements or savings accounts)				
Researches different options for buying items before making a purchase (e.g. different stores available, best price, quality of item)				
	Hearing		Deaf	

	YES	NO	YES	NO
Reads important documents, for example, credit card applications or rental agreements before signing contract				
Takes out affordable loans				
Does not regularly over-spend money				
Takes enough spending money when travelling to familiar places (e.g. bus fare, small change)				
Gives shop assistant the necessary amount of money when purchasing items				
Completes forms for business or services (e.g. obtains a lease)				
Independently purchases items (online or in a shop)				
Organises own council tax arrangements				
Saves money to buy something special (e.g. a birthday present)				
Makes sure to pay for necessary goods and services (e.g. rent, bills) before spending any disposable income				
Knows whether they have the money to spend on items or services before choosing to do so				
Prioritises monthly payments (e.g. loan, rent, utilities) over spending on social activities or other leisure pursuits				
Checks for correct change after buying an item				
Monitors own spending and expenses				
Will seek monetary advice if getting into debt				
Checks own bank statements to monitor savings before a large purchase				
Regularly checks how much is left of a loan to be paid off				
Researches whether utilities can be provided at a lower cost				
	Hearing		Deaf	
	YES	NO	YES	NO

Recognises when they are in debt and seeks advice for managing this				
Makes a complaint if over-charged				
Switches between companies if they can receive the same service for a lower cost				
Checks that payments are made up to the end of pre-existing contracts (e.g. mobile phone, loans, credit card)				
Uses bank statements or cash machine to identify if there is enough money available to make a large purchase				
Is aware of current financial commitments and how long these will continue for (e.g. loan arrangements, mobile phone contracts)				
Cancels or renews agreements at the end of a contract				
Checks when loans have been repaid in full				
Cancels direct debits/ standing orders independently once services are no longer required				
Can they repeatedly save money for more than one purpose				
Uses previous experiences of successful budgeting to plan for future purchases				
Able to manage regular payments or purchases on an ongoing basis				
Once they have understood how to book a holiday or get a loan, can the person do this again independently				
Does the person learn from previous mistakes (e.g. getting into debt) and make plans to budget in future				
Can the person use knowledge from how to set up one service and apply this to other services				

Recreation

	Hearing		Deaf	
	YES	NO	YES	NO
Has interests that are fun and relaxing				
Able to find things to entertain themselves when bored				
Recognises when they are lonely or bored				
Decides independently whether to participate with others in playing a game or other group activity				
Decides whether to regularly attend a social group (e.g. Deaf club, Deaf pub)				
Able to make use of television or catch-up services to watch favourite TV shows				
Seeks out activities related to hobbies or interests				
Socialises with others at home or in the community				
Texts others to arrange to meet up				
Able to find out information through internet, library, or by asking others				
Plans ahead for fun activities on free days or afternoons				
Packs his/ her own clothing and supplies for overnight trips				
Checks information about purchases or services before buying, through research or asking others				
Finds suitable venues for a day or evening out				
Checks times for accessible film showings				
Finds contact details of others (e.g. by internet, address book)				
Locates important dates on a calendar, for example, birthdays or holidays				
Chooses relevant items to take away on holiday				
	Hearing		Deaf	
	YES	NO	YES	NO

Organises a game or other fun activity in a group of friends independently (e.g. bowling, pub, football)				
Reserves tickets in advance for activities (e.g. sports events, films)				
Attends nights out with friends (e.g. Deaf club, pub)				
Focusses on a game or activity without becoming distracted				
Stops a game or fun activity if something more important comes up				
Plans activities on days that do not conflict with other important scheduled events (e.g. weekends, days off work)				
Checks whether repairs or orders are ready (e.g. by text, or internet)				
Checks, or asks others to help check, travel plans in advance of leaving for a holiday (e.g. plane delays, road closures)				
Monitors whether communication is effective with other members of group activities				
Finds adequate transportation to preferred leisure activities				
Checks in advance of leaving whether a plan is still going ahead				
Leisure activities are what the person really wants to do, rather than being the only accessible option				
Moves plans to a different place if finding it difficult to follow conversations				
Able to tell others if adjustments need to be made to activities to make them more accessible				
Asks for help if struggling to follow what is going on				
Understands the rules of simple games and knows when they have won/ lost				
	Hearing		Deaf	
	YES	NO	YES	NO
Understands the rules of complex games and knows when they have won/ lost				

Can the person organise a large event with different steps (e.g. an event for a social group) and recognise when everything has been done				
Returns home independently after visiting friends or family				
Moves on to a new activity when a current project is completed				
Lets others know when they are ready to leave if out and about				
Retains information about what is needed when packing to go on holiday or travel away from home				
Uses effective strategies for managing interactions in a single or limited range of settings				
Uses knowledge of challenges faced in the past to explain to others necessary adjustments when in groups				
Has effective strategies for managing interactions in most settings (e.g. buying a film ticket, ordering a meal)				

Health and Safety

	Hearing		Deaf	
	YES	NO	YES	NO
Understands rules for safety (e.g. at home, at work, in the community)				
Able to understand common signs (e.g. 'exit', 'no entry', or 'stop') and follows these directions				
Understands what food is healthy/ unhealthy				
Weighs up the decision whether to go and see a doctor about minor ailments				
Decides independently how often to see a dentist/ doctor/ other healthcare professional for routine appointments				
Chooses whether to eat healthily based on awareness of food and nutrition				
If the person has a medical condition (e.g. diabetes), are they able to follow medication regimes				
Organises own appointments				
Owns signalling devices at home as needed (e.g. flashing/ vibrating alarms for fire, smoke, clocks, door)				
Plans meals in order to get necessary nutrition				
Alerts others to the need for services (e.g. doctor, repairs)				
If necessary, asks others to help book appointments or finds alternative ways to make appointments (e.g. going to the GP surgery in person, online booking)				
Understands why it is important not to ask strangers for assistance with certain tasks (e.g. money management)				
Books/ requests an interpreter as appropriate for doctor's appointments				
	Hearing		Deaf	
	YES	NO	YES	NO
Considers risk before engaging in activities (e.g. driving dangerously, walking in the road, extreme sports)				
Carries personal identification when travelling to nearby places in the community				
Makes simples meals that require no cooking (e.g. sandwiches, salads)				
Cooks simple foods on a stove, for example, eggs or canned soup				

Follows safety rules for fire alarms at home or work				
Makes own appointments (e.g. doctors, dentists) independently or with the assistance of others				
Operates a microwave				
Looks both ways before crossing a street or car park				
Leaves current activities in an emergency situation				
Remembers to take medication at specified times				
Avoids situations at home or in the neighbourhood that are likely to result in trouble				
Recognises and checks for signs of infection in cuts and scrapes				
Checks expiration dates to help decide whether to use food				
Able to follow instructions to complete tasks with 2 or more steps				
Mixes and cooks fairly complex foods (e.g. cakes), following a recipe				
Goes to chemists to fill prescriptions given by GP				
Seeks assistance from others if health does not improve after a period of time				
Knows temperature is too high and takes action (e.g. ibuprofen, drink fluids)				
	Hearing		Deaf	
	YES	NO	YES	NO
Researches or asks someone if unclear how to take a particular medicine				
Cares for his/her minor injuries (e.g. paper cuts, knee scrapes, nosebleeds)				
Recognises when a situation may be an emergency and responds in a timely manner				
Cooks and prepares complex meals for self and others				
Stops taking medication once feeling better after an illness				
Turns off hob/ oven after cooking				
Returns to work or activities promptly after a disruption (e.g. fire drill)				
Has a plan for when a fire alarm goes off (e.g. vibrating alarm, fire buddy) and knows the plans for evacuation				
Remembers to fill regular prescriptions when these run out				
Uses strategies that have worked previously to make regular medical/ dental check-ups without prompting				

