National Survey of Adult Skills in Wales 2010

TNS-BMRB Technical Report

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Content

1. Introduction

In 2009 the Department for Children, Education, Lifelong Learning and Skills (now the Department for Education and Skills) of the Welsh Government commissioned a consortium of Miller Research and BMRB (now TNS-BMRB) to undertake a survey of the extent of Basic Skills Needs amongst adults aged 16 to 65 in Wales, the National Survey of Adult Skills in Wales 2010. Literacy and numeracy skills in Wales were first surveyed in 2004 when the (then) Basic Skills Agency commissioned separate surveys to assess basic skills amongst the working age population, one of the literacy and numeracy skills through the medium of English amongst adults aged 16 to 65 in Wales, and one assessing proficiency in reading and writing in Welsh amongst Welsh speaking adults aged 16 to 64 in Wales.

The 2010 survey was designed as far as was practically possible to replicate the 2004 surveys in order to detect any major changes in skills levels since the previous surveys.[1]

The primary aims of the 2010 survey were to gather attitudinal views of working-age adults about the development of their literacy and numeracy skills, and to assess the literacy and numeracy skills of working age adults in order to provide an estimate of the proportion of adults holding literacy and numeracy skills at each academic level.

The survey was conducted concurrently with an evaluation, being led by Miller Research, of *Words Talk, Numbers Count*, the second basic skills strategy for Wales, an evaluation which aims to assess the impact that the strategy has had on basic skills levels in Wales. The survey therefore provides a crucial contribution to the evidence base for the evaluation.

A similar survey assessing basic skills levels amongst working-age adults was conducted in 2010 and early 2011 in England, commissioned by the Department for Business Innovation and Skills (BIS). This survey used the same English medium assessments of literacy and numeracy as the 2010 survey in Wales, therefore while it was not initially a specific aim of this survey; it will be possible to make comparisons with English estimates of basic skills levels, once the results from the England survey are available towards the end of 2011.

This report contains technical details of the survey design, questionnaire and assessments, piloting, data collection, sampling, weighting and data processing. The design of the survey was conducted by the consortium of Miller Research and TNS-BMRB, in consultation with WAG, TNS-BMRB were responsible for the data collection and data processing, and Miller Research were responsible for analysis and reporting.

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[1] There were a number of reasons why the survey was not able to completely replicate the 2004 surveys, which are referred to throughout this report.

2. Overview of the Survey Design

The National Survey of Adult Skills in Wales 2010 involved two separate but linked components:

A) A survey to assess literacy and numeracy skills of a nationally representative sample of adults (aged 16-65) in Wales, through the medium of English; and
B) A survey to assess literacy skills of Welsh-speaking adults (aged 16-65) in Wales through the medium of Welsh.

The two surveys will be referred to as the 'English medium survey' and the 'Welsh medium survey' for the remainder of this report.

There were two separate elements to be undertaken by the respondent within each of the above surveys:

1) A contextual questionnaire, including attitudinal and demographic questions posed to the respondent by an interviewer; and
2) Either one or two self-completion assessments completed by the respondent with interviewer supervision, assessing basic skills levels.

The majority of the contextual questionnaire was the same for both the English medium survey and the Welsh medium survey, however there were some differences between the two surveys. For example, respondents completing the Welsh medium survey were asked more questions about their Welsh language ability and fewer questions about their English language ability given that their literacy skills in the medium of Welsh were being assessed. This is discussed in more detail in section 4.1.

The two surveys were conducted using differing sampling methodologies. The English medium survey was conducted using a random probability methodology and the Welsh medium survey was conducted using a hybrid probability/quota sample methodology. Conducting the English medium survey as a random probability survey meant that inevitably a proportion of the sample would be Welsh-speakers. The Welsh medium survey was conducted using quota sampling methods, firstly because this was the approach used in 2004, and replicating this approach will allow real change to be identified. Secondly because a comprehensive list of Welsh speakers was not available and therefore an extensive screening exercise was necessary, making this sample method the most cost effective and efficient method. Further details on the sample design can be found in section 3.

Respondents undertaking the English medium survey were required to complete two computer-based assessments, one of literacy and one of numeracy through the medium of English. Respondents undertaking the Welsh medium survey were required to complete one paper-based assessment, through the medium of Welsh, assisted by listening to pre-recorded Welsh audio files providing instructions. The assessments used for the two surveys were the

same assessments that had been used in the 2004 surveys[2]. However the Welsh and English literacy assessments bore no similarities with each other and therefore direct comparisons between literacy results through the medium of English and literacy results through the medium of Welsh should not be taken[3]. More detail of how the assessments were administered is included in sections 5.3.3 and 5.4.2.

The contextual questionnaire used for both surveys was programmed in both English and Welsh, and all respondents were given the option of completing this part of the survey in the language of their choice[4]. The assessments themselves however were not translated, and respondents were required to complete them in the language that had been selected (depending on which survey they were selected for) on the grounds that the assessments were examining specific skills in one language or the other.

During the inception stage of the research, consideration was given to conducting a numeracy assessment through the medium of Welsh, but this was decided not to be practical or necessary due to a number of reasons. Firstly, the possibility of technical difficulties in translating the existing English numeracy tool, or integrating a new tool into the CAPI programme; secondly, that no numeracy tool through the medium of Welsh was conducted in 2004 therefore there would be no baseline to compare against; and finally that a large enough sample of Welsh speakers would be included in the sample for the English medium survey which involved a numeracy assessment, to allow a reasonable estimate of numeracy levels amongst Welsh speakers.