Able to teach self a new recipe based on previously held cooking knowledge				
Recognises signs and symptoms of serious illness (e.g. shortness of breath, chest pain) and seeks immediate help				

Social Awareness and Competence

	Hearing		Deaf	
	YES	NO	YES	NO
Expresses a sexual preference				
Has a strong sense of identity				
Has a desire for social interaction				
Able to identify emotions in self				
Able to seek out appropriate people for intimate relationships				
Decides alone whether to spend time socialising or doing things alone				
Chooses to befriend other deaf or hearing people				
Joins in with social clubs or events to meet new people (in Deaf community)				
Joins in with social clubs or events to meet new people (deaf/ hearing)				
When leaving home, informs others of destination and return time				
Invites others home for a fun activity				
Goes out to local places with others (e.g. pub, a social group, park)				
Invites others to join him/ her in playing games				
Stands a comfortable distance from others during conversations				
Takes into account other's signing space				
Is not deliberately hurtful towards others				
Seeks friendships with others in his/ her own age group				
Attends fun activities at another's home				
Hosts guests at their home				
Attends fun community activities with others, for example, a movie				
Attends Deaf club or socialises with other Deaf people				
	Hearing		Deaf	
	YES	NO	YES	NO
Offers guests food or beverages				
Places reasonable demands on friends (e.g. does not become upset when a friend goes out with another friend)				
Starts conversations on topics of interest to others				
Initiates games or selects TV programmes liked by friends or family members				
Attempts to maintain good relationships with family members				
Attempts to maintain intimate relationships				
Able to identify emotions in others				

Knows how to make up with friends after a disagreement				
Generally manages frustration if attempts at socialising are ineffective				
Makes others aware if they are going to be late				
Changes communication strategies to adapt to other person				
Recognises when a social problem has occurred and does something about it (e.g. apologises, tries to talk to them about it)				
Monitors reactions from others (e.g. change in body language) and changes the topic if it is upsetting someone				
Has one or more friends				
Keeps a stable group of friends				
Has close relationships with others as well friends who are less close				
Does not become over-familiar with strangers (e.g. accepting gifts or giving personal information)				
Ends conversations appropriately				
	Hearing		Deaf	
	YES	NO	YES	NO
Maintains boundaries with friends and family				
Knows how to entertain themselves if friends/ family are unavailable				
Remembers and utilises effective communication strategies				
Knows how to make and keep friends				
Changes strategies for resolving social problems based on the context (e.g. using different strategies with friends and staff, acting differently at work and at home)				

Communication

	Hearing		Deaf	
	YES	NO	YES	NO
Has adequate motor skills to make clear handshapes				
Does the person understand and use symbolic language to identify others				
Generally correct sign orientation (e.g. placement correct)				
Shakes head 'yes' or 'no' in response to a simple question, for example, 'do you want something to drink?'				
Uses pointing or gesture to indicate whether something is wanted or not wanted				
Expresses a preference between choices				
Contacts people for social reasons or for a purpose (e.g. making appointments, complaints)				
Tells stories about real experiences, giving sufficient detail to be understood				
Tells imaginary stories, giving sufficient detail to be understood				
Works effectively with interpreters or communication support workers to express their needs/ opinions				
Pays attention during family or group discussions for as long as needed				
Gains information from a variety of sources (e.g. TV, internet, newspaper) to keep up with current events and areas of interest				
Considers whether interaction may be difficult and has plans for this in advance (e.g. books interpreters, carries pen/ paper or phone to write things down)				
Decides whether to join in conversations with other deaf people				
	Hearing		Deaf	
	YES	NO	YES	NO

Decides whether to join in conversations with hearing people				
Responds to conversations by answering questions or performing requested actions				
Nods or smiles to encourage others when they are talking				
Stays on topic in conversation rather than going off on a tangent				
Uses mobile phone to contact friends or family				
Sends texts to others				
Communicates about familiar others (e.g. mum, dad, carer) or topics of interest				
Able to engage in conversations for at least 5 minutes				
Pays attention to other people who talk/sign				
Looks at others' faces when communicating without becoming distracted				
Turn-takes in conversation				
Gives enough background information for communication to be understood, and provides additional details if prompted				
Monitors whether others understand what they are expressing				
Communicates clearly in a way that is intelligible to other deaf people				
Communicates clearly in a way that is intelligible to other hearing people				
Communicates clearly in a way that is intelligible to others who know the person well				
Able to adapt communication in a variety of ways (e.g. higher/ lower register signing, oral communication, writing things down)				
	Hearing		Deaf	
	YES	NO	YES	NO

Makes others aware if they need prompts to keep up with conversation or are lost in conversation				
Lets someone know if struggling to follow conversations on a fixed topic				
Able to negotiate an interaction to get a needed item (e.g. buying something in a shop)				
Understands grammar, e.g. the difference between 'the boy pushed the girl' and 'the girl pushed the boy'				
Makes complaints about a product or service and checks to make sure that action is taken				
Does not use signs/ phrases repetitively				
Withdraws from conversations when finished or no longer interested, rather than because the person is not following the discussion				
Able to communicate effectively with family members				
Able to communicate effectively with friends				
Able to communicate effectively with people unknown to the person				
Has strategies to communicate independently when out and about				
Uses a range of communication technologies to get in touch with others for social purposes (e.g. minicom, video apps, texting)				
Uses up-to-date information to discuss current events				

Work

	Hearing		Deaf	
	YES	NO	YES	NO
Recognises if there are home projects that need to be done (e.g. decorating, fixing things, gardening)				
Recognises if they are becoming isolated at work or during projects				
Works out what tasks need to be done and plans time to do these				
Discusses realistic future educational or career goals				
Decides whether to look for a job in an area of interest				
Independently chooses what to focus their time on				
Fills in job applications, with or without support				
Works on one home activity for at least 15 minutes				
Makes reminder notes or lists				
Gathers all supplies needed before beginning a cleaning or maintenance project at home				
Plans ahead to allow enough time to complete large projects				
Seeks employment that is suitable to skills and interests				
Considers whether a project is feasible (e.g. that there is enough time/ resources) before starting				
Plans for possible communication needs at work (e.g. books or requests interpreters/ notetakers/ lipspeakers as needed)				
Has a schedule which they are able to follow				
Uses interpreters/ support workers effectively at work				
Undertakes work or tasks within their skill set				
Makes minor repairs to personal possessions (e.g. bikes or clothes)				
	Hearing		Deaf	
	YES	NO	YES	NO

Completes household tasks independently (e.g. laundry, washing up, cleaning)				
Has looked for part-time, full-time, or voluntary work				
Is able to focus on work even if there are distractions				
Works quietly and does not disrupt or disturb the work of others				
Continues working productively if there is a change in routine				
Acquires new skills through observation				
Checks work against set targets and deadlines				
Easily moves between tasks and manages workload effectively				
Keeps working on hard tasks without becoming discouraged or quitting				
Sets or follows deadlines to ensure that a task is completed on time				
Makes plans for home projects in logical steps				
Able to prioritise activities if something urgent comes up				
Changes or attempts to change strategies for completing work following constructive feedback				
Adapts to new ways of doing tasks if shown a more efficient way				
Completes large projects (e.g. decorating, painting) on time				
Meets deadlines effectively				
Follows steps to complete a project (e.g. assembling furniture)				
Moves onto a new project or deadline once a piece of work is completed				
	Hearing		Deaf	
	YES	NO	YES	NO
Independently decides to move onto something new when a piece of work is completed				

Recognises when targets are met and moves on to another task				
Able to competently complete the same task repeatedly after it is learnt				
Carries out familiar work tasks without prompting				
Learns from previous mistakes at work				
Takes on board constructive feedback from supervisors and generalises to other work situations				
Uses prior knowledge to problem-solve in unfamiliar situations				

Many thanks for your continued participation. By responding to these items it will help further the understanding of how adaptability may be best assessed in terms of cultural relativity and the transferability of adaptive behaviour as a construct.

Please email this document along with the feedback report and any comments you may have had back to Kate Moore: lwxkamo@nottingham.ac.uk

I will analyse the results over the next several weeks and it is likely that I will feed back one further report.

Thank you for completing this questionnaire.

These results will be collated and general comments will be summarised and fed back to the group. You will be contacted again in approximately 2-4 weeks to consider these questions again based on the feedback from this round of the survey.

If you have any further comments or concerns, please contact Kate Moore by emailing: lwxkamo@nottingham.ac.uk

Appendix P~~O~~

Feedback report compiled following Delphi round 1 sent back to participants for feedback on working definition for Delphi round 2

Feedback from Delphi Questionnaire

This report represents feedback from the Delphi questionnaire sent to participants in this research, as recommended by Delphi methodology procedures (Dalkey, 1969). You were asked to rate a set of items developed to measure adaptive behaviour based on their relevance and usefulness for assessing deaf adults. In addition, you were asked for any comments you had about the items.

The results from the rankings showed that for many items there was significant disagreement about the usefulness or relevance for assessing adaptive behaviour in deaf adults. It is possible that disagreement in how adaptive behaviour is defined has influenced how people then conceptualise how it should be measured. A thematic analysis on the comments that were provided was conducted, to see if a more specific definition for the deaf community can be established.

If you are still happy to participate, I would greatly appreciate if you could take the time to review the findings of this analysis. Given the level of variability in responses to the items presented, this has raised questions about the construct of adaptive behaviour when applied to deaf people. Please read and consider the information below. **I am seeking any comments on the findings that you may have, and any additional thoughts you might have on adaptability and deafness.**

Themes

Current measures for assessing adaptive behaviour are based on the AAIDD (2008) definition: 'the collection of conceptual, social, and practical skills that all people learn in order to function in their daily lives'. The ABAS-II, a widely used adaptive behaviour tool conceptualises it as 'practical, everyday skills needed to function and meet the demands of one's environment, including the skills necessary to effectively and independently take care of oneself and to interact with other people'. However, Schalock (2004) defined adaptive behavior as the 'effectiveness and degree to which people meet the standard of personal independence and social responsibility expected of their age and cultural group'. Reviewing definitions of adaptive behaviour, it appears that the following similarities are key aspects of each of these definitions:

- Skills (the quantitative and qualitative performance of various activities)
- Day-to-day functioning (skills that are useful in everyday life)
- Context (being able to be responsive to one's environment)

- Personal independence (pertaining to a sense autonomy and agency in one's life, allowing an individual to achieve their full potential)
- Relativity to comparable groups (e.g. age, culture)

The following analysis considers the comments in light of these factors and how adaptability may be understood in relation to deafness. However, this appears to be adhered to variably depending on the emphasis of the specific measure. Six main themes related to the assessment of adaptive behaviour in deaf adults were identified from the data provided by yourselves:

- Language
- Repetition
- Assessment
- Developmental Factors
- Cultural Differences
- Accessibility

These themes were inter-related and present in comments pertaining to each of the individual domains (e.g. finance, travel, health and safety). Overarching these six main themes were super-ordinate themes, which appeared to divide the comments in terms of 'structural' factors (e.g. those pertaining to the design of the questionnaire itself) and 'content' factors (e.g. the actual content of the questionnaire, and how adaptive behaviour may be differently conceptualised when applied to deaf people).

Although the areas of 'language', 'repetition', and 'assessment' contain some interesting deaf-specific features, they are largely applicable to the design of any questionnaire. For example, many comments related to the condensing of items which were differently phrased ways of tapping into similar functional skill areas, or using language that would be understood clearly by respondents (e.g. plain English, ambiguity in what the question is asking, or asking multiple questions at the same time).

Within this report I have focussed on analysing the areas of 'developmental factors', 'cultural differences' and 'accessibility' as this may help clarify a definition of adaptive behaviour that accounts for the experiences and behavioural norms of deaf people as opposed to standard assessments, which may not be sensitive to these features.

Developmental Factors

One important finding from the experts' comments was that there was a clear differentiation to a conventional, 'hearing' understanding of the skills required for adaptive behaviour, in the sense that behaving in a way that is not generally considered adaptive could still be adaptive in a different context:

> *'Deaf people generally give up making complaints – process is usually hearing oriented and they soon learn not to bother. It is adaptive not to bother to complain as it takes up too much energy and doesn't change anything'*

'Many deaf people don't bother [going to the GP and booking an interpreter] – too much trouble and learnt that it is too complex'

Although this implies that passivity or learnt helplessness derived from repeated setbacks in attempting day-to-day tasks is beneficial to preserving energy, this is a different understanding of 'adaptability' than has been previously recognised in current measures. Fogle (1978) described this dilemma in the conceptualisation of learnt helplessness as a coping behaviour designed to avoid threat. He suggested that where events are outside the person's control and there is a lack of access to more effective coping responses, then this may indeed be seen as an adaptive response. It may be that this is the case for deaf people, who may still lack access to services, resources and opportunities and therefore be relatively disempowered, especially if the individual has additional disabilities (e.g. a cognitive impairment).

It was also clear that there are factors based on the experience of growing up deaf, or identifying strongly with the deaf community that influence the way in which individuals behave or the day-to-day skills they might employ:

'*not useful as an adaptive measure – many deaf people would reject this [booking interpreters, carrying pens/ paper or a phone to write things down]'*

'not sure of the validity of the last 3 items which a) put the onus on the deaf person for adapting communication and managing interaction – many very able deaf people would reject this and therefore b) does it say anything at all about LD/ functional abilities?'

This suggests that although the individual may be aware that these are effective strategies for meeting needs, there are a considerable faction of the deaf community who would choose not to act in this way. This indicates the importance of both developmental factors in these attitudes becoming fixed through repeated experiences of finding preferred strategies, and also the importance of test administrators/ respondents in recognising this as a confounding variables in assessing adaptive behaviour. **In this instance by rejecting certain problem-solving strategies results in the same outwardly observable behaviour as an individual who is not *able* to use these strategies.** However, it should be noted that these choices are not made be everyone and in terms of relativity this means that a normative response is hard to establish, possibly limiting the validity of these items within assessment.

There is also perhaps an element of confidence implied in undertaking these tasks which may be contextual, in that some deaf people may feel more comfortable to behave in certain ways if in a group of other deaf people, rather than an entirely hearing environment. In the context of confidence, it might be that because some adaptive skills are harder for deaf people to carry out in traditional assessments, or where the items lack cultural/ face validity ('journey by public transport is by default more complex for a deaf person'). This means it is a relatively higher-order skill and may require greater planning, carrying with it greater risk of something going wrong, impacting on the choices that people make.

Cultural Differences

One of the core unique factors that means a definition of adaptive behaviour may need to exist for deaf people is the position of living within a deaf community and adhering to values and behavioural norms associated with this community, whilst also existing within a mainstream hearing society, or negotiating this balance to identify with either group to a greater or lesser extent. Unlike many other minority groups, deaf people are also in a position where the fact of their identifying as deaf is not necessarily shared by family and close relatives, and therefore cultural membership may be learnt from peers or shift throughout the lifespan (Ludden, 2015). This means that certain choices and behaviours may be preferred at different times, which may need capturing within scoring matrices.