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[2] Minor amendments and corrections were made to the Welsh paper-based assessment described in section 4.3.2

[3] The differing sampling methodologies between the two surveys alone meant that this comparison would not be possible, but it was also felt that language technicalities in English and Welsh, and the way that both languages are structured and used are sufficiently different to prevent a meaningful comparison between the two

[4] This was to comply with the legal obligation of the Welsh Government to allow citizens in Wales to participate in any survey in either English or Welsh.

3. Sample Design and Weighting

The two surveys comprise two samples:

(i) The English medium survey: a sample from the population of individuals aged 16-65 resident in Wales;

(ii) The Welsh medium survey: a sample from the population of individuals aged 16-65 resident in Wales who say they can speak Welsh 'fairly well' or 'fluently'

Sample (i) is a probability sample which means that each statistic derived from the data has a formal margin of error (or 'confidence interval').

Sample (ii) is a hybrid probability/quota sample which means that no formal margins of error can be quoted. However, samples of this type have been shown to approximate the statistics drawn from probability samples.

Both sample designs were intended to mirror the designs used in 2004 when these surveys were first carried out. A lack of documentation means that the precise design of the 2004 Welsh Literacy survey is not known but TNS-BMRB believes the methods adopted here are fairly typical for this type of survey.

Sample (i) was drawn first and given priority over sample (ii). In practical terms this means that any address sampled for survey (i) was flagged as out-of-bounds for interviewers working on survey (ii).

Each sample design is described below.

3.1 English medium survey sample design

The English medium survey constituted a probability sample of adults aged 16-65 resident in Wales. TNS-BMRB employed a two-stage design, firstly sampling a set of (medium layer) Census Super Output Areas (MSOAs) and, secondly, sampling a set of addresses in each one. The set of addresses was drawn from the Residential subset of the Postal Address File. This source is used for all address-based probability samples in Great Britain.

The master sample frame of MSOAs was implicitly stratified by (a) TNS sampling region[5], (b) the proportion of residents in the 2001 Census that were working in a managerial or professional job[6], (c) local authority, and (d) population density. Stratification of this type

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[5] The TNS sampling region is a four-way conglomeration of local authorities: 'North Wales', 'West Wales', 'Cardiff' and 'Other South Wales'. 'North Wales' includes Conwy, Denbighshire, Flintshire, Gwynedd, Anglesey and Wrexham. 'West Wales' includes Carmarthenshire, Ceredigion, Pembrokeshire, Powys and Swansea. 'Other South Wales' includes all other local authorities except Cardiff. Note that TNS sampling regions are not the same as DCELLS regions but, over the course of many surveys in Wales (both market and social research), the TNS scheme has worked well to minimise sampling variance.

[6] Three equal-sized strata for Wales, but not necessarily equal within region

reduces the variance between potential samples and usually reduces each statistic's margin of error.[7]

A systematic sample of 250 MSOAs was drawn from this master sample frame. The sampling probability of each MSOA was proportionate to the number of postal addresses within its borders.

One in five of these MSOAs was allocated to the reserve pool. In each of the remaining 200 MSOAs, a systematic sample of 25 addresses was drawn. Before drawing the address sample, the master list in each MSOA was sorted by postcode and, within postcode, alphanumerically by address. This ensured maximum geographic spread between sampled addresses.

In the event, 21 of the reserve MSOAs were issued to interviewers to ensure that interview targets were achieved, leading to a total of 221 MSOAs. The observed eligibility rate was slightly short of expectations and this necessitated dipping into the reserve pool.

At each sampled address, the interviewer sought to (a) confirm whether or not it contained individuals eligible for the survey, and (b) randomly sample *one* eligible individual. Occasionally, an address was found to contain more than one dwelling unit and/or household. In these instances, the interviewer randomly sampled *one* dwelling unit and/or household. In both cases, the interviewer used a printed 'Kish' grid to generate the random numbers required. For more details see section 5.3.1.

A boost sample of 16-19 year olds was also generated alongside the primary sample of individuals. In the first batch[8] of issued MSOAs, one 16-19 year old was sampled *so long as* the primary sampled individual was not aged 16-19. In the second batch of sampled MSOAs, this restriction was dropped and a 16-19 year old could be sampled even if the primary sampled individual was also aged 16-19. For further details on the youth boost see section 5.3.2.

3.1.1 English medium survey weighting

The data have been weighted in two steps: (i) to compensate for any variation in sampling probability, and (ii) to compensate for identified variation in response probability.

Step (i) produces a 'design weight' which is equal to one divided by the probability of being sampled. The sampling probability varies between individuals because (a) only one is sampled per household and households vary in size, and (b) 16-19 year olds had two chances of selection.[9]

Step (ii) calibrates the weighted sample to known population totals, thereby compensating for variation in response probability. TNS-BMRB used the latest available (2009) ONS mid-year population estimates for this. Six age categories were defined for each gender (16-19; 20-24; 25-39; 40-49; 50-59; 60-65) to make twelve target cells. Alongside this, TNS-BMRB defined total population targets per local authority.

The targets are shown in Table 3.1.

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[7] Only when the statistic in question varies by region, socio-economic profile and/or population density.

[8] The sample was issued in two batches to facilitate fieldwork, and each batch was a (systematic) random subsample of the whole.

[9] Note that no estimates are at household level. Household level data is collected but only to categorise individuals. The population remains one of individuals.

Table 3.1: 2009 ONS mid-year population estimates used for weighting

Sex/Age	Population estimate (%)
Male 16-19	4.3
Male 20-24	5.5
Male 25-39	13.3
Male 40-49	10.7
Male 50-59	9.6
Male 60-65	6.0
Female 16-19	4.1
Female 20-24	5.3
Female 25-39	13.7
Female 40-49	11.3
Female 50-59	10.0
Female 60-65	6.2
Local authority	
Isle of Anglesey	2.2
Gwynedd	3.9
Conwy	3.5
Denbighshire	3.1
Flintshire	5.1
Wrexham	4.5
Powys	4.3
Ceredigion	2.7
Pembrokeshire	3.8
Carmarthenshire	5.9
Swansea	7.7
Neath Port Talbot	4.6
Bridgend	4.5
The Vale of Glamorgan	4.1
Rhondda; Cynon; Taff	7.9
Merthyr Tydfil	1.9
Caerphilly	5.8
Blaenau Gwent	2.3
Torfaen	3.0
Monmouthshire	2.9
Newport	4.7
Cardiff	11.6

One final population target was based not on the mid-year population estimates but on the near-concurrent Annual Population Survey (July 2009 to June 2010) which includes a very large sample in Wales. Although APS estimates are themselves subject to sampling error and bias, it was thought that a working status target variable was desirable and that the APS

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represented the best source. To that end, TNS-BMRB defined five cells: working men, non-working men, full-time working women, other working women, and non-working women. Table 3.2 shows these targets.

Table 3.2: July 09 to June 10 APS population estimates used for weighting

Working status/sex	Population estimate (%)
Working men	34.7
Non-working men	14.7
FT working women	18.2
Other working women	13.9
Non-working women	18.5

Weights were capped at three times the median and rescaled to match the unweighted sample size. A 'grossing' weight was also computed, with weights scaled to the estimated population (1,927,000).

The overall design effect due to weighting was estimated as 1.27. The effective sample size is equal to the actual sample size divided by the design effect. However, the *true* design effect varies from statistic to statistic as the component design effects of sample stratification and clustering are highly variable.

The total design effect for literacy level estimates was approximately 1.74 and the total design effect for numeracy level estimates was approximately 1.61[10].

3.2   The Welsh medium survey sample design

The Welsh medium survey constituted a hybrid probability/quota sample from the population of individuals aged 16-65 resident in Wales who say they can speak Welsh 'fairly well' or 'fluently'. A probability sample of small areas was drawn but, within each sampled area, the interviewer was free to recruit as he/she saw fit, provided that certain quotas were filled and that he/she worked a range of days and times of day.

The master sample frame used by TNS-BMRB for this survey consisted of all Sampling Units (SUs) in Wales. Each SU is a conglomeration of two or three neighbouring census output areas (OAs). They are combined to ensure that each SU contains approximately 300 residential addresses.

SUs in which fewer than 10% of the population aged 16-64[11] could speak Welsh (according to the 2001 Census) were excluded from the sample frame. This means a fairly high non-coverage rate of 33% but a compromise between coverage and costs is always necessary with sub-population surveys like this one.[12]

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[10] The design effect will be significantly lower than this for most sub-groups due to the reduced level of sample clustering among most sub-groups

[11] Figures for the prevalence of Welsh-speakers among those aged 16-65 were not available. Figures for those aged 16-64 are a very good proxy.

[12] Eligibility rates below 10% are generally considered prohibitively unproductive.

Each of the remaining SUs was allocated to one of three strata defined by the proportion of those aged 16-64 who could speak Welsh according to the 2001 Census (10-20%; 20%-40%; and 40%+). The SUs were also allocated to one of three strata defined by the proportion of residents working in a managerial or professional occupation in 2001 (less than 18.5%; 18.5-24.5%; 24.5%+)[13], and to one of four TNS sampling regions.[14] This produced a cross-classification of 36 sampling cells. Each sampling cell was given a total interview target proportionate to the expected number of Welsh-speakers within its borders.

Within each sampling cell, the SUs were sorted by local authority, an urbanisation index and, finally, by the proportion of those aged 16-64 who spoke Welsh in 2001. This is a form of implicit stratification, further reducing variance between potential samples of SUs.

A target interview total was allocated to each SU based on its 'Welsh-speaking' stratum allocation[15]. Combined with the overall interview target for the relevant sampling cell, this determined the number of SUs to sample from each sampling cell.

A systematic sample of 359 SUs was drawn based on this design with the sampling probability of each SU proportionate to the expected number of Welsh-speaking 16-65 year olds.

The selected SUs were then randomly allocated to one of seven batches with one batch issued per month. *All addresses* contained within an SU were listed for interviewers. They had the freedom to call on any of these to meet their quotas.

Each SU was assigned one of six possible quota combinations. Two combinations (A and B, though B was only used in Cardiff) were used in SUs with fairly low Welsh-speaking prevalence. Three further combinations (C, D and E) were used in SUs with mid-range Welsh-speaking prevalence. Finally, one combination (F) was used in SUs with a high Welsh-speaking prevalence. These combinations were issued in different proportions so that the final total would reflect the expected distribution of the population. The quotas were based on sex and age. Age was a particularly important quota because the age distribution of Welsh speakers varies by region. The six different quota types are shown in Table 3.3.

Table 3.3: Quota types used

	A	B	C	D	E	F
Males	1	1	2	2	2	3
Females	1	1	2	2	2	3
16-39	1	2	2	1	3	3
40-65	1	0	2	3	1	3
Target interviews	**2**	**2**	**4**	**4**	**4**	**6**

During fieldwork it became clear that for some SUs the target number of interviews were not being met. In order to make up the number of interviews and ensure the target sample size was met, 29 extra SUs were added to batches 6 and 7. The profile of the extra SUs reflected (as far as possible) the profile of SUs where a shortfall had been observed.

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[13] This produced three even bands

[14] North Wales, West Wales, Cardiff, and other South Wales, constituting the same UAs as detailed for the probability sample design

[15] SUs in which 10-20% of the 16-64 population in 2001 could speak Welsh were given a target of 2 interviews; where it was 20-40% the target was 4, and where it was 40%+ the target was 6.