> *'Capturing someone who tries to fit in with the hearing world and rejects deafness might be useful as this identity of attempting to 'pass' as a hearing person has been shown to be the least adaptive in various studies'*

This idea supports the notion that adaptability is contextually bound, and also considers the importance of cultural relativity. The extent of identification with deafness and the impact of identity on choices made is a complex interaction and difficult to assess. The Deaf Identity Development Scale (Glickman, 1993) was found to be able to categorise identification with the community: Fischer and McWhirter (2001) make some further predictions about what this may indicate about someone's attitudes and behaviour. For example, a 'hearing-impaired' person may conform to mainstream hearing attitudes, perspectives, and manner of behaviour, whilst an individual with an 'immersion identity' is thought to use sign language and be involved with the Deaf community and associated social, cultural, and political stance (p. 355). However, in the context of adaptive behaviour, these findings may mean **it is difficult to determine what course of action may be more/ less adaptive in a standardised way, especially without explicit knowledge of how someone's identity is likely to affect their behaviour and cultural frame of reference**.

Between participants, there was some discussion about communication and thus identification with Deaf values. One person commented:

> *'This does have some underlying assumptions – e.g. that it is adaptive for the person to belong to the Deaf community – however many Deaf people choose not to do this due to gossip or 'backstabbing' or because they are not welcomed, e.g. if they have an additional disability.'*

There appeared to be differing opinions within the analysis in the extent to which it may be adaptive to adhere strongly to Deaf community values and the cross-cultural context in which Deaf people live. Engagement with Deaf groups may be adaptive in some sense, following Ladd and John's observation that '… we are not disabled in our own community' (1991, p. 14-15, cited by Lang, 2001). In mixing within one's own cultural group, a Deaf person with average intellectual functioning could be considered fully adapted and able to functional perfectly well. However, removed from this context and required to integrate with hearing society (e.g. for work, errands, etc.) differences

in adaptability may become more apparent and this additional facet of adaptive ability is not captured by standard measures of adaptive behaviour.

Related to this, deaf people may select different strategies for problem-solving as opposed to those in a mainstream hearing context, which was a latent sub-theme derived from the comments made. For example, whilst using pen and paper to navigate social interactions may be an effective strategy for communication, the expert participants suggest many deaf people would reject this (possibly due to identification with Deaf community values or a 'political' stance), and an assumption of written language fluency is not a given for deaf people (Musselman & Szanto, 1998). As such, many items that would appear to have good face validity are questionable where the individual is deaf.

> *'It can be common for [deaf people] to rely on their memories for birthdays etc, as they have never used a calendar/ diary'*
>
> *'[ending conversations appropriately]… there are differences in hearing ways of doing this and deaf ways – might need examples'*

In this sense, it becomes difficult to draw a line at which of these behaviours are adaptive and which may be less so. This may depend on the perspective of the assessor; research shows that clinicians are more likely to over-diagnose a range of mental health or learning problems in deaf people if they are unfamiliar with working with this population (Landsberger & Diaz, 2010; McKay & Vernoon, 1994). Current measures of adaptive behaviour, for example, do not award credit for actions that cannot be performed 'independently' (e.g. with the help of a support worker or interpreter) and yet this would be considered an adaptive solution to a range of interactions within the hearing world, in a deaf context. However, one participant notes that many deaf people may be discouraged from this, possibly due to previous bad experiences with trying these strategies and it being complex or not as effective as anticipated. As such, **it becomes hard to judge whether giving examples of strategies contextualises items when assessing adaptive behaviour, or whether simply asking whether a person is able to perform different skills is relevant**. This relates to some of the structural comments made about the items presented and greater agreement about the usefulness of items were obtained where examples were given, yet the comments appear to contradict this.

Accessibility

Communication barriers may present both within here-and-now interactions, and in the cumulative impact of growing up language deprived. Many participants pointed out that this may impact upon both the development of 'everyday' skills ('*deaf people do not have same access to phone, internet, literacy on which a lot of these skills depend'*) as well as how this may conflate the assessment of adaptive behaviours. For example, poor literacy was frequently felt to be an alternative explanation for not engaging with particular skills or problem-solving strategies, rather than a failure to perform representing learning disability or a cognitive deficit.

Indeed, the lack of opportunity and the impact of this on learning skills was explicitly mentioned by several participants:

> *'People often do not do things they 'could' do to others doing it for them. Sometimes they 'can' but are not given the opportunity. Sometimes that lack of opportunity means they do not develop the skill and cannot'*

This statement represents a general issue affecting many who may have a learning disability, but may also relate to deaf people growing up in hearing environments, making it difficult to sensitively draw apart what factors may have a role in behaviour. Limitations in choices and availability of resources may also impact the way in which people behave and their capacity to become adaptive:

> *'Never given the opportunity to try different things, to then be able to choose for themselves what they would want to do when bored – follow the same pattern of being told what to do. Often a range of possible activities need to be presented and taught, and then this question could assess this later in treatment'.*

This highlights that **although limited choices are not unique to Deaf people, a way in which the impact of deafness on learning of skills can be tested is to attempt to teach a greater range of skills and then make this assessment**. In this sense, a cognitive disability can be excluded upon greater certainty that the person has the capacity to learn if shown how to perform particular tasks. Consolidating this notion further, one participant commented:

> '*I answered in assumption that deaf people would know how to do all this – normally we wouldn't know if we haven't been shown how to do some of the things outlined above'*

This indicates that skills selected for assessing adaptive behaviour should be considered carefully through a lens of things that deaf people have had opportunities to learn, as it cannot be taken for granted that this would be general knowledge due to the limited access to learning some may have experienced. As such, the notion of 'everyday skills' or 'day-to-day functioning' may look quite different for an adaptive deaf adult that is not being captured by current measures of adaptive behaviour.

Access may also be limited not just through the experience of being culturally deaf, but through virtue of lack of hearing. For example, some skills may be concomitant with physically being able to hear, even where this is not explicitly a demand mentioned in the item (e.g. 'listens to music'). For example, some participants discussed how awareness of surroundings may be relatively more limited than that of a hearing person:

> *'[monitoring whether communication is effective] – more difficult for deaf people in hearing environment'*
>
> *'[avoids situations likely to cause trouble] – if aware, given deafness'*
>
> *'deaf people may not understand what other people are saying so they walk away or something like that'.*

In these instances, it may be that there is an assumption that the individual is in some way less socially competent through not being able to recognise these things, where it could be that not being able to physically hear is inhibiting that individual from responding to social cues that are more accessible to a hearing person**. This has great relevance to the structural aspects of designing questions that are valid for deaf people, but also highlights the importance of recognising the interaction between deafness and the domains on which adaptive behaviour is founded** (e.g. ideas surrounding social, conceptual, and practical competence).

Conclusions

This thematic analysis highlights some key aspects of adaptability in the deaf community that particular differ from the 5 areas that most definitions include stated above.

Skills and day-to-day functioning

Although it is a reasonable suggestion that through experience of setbacks a person would learn not to bother with particular tasks and this may have some adaptive value, there are issues with assessing this in a standardised measure. It is likely that while this may affect many deaf people, there will be others who do manage these skills and therefore in a large normative sample this may mean that there is significant variability in those who would and would not perform the skill if required. As such, it may not tell a clinician anything useful about a person's adaptive ability, and as such questions that tap into this type of avoidance (e.g. making complaints) may not be useful. However, this does highlight that there may be significant differences in the way in which deaf people function day-to-day as compared to hearing people, given that this behaviour may be more common for a deaf person.

Context

The role of context and assessing differences in behaviour between deaf and hearing environments appears to be a very important feature of an adaptive assessment, given that variables associated with confidence may impact on behaviour and also allows for a fuller picture of whether someone is able to act to their full potential in a hearing environment.

Personal independence

A different understanding of 'personal independence' appears to be developing through the thematic analysis, indicating that in a measure of adaptive behaviour designed for deaf people it would be useful to incorporate behaviour in which a person uses compensatory mechanisms (e.g. working with a support worker or interpreter) in order to achieve needs or goals.

Relativity to comparable groups

Both age and cultural comparisons may be relevant to this assessment. Due to various developmental factors and the development of deaf identities, it may be that behaviour would change over time at a different trajectory to that expected in a majority hearing population. This again suggests that adaptability is highly contextual and that assessors must remain vigilant to this at the time of assessment, including features of developmental history and cultural considerations in the assessment process.

‘Life skills’ training programmes may be a useful way of considering adaptability and the influence of any cognitive issues, but this can be a lengthy process also associated with confounding variables. The knowledge base of deaf individuals may be different to that of a hearing person because of loss of incidental learning opportunities and possibly less emphasis on the teaching of skills to deaf young people, so it is important to ascertain what is knowledge that the deaf community are likely to possess and develop assessments that account for this.

Rankings

I have also collated the results of all the Delphi rankings (see Appendix for full details). As you can see, there is a great deal of disagreement between several of the items. I have considered some of the rankings and what these might say about adaptability, revealing some additional information beyond that which the themes offer.

Accessibility

The best rated items in this section are quite concrete in their wording, and are not related to the experience of being deaf. However, the items that are rated worst are arguably conflated by the themes identified in how being deaf interacts with adaptive behaviour. For example, ‘books and travels on holidays to a range of different destinations (e.g. in same county, country, or abroad)’ may be influenced by factors surrounding literacy, whilst ‘leaves home to travel to other destinations’ is not clearly worded, therefore making it a less accessible item. Questions containing ‘research’ are generally rated quite low, with the exception of ‘researches or asks someone if unclear how to take a particular medicine’. Introducing another option for checking may mitigate some of the effect associated with ‘research’ being included in the question, and the association of this with literacy.

However, ‘checking’ items also yielded disagreement, with some comments suggesting that this may be harder for deaf people as there may be less access to technology, phones, or internet. Where visual strategies are introduced within the question (e.g. recognising landmarks) this tended to be higher rated than questions relying on technology or reading. The exception to this is in the ‘work’ section where the impact of including ‘checking’ in the question does not appear to influence ratings. This may be because those in employment are likely to be high functioning and the impact of the factors associated with making checking less accessible may be less prominent.

Some items which involve mention of specific activities, such as going out to see a movie was rated as lower than others (e.g. pub, social groups, park), which may indicate that there is poorer access to this form of entertainment, making it a poorer activity to select as an assessment of recognising the need to entertain oneself and fulfilling this. Questions which involve an element of interaction were also generally rated as lower.

Finally, accessibility also conflated the assessment of some areas of adaptive skills in the context of health and safety due to the relative inaccessibility of healthcare for

many deaf patients. For items related to routine health-related behaviour there was poorer agreement, which also held true for seeking out immediate care or taking urgent medical action. However, the latter could be considered more adaptive. The consistently low ratings surrounding health may imply a behavioural norm of deaf people that regular access to healthcare is not sought, but this is likely to reflect broader systemic inequalities in making this process far more complex than it would be for a hearing person.

Communication

Although there was disagreement within the thematic analysis about whether an assessment of communication ability is 'adaptive', these items were rated relatively high compared to some of the assessment of functional language. This may mean that **in a deaf context, an assessment of language may help to identify whether issues around language deprivation or low language ability are contributing to poorer adaptive skills.** However, it does carry the assumption that the language used would be BSL or use of manual signing rather than spoken language, and that this may be more adaptive.

Theoretical Basis for Items

Questions relating to awareness and understanding of wants and needs, and choosing whether to gratify these are generally well-rated. This was established within the thematic analysis as an important point to assess as lack of understanding or awareness may lead to lack of skill development, and can help differentiate between someone who is learning disabled and someone who is deaf and has not had adequate opportunities to learn. However, many questions do not contain information about carrying out a skill based on this understanding, and therefore may be harder to assess.

The concept of recognition was not well agreed upon in different contexts throughout the ratings. For example, recognising emotional states in oneself, and recognising isolation were both rated relatively low, possibly suggesting that this may not be a psychologically adaptive mechanism in relation to wellbeing.

Items involving planning were generally more highly rated when the purpose of the item was clear. For example, items that were more vague about why the behaviour was being performed or planned, such as 'leaves home to travel to other destinations', was rated lower than 'plans travel to a destination, e.g. shops, pub, friend's house'.

Level of Ability

Some items may have tapped into an ability level too high for that which may be sensitive to possible cognitive impairment. Particularly in the 'finance' section some of the higher ratings were those that were more closely linked to 'everyday' activities such as spending in a café, or bus fares. However, these also contained elements of

interaction and therefore may be a less reliable assessment of adaptability. Some comments suggested that there were several items that appeared more 'middle class', in that they tapped into factors related to being responsible rather than necessarily 'adaptive'. **These areas of behaviour may not be representative of the general population (deaf or hearing) and are therefore were perhaps not considered to be as good an assessment of adaptability**.

Using Examples

Where specific examples of how problems might be solved (e.g. by checking a map) are provided, there appears to be greater disagreement. For example, 'can find a way back to a familiar destination if lost' yields 100% ratings of 4 or more, but there is no indication included in how the problem is solved and is somewhat vaguer. However, the comments provided indicate that specific examples are a useful feature of constructing questions as without these there may be confusion amongst respondents.

There appears to be a need for balance between being concrete and clear about the purpose of particular skills, for example by using learnt knowledge to achieve specific goals, yet once these higher-order skills are introduced more disagreement is also found. This may be because more complex factors related to the influence of deafness are introduced and begin to make the item a less reliable measure of adaptability alone. However, **it may also be the case that in asking questions that provide specific examples of ways to achieve particular behaviours, this may not account for the norms and expectations of someone who strongly identifies with their culture and can therefore lead to inaccuracies in assessment.**

Phrasing of Questions

Negative framing of questions appears to yield lower agreement. For example, questions about not getting lost were higher rated than becoming distracted. This was also the case for items around finance, where questions about budgeting tended to be better rated than those that indicated getting into debt or over-spending. Language use was also an important factor in questions surrounding the communication section. For example, 'makes others aware if they need prompts to keep up' could perhaps be reframed as raising awareness of lack of access as phrasing appears to yield different ratings amongst questions focussing on functionally similar skills.

Distractibility was interpreted differently by some participants, with one person suggesting that due to the visual nature of being deaf, it is not a clear indicator of a learning disability to go off-task whilst out and about. The work section highlighted that continuing to stay on task and working productively was a better rated way of being adaptive than asking about whether someone becomes distracted, again reflecting the influence of phrasing on the items.

Learning through Action/Observation

Items that tended to be rated higher were related to skills that were clearly learnt through practice or observation. For example, performing a behaviour explicitly taught was felt to be a better measure of adaptive behaviour than vaguer items asking about ability to change strategies. This is less concrete and also possibly reflects an issue in not having access to learning different ways of doing things. However, simply copying tasks were less well-rated. Items asking about 'following procedure' tended to yield low ratings. This may be due to the possible influence of language factors or confidence, or be a less adaptive skill than acting autonomously. This was supported by higher ratings in the work section where the emphasis on independent decision-making increased agreement.

Assessing in Hearing and Deaf Contexts

Some items did not split whether the question refers to deaf or hearing contexts. For example, 'chooses to befriend other deaf/ hearing people' was stated as one question. However, this actually yielded a higher level of agreement than questions which asked about one context and then the other (e.g. 'joins in with social clubs or events to meet new people (deaf community)' and 'joins in with social clubs or events to meet new people (deaf/hearing)'). These two questions yielded identical results. It is possible that the lack of splitting the question gives room for ambiguity and therefore may be interpreted as a good catch-all that demonstrates social competence in unspecified settings.