The overall quotas and the final achieved sample are shown in tables 3.4 and 3.5 below. Generally speaking, it was a struggle to achieve quotas with men and with those aged 16-39.

Table 3.4: Overall quotas

	Cardiff		North		South (excl. Cardiff)		West	
	No.	%	No.	%	No.	%	No.	%
Male	30	50	210	50	96	50	189	50
Female	30	50	210	50	96	50	189	50
16-39	42	70	217	52	121	63	175	46
40-65	18	30	203	48	71	37	203	54
Total	60	100	420	100	192	100	378	100

Table 3.5: Final achieved sample profile

	Cardiff		North		South (excl. Cardiff)		West	
	No.	%	No.	%	No.	%	No.	%
Male	26	43	174	43	68	38	148	41
Female	34	57	230	57	109	62	212	59
16-39	35	58	222	55	91	51	147	41
40-65	25	42	179	44	85	48	213	59
Total	60	100	404*	100	177**	100	360	100

*3 respondents in North Wales refused to give their age

**1 respondent in the Southern region refused to give their age

3.2.1 Welsh medium survey weighting

The data have been weighted in two steps:

(i)   a propensity score weight to ensure that the sample distributions for a wide variety of variables matches the Welsh-speakers identified in the probability sample, and

(ii)   a calibration weight to Annual Population Survey age and region distributions among those who speak Welsh 'daily' or 'weekly'.

It is worth noting that the *unweighted* sample distributions on a wide variety of variables were not significantly different from those of the Welsh-speakers identified in the probability sample so the weighting was fairly minimal.[16]

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[16] Initially, TNS-BMRB planned to generate a single 'Welsh speakers' weight, combining Welsh speakers from both samples. However, simply adding together the two samples with their sample–specific weights produced much the same distribution across demographic variables. Consequently, TNS-BMRB deemed it unnecessary to create a separate 'Welsh speakers' weight.

The propensity score weight was calculated using logistic regression with 'survey' as the dependent variable (coded 1 if the case was from probability sample (i), and coded 0 if the case was from quota sample (ii)) and the following variables as independent variables:

- Educational level (no qualifications; non-degree qualifications; degree)

- Marital status (single; married; other)

- Number of resident adults (1; 2; 3+)

- **Whether in receipt of benefits** (yes; no)

- Whether the household reference person (yes; no)

- **Region** (NE; NW; SE; SW)

- Sex/Age (16-19; 20-24; 25-39; 40-49; 50-59; 60-65 per gender)

- **Working status** (FT/other; PT; self-employed; not working)

- **Whether has home internet access** (yes; no)

- **Self-defined national identity** (Welsh; other)

- Self-defined Welsh speaking ability (speak fluently; speak fairly well)

- Whether born in Wales (yes; no)

This list of 12 was reduced to 5 (highlighted in bold) where the difference between the two samples was statistically significant. The explanatory power of the model was quite low[17], which shows that the two samples were closely matched even before any weights were applied.

The propensity score weight applied to quota sample (ii) is equal to the odds of being a probability sample (i) case:

P (probability sample (i))/ 1-P(probability sample (i))

The propensity score weight was used as a base weight before calibration to population totals, in much the same way as the design weight was used as a base weight for the probability sample (i).

The Annual Population Survey was used for calibrating sample (ii) because the ONS mid-year population estimates do not distinguish Welsh speakers from the general population resident in Wales. Table 3.6 shows the targets that were used.

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[17] 6% of variance explained, based on commonly cited Nagelkerke 'pseudo' R^2. The Hosmer-Lemeshow goodness-of-fit test was not significant, suggesting that a main effects model was sufficient.

Table 3.6: APS population estimates used for weighting (supplied by DCELLS, based on those speaking Welsh daily or weekly)

Age	Population estimate (%)
16-19	15.1
20-24	10.4
25-39	25.6
40-49	19.3
50-59	18.1
60-65	11.5
Region	
NE	15.3
NW	30.7
SE	19.8
SW	34.2

Weights were capped at three times the median and scaled to the actual sample size. The design effect due to weighting was estimated as 1.27 although, for quota samples such as this, the 'design effect' is only an indication of the degree of weighting applied rather than a metric with a direct connection to sampling error.

For analyses covering the whole Welsh-speaking sample, the scaled-to-sample-size weights produced separately for samples (i) and (ii) can be used together in simple combination. Effectively, this weights the contribution of each sample so that it is proportionate to actual sample size.[18]

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[18] If both samples were probability samples this approach would maximise the effective sample size of the combined sample. However, there is no *a priori* way of determining the optimum mix ratios when the component samples have been compiled in different ways. For reasons of pragmatism, the sample-proportionate approach has been retained.

4. Survey Development

4.1 Contextual Questionnaire Development

The contextual questionnaire was designed by the consortium in consultation with the survey steering group, in order to ensure that it covered all necessary demographic considerations and any other useful information by which to analyse the test scores. The 2004 contextual questionnaires were used as a starting point for the development of the 2010 questionnaire. These questionnaires were reviewed in the following ways:

- To establish how well the questions used in 2004 captured the information intended and how useful this was;
- To consider whether the information collected in 2004 was still required, and if so whether the questions were up to date and relevant; and
- To decide whether any questions could be removed to allow space for new questions to be added.

A review conducted of the contextual questionnaire used for the Skills for Life survey in England in 2003 was also referred to as part of this review. As the questionnaires for both skills surveys in England and Wales in 2010 were being developed at a similar time, any questions that were included in both questionnaires were kept consistent wherever possible[19]. Further amendments were made to the contextual questionnaire based on findings from the pilot (see section 4.5).