The meaning of 'independence' is a recurring theme within the analysis of comments and in the ratings, as this produces variable responses. This indicates that 'independence' may mean something different in a deaf context. It may not be as good a measure of adaptive behaviour in the sense that this differs to the traditional conceptualisation that no credit should be given to behaviours that cannot be conducted without help. However, **it seems that it would be adaptive to do this with the assistance of another person in many scenarios involving deaf people, where some adaptive skill may also be judged in how well the person can work with another person to meet their needs (e.g. in the case of interpreters).** As such, it is important to consider the context of independence both within the hearing and deaf world.

Confidence/ Anxiety

Several questions may require the individual to have considerable confidence in performing particular skills. For example, 'moves plans to a different place if finding it difficult to follow conversations'. It would take an assertive person to be able to do this, but **it is difficult to establish whether this is a core feature of what it means to be adaptive (e.g. choosing behaviours that meet needs within your environment), or whether this means that questions introducing an element of confidence are not appropriate in this assessment**. The question 'able to tell others if adjustments

need to be made to activities to make them more accessible' was rated higher than many others where confidence or anxiety may impact on how individuals respond, possibly because the first requires more action whereas the second is more about raising awareness.

Adaptability

Interestingly, some questions that explicitly refer to 'adapting' to various environments yielded disagreement. 'Changes communication strategies to adapt to the other person' may have been interpreted as putting the onus of responsibility on the individual to do this, which may not always be possible. Equally, 'able to adapt communication in a variety of ways' was not well agreed upon, suggesting a similar issue. This may also have some associations with identity and choices about when to use particular behavioural skills. For example, it was commented within the thematic analysis that some people may reject communicating in particular ways, and therefore asking about this to assess adaptability may not be tapping into the skills in which this measure is interested.

Further, cultural identification may also be relevant to whether adaptability should include adapting to a hearing environment, as this may not be possible or desired by many deaf people, as evidenced in the question 'communicates in a way that is intelligible to hearing people'. **This further supports the need to assess behaviour in both a deaf and hearing context, which may help draw apart some of whether skills can be performed.**

Conclusions

This process of analysis consolidated some of the themes that had emerged from the comments, clarifying the differences in the areas of adaptive behaviour as stated above.

Further, this section considers the role of responsibility for adaptation, and whether this is possible even if it is desirable, both of which are assumptions implicit in the questions asked. This raises two important questions for assessment, in being sensitive to situations in which the individual is physically unable to meet the demands of a situation (therefore not being related to adaptability). Additionally, it again implicates the role of confidence/ anxiety and whether adaptation and being independent and autonomous within decision-making is easier or harder within a deaf/ hearing environment.

This section also offers a lot in terms of structuring a possible new assessment, identifying important features of phrasing questions and areas that may be more subject to interaction with deafness that may affect the reliability of the assessment (e.g. framing things negatively, including factors that rely on literacy and technology). This will help to refine items further, once it has been established what adaptive factors to focus on within assessment.

Working definition

From theses analyses, a slightly modified understanding of adaptive behaviour can be developed. Although this is not markedly different from existing definitions, it further emphasises the importance of cultural relativity and identification, which are particularly important facets of adaptability for deaf people. I have also detracted emphasis from factors related to personal independence, as this analysis indicates that independence may be different in a deaf context, in that working with others or utilising technology may be adaptive strategies, and therefore the 'use of resources to achieve goals' fits more closely with this understanding. It seems that greater clarity in the construct is important, and will inform item selection and the way in which an assessment should be structured.

I am proposing: '**a collection of skills that are used day-to-day based upon a person's prior learnt knowledge and access to opportunities, enabling the individual to draw upon a variety of resources to achieve their full potential within both deaf and hearing contexts, in a manner consistent with their values and identified cultural norms and appropriate to their age'** as an alternative definition of adaptive behaviour for deaf people.

Please use the space below to comment on any of the findings of this report (e.g. things that may be missing, whether you agree with what was found) and any thoughts you may have about the definition of adaptive behaviour proposed here.

Comments:

Many thanks for your continued participation. By responding to this analysis and providing your thoughts about the definition and conclusions made, it will help further our understanding of how adaptability may be conceptualised.

Please email this document along with the Delphi rankings document back to Kate Moore: lwxkamo@nottingham.ac.uk

I will analyse the results over the next several weeks and it is likely that I will feed back one further report.

Appendix O~~P~~

Items identified as potentially problematic for a Deaf person of average intellectual functioning as ranked in Delphi Round 2.

Travel

Problems in hearing context	**Problems in deaf context**	**Problems in both contexts**
3. Is aware of the need to go to other places for social purposes or work		14. Able to check for any problems on routes in advance of leaving home
4. Chooses whether to go out for social clubs or activities		15. Checks to see whether there are faster or more efficient options for travel before choosing
8. Plans to take other people on trips to nearby places, for example, takes a family member to the shops		16. Makes transport choices based on cost, length, and complexity
10. Researches options for booking a holiday or travelling away from home		25. Obeys traffic signals when riding a bike or driving a car
29. Able to check directions or location to make sure planned route is being followed		26. Checks how many bus or train stops remain on a journey whilst travelling
30. Works out new routes if lost when travelling to an unfamiliar destination		31. Can find a way back to a familiar destination if lost
		32. If a planned route is not available (e.g. road closure, train cancellation), finds an alternative way of getting to their destination
		34. Gets off public transport at the required stop
		41. Books and travels on holidays to a range of different destinations (e.g. in same county, country, or abroad)

Finance

Problems in hearing contexts	Problems in deaf contexts	Problems in both contexts
18. Takes out affordable loans		11. Investigates different options for saving money
24. Organises own council tax arrangements		14. Understands financial implications of taking out loans before doing so (e.g. checking monthly repayments, interest rates
31. Will seek monetary advice if getting into debt		16. Researches different options for buying items before making a purchase (e.g. different stores available, best price, quality of item)
33. Regularly checks how much is left of a loan to be paid off		17. Reads important documents, for example, credit card applications or rental agreements before signing contract
35. Recognises when they are in debt and seeks advice for managing this		20. Takes enough spending money when travelling to familiar places (e.g. bus fare, small change)
47. Once they have understood how to book a holiday or get a loan, can the person do this again independently		21. Gives shop assistant the necessary amount of money when purchasing items
49. Can the person use knowledge from how to set up one service and apply this to other services		22. Completes forms for business or services (e.g. obtains a lease)
		25. Saves money to buy something special (e.g. a birthday present)
		27. Knows whether they have the money to spend on items or services before choosing to do so
		30. Monitors own spending and expenses
		32. Checks own bank statements to monitor savings before a large purchase
		34. Researches whether utilities can be provided at a lower cost
		36. Makes a complaint if over-charged

		37. Switches between companies if they can receive the same service for a lower cost
		38. Checks that payments are made up to the end of pre-existing contracts (e.g. mobile phone, loans, credit card)
		39. Uses bank statements or cash machine to identify if there is enough money available to make a large purchase
		40. Is aware of current financial commitments and how long these will continue for (e.g. loan arrangements, mobile phone contracts)
		41. Cancels or renews agreements at the end of a contract
		42. Checks when loans have been repaid in full
		43. Cancels direct debits/ standing orders independently once services are no longer required

Recreation

Problems in hearing contexts	Problems in deaf contexts	Problems in both contexts
1. Has interests that are fun and relaxing		14. Finds suitable venues for a day or evening out
4. Decides independently whether to participate with others in playing a game or other group activity		19. Organises a game or other fun activity in a group of friends independently (e.g. bowling, pub, football)
5. Decides whether to regularly attend a social group (e.g. Deaf club, Deaf pub)		22. Focusses on a game or activity without becoming distracted
7. Seeks out activities related to hobbies or interests		26. Checks, or asks others to help check, travel plans in advance of leaving for a holiday (e.g. plane delays, road closures)
8. Socialises with others at home or in the community		27. Monitors whether communication is effective with other members of group activities
9. Texts others to arrange to meet up		29. Checks in advance of leaving whether a plan is still going ahead
10 Able to find out information through internet, library, or by asking others		30. Leisure activities are what the person really wants to do, rather than being the only accessible option
11. Plans ahead for fun activities on free days or afternoons		32. Able to tell others if adjustments need to be made to activities to make them more accessible
13. Checks information about purchases or services before buying, through research or asking others		33. Asks for help if struggling to follow what is going on
16. Finds contact details of others (e.g. by internet, address book)		36. Can the person organise a large event with different steps (e.g. an event for a social group) and recognise when everything has been done
21. Attends nights out with friends (e.g. Deaf club, pub)		42. Uses knowledge of challenges faced in the past to explain to others necessary adjustments when in groups
23. Stops a game or fun activity if something more important comes up		

25. Checks whether repairs or orders are ready (e.g. by text, or internet)		
31. Moves plans to a different place if finding it difficult to follow conversations		
34. Understands the rules of simple games and knows when they have won/ lost		
35. Understands the rules of complex games and knows when they have won/ lost		
39. Lets others know when they are ready to leave if out and about		
41. Uses effective strategies for managing interactions in a single or limited range of settings		

Health and Safety

Problems in hearing contexts	Problems in deaf contexts	Problems in both contexts
1. Understands rules for safety (e.g. at home, at work, in the community)	12. If necessary, asks others to help book appointments or finds alternative ways to make appointments (e.g. going to the GP surgery in person, online booking)	3. Understands what food is healthy/ unhealthy
14. Books/ requests an interpreter as appropriate for doctor's appointments		4. Weighs up the decision whether to go and see a doctor about minor ailments
		5. Decides independently how often to see a dentist/ doctor/ other healthcare professional for routine appointments
		6. Chooses whether to eat healthily based on awareness of food and nutrition
		7. If the person has a medical condition (e.g. diabetes), are they able to follow medication regimes
		8. Organises own appointments
		10. Plans meals in order to get necessary nutrition
		11. Alerts others to the need for services (e.g. doctor, repairs)
		13. Understands why it is important not to ask strangers for assistance with certain tasks (e.g. money management)
		16. Carries personal identification when travelling to nearby places in the community
		19. Follows safety rules for fire alarms at home or work
		20. Makes own appointments (e.g. doctors, dentists) independently or with the assistance of others
		23. Leaves current activities in an emergency situation

		25. Avoids situations at home or in the neighbourhood that are likely to result in trouble
		26. Recognises and checks for signs of infection in cuts and scrapes
		29. Mixes and cooks fairly complex foods (e.g. cakes), following a recipe
		31. Seeks assistance from others if health does not improve after a period of time
		32. Knows temperature is too high and takes action (e.g. ibuprofen, drink fluids)
		33. Researches or asks someone if unclear how to take a particular medicine
		35. Recognises when a situation may be an emergency and responds in a timely manner
		36. Cooks and prepares complex meals for self and others
		40. Has a plan for when a fire alarm goes off (e.g. vibrating alarm, fire buddy) and knows the plans for evacuation
		43. Able to teach self a new recipe based on previously held cooking knowledge
		44. Recognises signs and symptoms of serious illness (e.g. shortness of breath, chest pain) and seeks immediate help

Social awareness and competence

Problems in hearing contexts	Problems in deaf contexts	Problems in both contexts
2 Has a strong sense of identity		4 Able to identify emotions in self
3 Has a desire for social interaction		10. When leaving home, informs others of destination and return time
5 Able to seek out appropriate people for intimate relationships		21. Attends Deaf club or socialises with other Deaf people
7 Chooses to befriend other deaf or hearing people		25. Initiates games or selects TV programmes liked by friends or family members
8 Joins in with social clubs or events to meet new people (in Deaf community)		28. Able to identify emotions in others
9 Joins in with social clubs or events to meet new people (deaf/ hearing)		29. Knows how to make up with friends after a disagreement
11. Invites others home for a fun activity		30. Generally manages frustration if attempts at socialising are ineffective
12. Goes out to local places with others (e.g. pub, a social group, park)		31. Makes others aware if they are going to be late
13. Invites others to join him/ her in playing games		32. Changes communication strategies to adapt to other person
14. Stands a comfortable distance from others during conversations		33. Recognises when a social problem has occurred and does something about it (e.g. apologises, tries to talk to them about it)
15. Takes into account other's signing space		34. Monitors reactions from others (e.g. change in body language) and changes the topic if it is upsetting someone
17. Seeks friendships with others in his/ her own age group		
18. Attends fun activities at another's home		
19. Hosts guests at their home		
20. Attends fun community activities with others, for example, a movie		

22. Offers guests food or beverages		
23. Places reasonable demands on friends (e.g. does not become upset when a friend goes out with another friend)		
24. Starts conversations on topics of interest to others		
26. Attempts to maintain good relationships with family members		
27. Attempts to maintain intimate relationships		
35. Has one or more friends		
36. Keeps a stable group of friends		
37. Has close relationships with others as well friends who are less close		
39. Ends conversations appropriately		
43. Knows how to make and keep friends		

Communication

Problems in hearing contexts	Problems in deaf contexts	Problems in both contexts
3. Generally correct sign orientation (e.g. placement correct)	5. Uses pointing or gesture to indicate whether something is wanted or not wanted	2 Does the person understand and use symbolic language to identify others
6. Expresses a preference between choices	10. Works effectively with interpreters or communication support workers to express their needs/ opinions	4. Shakes head 'yes' or 'no' in response to a simple question, for example, 'do you want something to drink?'
8. Tells stories about real experiences, giving sufficient detail to be understood	13. Considers whether interaction may be difficult and has plans for this in advance (e.g. books interpreters, carries pen/ paper or phone to write things down)	7. Contacts people for social reasons or for a purpose (e.g. making appointments, complaints)
11. Pays attention during family or group discussions for as long as needed		9. Tells imaginary stories, giving sufficient detail to be understood
16. Responds to conversations by answering questions or performing requested actions		12. Gains information from a variety of sources (e.g. TV, internet, newspaper) to keep up with current events and areas of interest
19. Uses mobile phone to contact friends or family		15. Decides whether to join in conversations with hearing people
21. Communicates about familiar others (e.g. mum, dad, carer) or topics of interest		17. Nods or smiles to encourage others when they are talking
22. Able to engage in conversations for at least 5 minutes		18. Stays on topic in conversation rather than going off on a tangent
23. Pays attention to other people who talk/sign		29. Communicates clearly in a way that is intelligible to other hearing people
24. Looks at others' faces when communicating without becoming distracted		31. Able to adapt communication in a variety of ways (e.g. higher/ lower register signing, oral communication, writing things down)
25. Turn-takes in conversation		32. Makes others aware if they need prompts to keep up with conversation or are lost in conversation