The contextual questionnaire for both the English medium and Welsh medium surveys were treated and programmed as one, with filtering within the survey dependent on survey type for some questions. Some more in depth questions relating to English language ability and use were not asked of respondents in the Welsh medium survey, given that this survey was assessing literacy skills through the medium of Welsh. However Welsh-speaking respondents selected for the English medium survey were asked all questions relating to both English language and Welsh language ability and use. This was in order to allow responses from Welsh-speakers within the English medium survey to be combined with respondents from the Welsh medium survey at the data processing stage, in order to increase the sample size of Welsh-speakers and allow for more in-depth exploratory analysis to be conducted. More details on how the two samples were combined are included in section 3.2.1.and 6.5.

Once finalised, the contextual questionnaire was translated into Welsh.

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[19] Some changes were made to the questionnaire for the survey in England after the survey in Wales had gone into field, so there may be some differences

4.2   Contextual Questionnaire Structure

The final structure of the contextual questionnaire largely followed the structure of the 2004 English medium contextual questionnaire. The final questionnaire covered the following topics:

- Language classification- all respondents within both surveys were initially asked the Welsh language ability question also used for screening respondents[20] in the Welsh medium survey. This question was used to determine whether the respondent was classified as a Welsh or English speaker (as per the definition used for this survey), and was used for filtering later on in the questionnaire. More details on language classification and screening are provided in section 5.4.1.

- Household structure – details of any people that the respondent lives with.
- Languages and ethnicity – details of all languages the respondent speaks, confidence and ability in speaking these languages, country of birth, national identity and ethnicity.
- ICT skills – details of the respondent's computer use and ability.
- Education history and qualifications – age when the respondent left school, respondent's parental education, languages spoken by the respondent at school, and all qualifications gained up to now.
- Self-assessment of skills in speaking, reading and writing English and/or Welsh – including frequency of using English/Welsh reading and writing skills.
- Training undertaken to improve basic skills – including whether or not the training was beneficial.
- Self-assessment of maths and number skills and any training undertaken to improve these skills – including whether or not the training was beneficial.
- Current/ most recent employment.
- Current/ most recent employment of Household Reference Person[21] (if not the respondent)
- Health – details of the respondent's health in general and whether or not they have a learning difficulty.
- Housing tenure, benefits and income.

Two re-contact questions were asked at the end of the survey (after the assessments had been completed). Firstly permission for TNS-BMRB to re-contact the respondent should additional information be required was asked for, and secondly (for those who agreed to the first question) permission to pass on the name and contact details of the sample members to another research organisation was asked for, should additional information be required by the Welsh Government.

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[20] To determine whether or not they had sufficient ability in Welsh to complete the assessment.

[21] The Household reference person was defined in the Household structure section as the person in the household who owns or rents the home, the person with the highest income (if joint tenancy/ownerships), or the eldest person (if identical incomes).

The English medium survey involved a boost of young people aged 16-19 (see section 5.3.2 for more details of the youth boost sample). The youth boost respondents in the English medium survey received a shorter contextual questionnaire than the main selected respondents. Youth interviews were only conducted after a main interview had already been conducted in the same household, therefore all information about the household structure and the household reference person had already been collected from the main respondent. In order to reduce respondent and household burden as much as possible, filtering was built into the questionnaire so that general questions on the household were skipped for the youth respondents. The household information collected from the main respondent was copied over and included in the data for the youth cases at the data processing stage.

The contextual questionnaire took on average 22 minutes to complete for the English medium survey amongst main respondents (15 minutes amongst youth boost respondents) and 25 minutes to complete for the Welsh medium survey[22].

The full contextual questionnaire can be found in appendix A, and the show-cards used (in English and Welsh) can be found in appendix C and D.

4.3 Assessment Development and Structure

4.3.1 English medium Survey Assessments

The literacy and numeracy assessments used in the English medium survey were copies of the assessments used in the 2004 survey. During the 2004 survey there were some technical issues with the software used for the assessments which resulted in some loss of data. However the tools used for the 2010 survey had undergone some redevelopment work to reduce the possibility of technical issues causing data loss. As a result, data loss due to technical issues with the software itself was not an issue for the 2010 survey in Wales and no data from the assessments was lost in this way.

The assessments used were originally developed by the Centre for Developing and Evaluating Lifelong Learning (or CDELL) working closely with Bradford Technology Limited (BTL) whose responsibility was to write the software which enabled the assessments to be conducted via laptop computers. They were designed to assess and capture the skills levels of adults aged 16-65 in order to produce a profile of the population holding literacy and numeracy skills at each of the five National Standards for literacy and numeracy: Entry Level 1, Entry Level 2, Entry Level 3, Level 1 and Level 2. The standards for Level 1 and Level 2 are equivalent to those demanded for Level One and Level Two qualifications, respectively in the National Qualifications Framework. Items classified at Levels 1 and 2 were adapted from existing paper-based QCA Key Skills/Basic Skills assessments.

Appendix E gives more details on the structure of the national standards that were being assessed.

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[22] All average timings mentioned in the report exclude a few very long interview lengths

The CDELL design team was instructed to produce assessments that fulfilled a number of criteria:

• Each assessment was to be designed in a multiple choice format;

• As far as possible, respondents were to be enabled to operate at their own level, thus avoiding unnecessary stress/discomfort, irritation or boredom. Adaptive algorithms were designed for this purpose;

• The assessment had to be computer-marked, with scoring as similar as possible to the basic skills national tests;

• Each assessment had to last no more than 20-25 minutes for a typical respondent.

In order to develop the algorithms so that respondents were able to operate at their own level, the assessments were designed to start with a small number of 'diagnostic' questions. The first diagnostic question was relatively simple but each subsequent one was more difficult than the last. Weaker respondents moved quickly from screening to further Entry level questions, while other respondents continued to questions set at Levels 1 or 2.

There were several layers or banks of questions in each algorithm. The respondent was routed to the next bank of questions according to her/his performance at previous banks. Each layer provided opportunities to sift and refine the final judgement of a respondent's ability.

After piloting in England in 2004, an introduction to the assessments was developed which would familiarise respondents with (a) the graphical style of the assessments and (b) the nature of the tasks they were about to attempt. This introduction was replicated in the 2010 survey in Wales in order to ensure that (as much as possible) respondents had equal information provided to them in both surveys and to eliminate bias caused by giving differing information or instructions[23]. The full introduction is included as part of the contextual questionnaire in appendix A.

Some examples of literacy and numeracy items included in the assessments for different levels are included in appendix F.

Each respondent taking a test followed a unique (or near-unique) route through the items. An adaptive algorithm calculated which item to go to next based on the results from the previous items the respondent had tackled. Nobody answered all the items.

Given the way that the assessments were administered, it was not possible to assess *all* literacy skills. Writing was assessed in a limited way (some questions involved checking spelling or grammar), but respondents did not have to undertake any written work. Listening comprehension was not assessed at all, as the respondent read all questions from the computer screen. See section 4.4.2 and 5.3.3 for more information on the way the tests were administered and programmed[24].

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[23] Some minor improvements were made to the introduction based on feedback from the pilot.

[24] More detailed information on how the original test items and algorithms were developed can be found in 'The Skills for Life Survey: A national needs and impact survey of literacy, numeracy and ICT skills' (2003) http://media.education.gov.uk/assets/files/pdf/s/skills%20for%20life%202003%20survey.pdf

In field, both assessments took on average a total of 43 minutes to complete. The total average time for the whole English medium survey was 65 minutes (53 minutes for the youth boost interviews[25]).

4.3.2 Welsh medium Survey Assessment

The Welsh literacy assessment that was used in 2010 was taken from the tasks booklet that was used in the 2004 survey of proficiency in reading and writing Welsh. The task booklet was originally developed in consultation with the (then) Basic Skills Agency and Dr Cen Williams of the University of Wales, Bangor. A draft copy of 'Adult Literacy – The Core Curriculum' / 'Llythrenedd Oedolion – Y Cwricwlwm Craidd' supplied by Dr Cen Williams was used as the basis for all assessments.

Before fieldwork, the task booklet was reviewed and slight amendments were made (some of which came about as a result of findings from the pilot see section 4.5). The following amendments were made:

- The final section of the task booklet from 2004 (section 11) was removed- There was some debate in 2010 about whether or not extended writing tasks should be used to assess literacy levels, given that the surveys assessing English literacy in both 2004 and 2010 did not include writing tasks. In 2004 a substantial proportion of respondents (26%) achieved no marks in section 11[26], and therefore the analysis of the data considered respondent scores both including and excluding section 11. Unsurprisingly, the difference in the average skill levels of respondents in 2004 between analysis which included section 11, and analysis that considered only sections 1 to 10 was significant[27]. At the time of reporting in 2004 it was acknowledged that it was debatable whether or not the literacy levels should be based on all the types of tasks conducted (spelling, comprehension, punctuation and written tasks) or if it should be based on the spelling, comprehension and punctuation tasks only[28]. In recognition of this point, it was decided to exclude the writing tasks which were originally included at section 11 of the 2004 Welsh literacy assessment.

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[25] In addition to having a shorter contextual questionnaire, youth boost respondents also took on average slightly less time to complete the assessments

[26] This was presumed to be due to respondent fatigue and abandonment at this stage.

[27] When the analysis included section 11 59% of respondents achieved Level 1 or above; when the analysis excluded section 11, 67% of respondents achieved Level 1 or above.

[28] This was because the 2004 survey of English medium literacy levels in Wales excluded written tasks from their assessment.

- The task booklet and instructions to be played to the respondent while completing the booklet were checked by Welsh speakers for accuracy. The decision was made to only amend something if it was an indisputable error in the 2004 task booklet or instructions, which made spelling, grammar or meaning within the task inaccurate. All other suggestions (for example, to improve tone, register or structure of sentences) were rejected in order to retain comparability as far as possible.

- The use of numbers and letters to identify different tasks within sections was changed to numbers and decimal points only, so that the booklet could be easily followed through by an interviewer unfamiliar with the Welsh alphabet.

- Any instructions that had previously referred to an interviewer reading out instructions were amended to refer to the pre-recorded audio files (see section 5.4.2 for further details of the methodology change).

- Some minor formatting changes were made to facilitate clearer answers and to assist with marking.

The final task booklet consisted of 10 sections of tasks, designed to test respondents' ability in reading, writing, spelling and punctuation in Welsh. Each task was designed to test a different ability level as set out by 'Adult Literacy – The Core Curriculum' / 'Llythrenedd Oedolion – Y Cwricwlwm Craidd', namely Entry Level 1, Entry Level 2, Entry Level 3, Level 1 and Level 2[29]. See appendix G for more details on which tasks within the booklet were testing which skill and which ability level. A full version of the task booklet can be found in appendix N and the instructions recorded on audio file can be found in appendix H.

The Welsh assessment took on average 31 minutes to complete in field, bringing the total length of the Welsh medium survey interview to an average of 56 minutes.