26. Gives enough background information for communication to be understood, and provides additional details if prompted		33. Lets someone know if struggling to follow conversations on a fixed topic
27. Monitors whether others understand what they are expressing		34. Able to negotiate an interaction to get a needed item (e.g. buying something in a shop)
28. Communicates clearly in a way that is intelligible to other deaf people		36. Makes complaints about a product or service and checks to make sure that action is taken
30. Communicates clearly in a way that is intelligible to others who know the person well		37. Does not use signs/ phrases repetitively
35. Understands grammar, e.g. the difference between 'the boy pushed the girl' and 'the girl pushed the boy'		41. Able to communicate effectively with people unknown to the person
38. Withdraws from conversations when finished or no longer interested, rather than because the person is not following the discussion		
39. Able to communicate effectively with family members		
40. Able to communicate effectively with friends		
42. Has strategies to communicate independently when out and about		
44. Uses up-to-date information to discuss current events		

Work

Problems in hearing contexts	Problems in deaf contexts	Problems in both contexts
2. Recognises if they are becoming isolated at work or during projects		4. Discusses realistic future educational or career goals
7. Fills in job applications, with or without support		5. Decides whether to look for a job in an area of interest
12. Seeks employment that is suitable to skills and interests		9. Makes reminder notes or lists
35. Follows steps to complete a project (e.g. assembling furniture)		14. Plans for possible communication needs at work (e.g. books or requests interpreters/ notetakers/ lipspeakers as needed)
		16. Uses interpreters/ support workers effectively at work
		18. Makes minor repairs to personal possessions (e.g. bikes or clothes)
		21. Is able to focus on work even if there are distractions
		25. Checks work against set targets and deadlines
		26. Easily moves between tasks and manages workload effectively
		30. Able to prioritise activities if something urgent comes up
		31. Changes or attempts to change strategies for completing work following constructive feedback
		33. Completes large projects (e.g. decorating, painting) on time
		36. Moves onto a new project or deadline once a piece of work is completed
		37. Independently decides to move onto something new when a piece of work is completed
		42. Takes on board constructive feedback from

		supervisors and generalises to other work situations
		43. Uses prior knowledge to problem-solve in unfamiliar situations

Appendix RQ

Tables showing the items meeting consensus threshold in Delphi round 1 and not identified as problematic in Delphi round 2.

Travel

1. Understands where to go to buy basic amenities (e.g. groceries)
2. Has an understanding of different modes of transport available to them (e.g. car, bus, train) and how to get to destinations using this
6. Decides if a journey is manageable based on length and complexity
7. Plans travel to a destination, e.g. shops, pub, friend's house
9. Independently plans where they need to go in their everyday life
12. Checks a route before travelling to an unfamiliar destination
13. Allows sufficient time for travelling to an appointment
19. Drives or travels independently to planned destinations
24. Is generally able to focus on arriving at a planned destination without getting distracted or lost
27. Recognises familiar landmarks on known routes and uses these to help find new locations
35. When shopping or activities are finished, finds their way home again
37. Able to learn new routes after repeating on 2-3 occasions
38. Routinely arrives at familiar places on time (e.g. work, doctor's surgery, dentist)

Finance

1.Has a preference for spending money on particular items related to a hobby or interest
2. Can afford to maintain current lifestyle (e.g. lives somewhere with affordable rent, utilities, council tax)
3. Understands how to manage their income and outgoings
4. Recognises need to plan for the future financially
5. Budgets money to cover expenses for at least one week
6. Able to make sure that they do not spend more than they earn or have
7. Able to decide whether to spend their money or save it for a later purchase
8. Identifies objects to be purchased when out and about, or plans beforehand items to be purchased
12. Identifies need to save when big purchases are coming up (e.g. car tax, insurance, Christmas)
13. Reviews spending to see what money is being spent on and identify areas for saving
15. Checks whether it is feasible to make large purchases before buying something (e.g. looking at bank statements or savings accounts)
23. Independently purchases items (online or in a shop)
26. Makes sure to pay for necessary goods and services (e.g. rent, bills) before spending any disposable income
28. Prioritises monthly payments (e.g. loan, rent, utilities) over spending on social activities or other leisure pursuits
29. Checks for correct change after buying an item
44. Can they repeatedly save money for more than one purpose
45. Uses previous experiences of successful budgeting to plan for future purchases
46. Able to manage regular payments or purchases on an ongoing basis

Recreation

2. Able to find things to entertain themselves when bored
12. Packs his/ her own clothing and supplies for overnight trips
18. Chooses relevant items to take away on holiday
20. Reserves tickets in advance for activities (e.g. sports events, films)
24. Plans activities on days that do not conflict with other important scheduled events (e.g. weekends, days off work)
37. Returns home independently after visiting friends or family
38. Moves on to a new activity when a current project is completed
40. Retains information about what is needed when packing to go on holiday or travel away from home

Health and Safety

2. Able to understand common signs (e.g. 'exit', 'no entry', or 'stop') and follows these directions
3. Understands what food is healthy/ unhealthy
4. Weighs up the decision whether to go and see a doctor about minor ailments
5. Decides independently how often to see a dentist/ doctor/ other healthcare professional for routine appointments
6. Chooses whether to eat healthily based on awareness of food and nutrition
7. If the person has a medical condition (e.g. diabetes), are they able to follow medication regimes
9. Owns signalling devices at home as needed (e.g. flashing/ vibrating alarms for fire, smoke, clocks, door)
12. If necessary, asks others to help book appointments or finds alternative ways to make appointments (e.g. going to the GP surgery in person, online booking)
15. Considers risk before engaging in activities (e.g. driving dangerously, walking in the road, extreme sports)
17. Makes simples meals that require no cooking (e.g. sandwiches, salads)
18. Cooks simple foods on a stove, for example, eggs or canned soup
21. Operates a microwave
22. Looks both ways before crossing a street or car park
24. Remembers to take medication at specified times
27. Checks expiration dates to help decide whether to use food
30. Goes to chemists to fill prescriptions given by GP
34. Cares for his/her minor injuries (e.g. paper cuts, knee scrapes, nosebleeds)
37. Stops taking medication once feeling better after an illness
38. Turns off hob/ oven after cooking
42. Uses strategies that have worked previously to make regular medical/ dental check-ups without prompting

Social awareness and competence

6. Decides alone whether to spend time socialising or doing things alone
38. Does not become over-familiar with strangers (e.g. accepting gifts or giving personal information)
42. Remembers and utilises effective communication strategies
44. Changes strategies for resolving social problems based on the context (e.g. using different strategies with friends and staff, acting differently at work and at home)

Communication

1.Has adequate motor skills to make clear handshapes
3. Generally correct sign orientation (e.g. placement correct)
4. Shakes head ‘yes’ or ‘no’ in response to a simple question, for example, ‘do you want something to drink?’
14. Decides whether to join in conversations with other deaf people
20. Sends texts to others
43. Uses a range of communication technologies to get in touch with others for social purposes (e.g. minicom, video apps, texting)

Work

1.Recognises if there are home projects that need to be done (e.g. decorating, fixing things, gardening)
3. Works out what tasks need to be done and plans time to do these
4. Discusses realistic future educational or career goals
6. Independently chooses what to focus their time on
8. Works on one home activity for at least 15 minutes
10. Gathers all supplies needed before beginning a cleaning or maintenance project at home
11. Plans ahead to allow enough time to complete large projects
15. Has a schedule which they are able to follow
17. Undertakes work or tasks within their skill set
19. Completes household tasks independently (e.g. laundry, washing up, cleaning)
20. Has looked for part-time, full-time, or voluntary work
22. Works quietly and does not disrupt or disturb the work of others
23. Continues working productively if there is a change in routine
24. Acquires new skills through observation
27. Keeps working on hard tasks without becoming discouraged or quitting
32. Adapts to new ways of doing tasks if shown a more efficient way
34. Meets deadlines effectively
38. Recognises when targets are met and moves on to another task
39. Able to competently complete the same task repeatedly after it is learnt
40. Carries out familiar work tasks without prompting
41. Learns from previous mistakes at work

Poster