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[29] N.B. given the vast differences in the assessments used, and in the language structure and use of English and Welsh these levels are not necessarily equivalent to the English literacy levels

4.4   Survey Programming

4.4.1   Contextual Questionnaire Programming

Once the contextual questionnaire in English had been finalised it was then programmed into a CAPI (computer assisted personal interviewing) script and checked for accuracy of wording and filtering by TNS-BMRB. Once the English version of the contextual questionnaire was checked and signed off, the Welsh version was then programmed into the script. This was done by copying and pasting the Welsh question text and response codes over the English text, while all filtering remained unchanged. Text substitution used in the Welsh version of the script was kept to a minimum given that very often the structure of a Welsh sentence does not mimic that of an English sentence. A language choice question was asked at the beginning of each interview which controlled the filter to change the language for the rest of the contextual questionnaire.

The Welsh version of the script was given an initial check by TNS-BMRB in order to check that the translation was working correctly technically, and this was followed by thorough checks performed by a Welsh speaking TNS-BMRB researcher and a Welsh speaking associate from Miller Research. These checks included sense and language accuracy checks as well as checking that the text followed the wording used on the Welsh language paper questionnaire translation. The full Welsh language version of the questionnaire can be found in appendix B.

A series of logic checks were also programmed into the CAPI script (particularly in relation to household relationships, and language ability and use) to ensure that the data collected was as clean as possible.

4.4.2   English medium Survey Assessment programming

After the contextual questionnaire the assessments were integrated and programmed into the CAPI interviewing platform. The literacy and numeracy assessments were randomised within the script so that 50% of the sample received the literacy assessment first and 50% received the numeracy assessment first. Respondent fatigue was expected to be an unavoidable factor but this design equalised the effects between the two tests. This was also the approach taken in 2004.

An option to skip both assessments was programmed into the script. Respondents who had said they could not read English when asked in the contextual questionnaire, respondents who said their reading of English was poor and had required a full spoken translation to get through the contextual questionnaire, and respondents who required help with the contextual questionnaire due to poor eyesight, were all given the option of continuing with the assessments or not.[30] A full breakdown of the numbers of respondents who completed the

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[30] Note that respondents who said they could not read English in the contextual questionnaire automatically skipped the assessments in the 2004 survey and were given a default level of Entry Level 1 or below for both assessments. The decision was made for the current survey to give respondents the option to continue, in order to attempt to get a

assessments is included in section 5.10.1. Interviewers were also required to record in the script whether or not the respondent completed each assessment and if not, the reasons for not completing it. This data was used to check the data received back (in order to minimise data loss).

A failsafe option of restarting the tests was programmed into the script, in case of technical difficulties. The assessment software does not save data until each test is completed, therefore technical difficulties part way through an assessment would mean the loss of previously recorded data. The option of restarting the tests from the beginning was available should any issues occur relatively near the beginning of a test. Interviewers were not able to break the interview in the middle of an assessment (due to the fact that the software does not save data until complete), however they were able to break the interview at any time during the contextual questionnaire or in between the two assessments if the respondent was unable to complete the whole survey in one sitting.

4.4.3 Welsh medium Survey Assessment programming

While the respondent themselves completed the Welsh literacy task in a paper booklet, the instructions given to them were pre-recorded and programmed into the CAPI script. This differed to the approach used in 2004, where the interviewers read out the instructions for the tasks to the respondents. The need for using pre-recorded audio instructions for the current survey was mainly due to the need for non-Welsh speaking interviewers to be able to administer the assessments. However it was also seen as a potential improvement to the survey methodology given that it ensured that all respondents received the same instructions in the same way thereby eliminating any interviewer bias. The differences in methodology between the current and the 2004 survey were not thought to be significant enough to create any mode effects.

Similarly to the English medium survey assessments some respondents in the Welsh medium survey were given the option of skipping the assessments. These included respondents who said in the contextual questionnaire that they could not read or that they could not write Welsh, respondents who said they read or write Welsh poorly and chose to complete the contextual questionnaire in English, and respondents who required help with the contextual questionnaire due to poor eyesight, or poor hearing. A full breakdown of numbers of respondents who completed the assessment is included in section 5.10.2. As for the English medium survey assessments, interviewers were required to record whether or not the assessment had been completed and if not the reason why.

The audio instructions were recorded by a fluent Welsh speaking researcher from TNS-BMRB and were then programmed into the CAPI script so that interviewers had control over when to play them and could repeat or adjust the volume as necessary. This also allowed interviewers to follow through the task booklet and play relevant audio files without understanding any Welsh. On screen interviewer instructions were programmed into the script, along with the

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true assessment of their abilities. When making comparisons with 2004 any respondents who said in the contextual questionnaire that they could not read English should be excluded from the analysis.

instructions that respondents would be listening to through headphones (in English and Welsh), to help interviewers follow where the respondent should be in the task booklet. This was for interviewers' use only and they did not show the screen to the respondent. The script had the capability to allow the interviewer to go back if a respondent wanted an instruction for a particular question to be repeated.

4.5   Survey Piloting

A pilot of both surveys was conducted between 7th December and 13th December 2009. The aim of the pilot was to test the contextual questionnaire and both types of assessments along with the survey administration procedures, including introduction and doorstep techniques, briefing materials and interview length.

The pilot was conducted in three parts:

- Day 1: A full briefing in the morning, followed by a hall test involving interviews with pre-recruited respondents in a central location in Swansea observed by members of the TNS-BMRB research team and Miller Research
- Day 2: In-home interviews with pre-recruited respondents in Swansea, observed by members of the TNS-BMRB research team
- Rest of the week: Interviewers worked assignments in other parts of Wales, obtaining interviews to meet quotas

The briefing for the pilot took place in a hotel in Swansea on the morning of 7th December 2009, the location of the hall test. Four interviewers (one Welsh speaker) took part in the pilot and all were briefed personally by the research team on this day. Prior to the briefing, respondents had been pre-recruited to take part in the hall test on day 1 of the pilot. This was done to ensure that as many members of the research team at TNS-BMRB and Miller Research could observe as many pilot interviews as possible, (including ensuring that a Welsh speaking researcher could observe the Welsh contextual questionnaire and assessments being conducted). It was felt that a hall test on day 1 of the pilot was a time efficient and cost effective way of doing this. Interviewers conducting the pre-recruitment were provided with street lists from a location near the hotel (in order that respondents involved in the hall test did not have too far to travel). The recruiters were provided with quotas to fill based on age, gender, working status, ability to speak Welsh, and willingness to complete the contextual questionnaire in Welsh. These quotas were set firstly to ensure that the respondents recruited covered a range of different demographic groups and basic skills ability, but also to ensure that it would be possible to test both the English and Welsh contextual questionnaire, and both the English and Welsh assessments. For the pilot a filter question was built into the script so that interviewers were able to choose which assessments to conduct for a particular interview. At each stage of the pilot, interviewers were given targets for the number of different survey types they were required to conduct (i.e. the languages of the contextual questionnaire and assessments). Ability to speak Welsh was determined by asking respondents the screener question designed to be used for the main stage, and respondents undertaking the Welsh assessments at the pilot were required to fulfil the definition of a Welsh-speaker (as defined for this research, see section 5.4.1 for more details

on language classification). During the hall test 6 interviews were conducted and observed by researchers.

Respondents involved in the hall test were offered a £20 gift voucher as an incentive for taking part and any travel expenses incurred were reimbursed.

On day 2 of the pilot, two members of the TNS-BMRB research team accompanied two interviewers (one Welsh speaker) to conduct interviews with pre-recruited respondents in their homes in an area near Swansea. Interviewers involved in the pre-recruitment for the hall test also attempted to make appointments with respondents for day 2 so that members of the research team could see as many in-home interviews as possible. Recruiters were given similar quotas to fill and targets for survey type as they were for the hall test. Respondents who agreed to an appointment were offered an incentive of a £20 gift voucher to facilitate recruitment. On day 2 of the pilot 5 interviews were conducted and observed by researchers.

For the rest of the pilot interviewers were required to work assignments in other areas of Wales. Areas were sampled using the quota sampling methodology that would be used for the main stage of the Welsh medium survey. Interviewers were provided with street lists from a selected area, from which they were able to interview any eligible respondents who fulfilled their quotas. Once an interview had been completed at an address, interviewers were required to leave two addresses before making their next call. As a result of the sampling method used, no advance letters were sent at the pilot, however interviewers were provided with copies of a letter and leaflet introducing the survey (similar in design to those which would be used at the main stage) to show to respondents on the doorstep or leave behind after the interview. It was not seen to be necessary to pilot the sampling procedures and doorstep selection procedures which were to be used for the English medium sample at the main stage given that these were used successfully for the 2004 survey. Again, interviewers were provided with quotas based on the same demographics as used for the recruitment and were given targets to fill based on survey type.

Pilot interviews from day 3 of the pilot onwards were conducted in Carmarthenshire, Neath Port Talbot, Swansea and Bridgend, and one interviewer was accompanied by a member of the client team from the Welsh Government for one day of interviewing. Respondents who were not pre-recruited for an interview were offered an incentive of a £10 gift voucher for taking part in order to replicate the amount to be offered at the main stage.

Overall at all stages of the pilot 23 interviews were achieved, covering the following survey types:

- Contextual questionnaire in English and English assessments -14
- Contextual questionnaire in English and Welsh assessments - 2
- Contextual questionnaire in Welsh and Welsh assessments – 7

Interviewers were not instructed to conduct any interviews involving a contextual questionnaire in Welsh and English assessments. This was firstly because given the short time frame involved for the pilot there was concern about recruiting enough Welsh speakers

to take part in order to thoroughly test the Welsh assessments, therefore it was decided that all Welsh speakers recruited should complete the Welsh assessments. Secondly it was not felt that this version of the questionnaire would be problematic given that most Welsh speakers are also fluent in English. It was felt to be more important to test the Welsh assessments when conducted by a non-Welsh speaking interviewer (and thereby necessarily using the English version of the contextual questionnaire), in order to ensure that it would be unproblematic to administer the Welsh assessments using a non-Welsh speaking interviewer as would be the case for many interviews at the main stage of the survey.

Interviewers were provided with a pilot feedback form to complete after they had completed their pilot assignments. The feedback forms were reviewed by the research team and a debrief meeting (via conference call) was held on the 16th December 2009 between interviewers, the field project manager and members of the research team to collect further feedback on how the pilot went. Additionally the electronic data received back from the contextual questionnaire and English assessments was analysed to identify any potential problems. The data from the contextual questionnaire was looked at to see if there were any illogical responses, any items with a significant proportion of non-response, or any items with little variation in answers. Data from the English assessments was looked at from a technical perspective to see that it was being written out correctly and was usable. The completed Welsh assessments were sent back to head office by the interviewers and a Welsh speaking researcher looked through them to identify any issues. They were also sent to be marked by independent examiners with experience of marking Welsh GCSE and A' Level scripts on behalf of the Welsh Joint Education Committee, in order to test the scoring system and marking guidelines to be used for the main stage. A moderation meeting took place after the pilot scripts had been marked, to discuss any issues in terms of interpreting and applying the marking guidelines. Feedback from all sources including personal observations made during interviews by researchers from TNS-BMRB and Miller Research, and the member of the client team, who accompanied interviews, was collated and suggestions for improvements to the survey design were presented in the form of a post-pilot report provided to the Welsh Government. The pilot report provided the basis for a post-pilot steering group meeting, where any changes before the main survey went into field were agreed with the client team. Some key findings from the pilot were:

- More guidance was needed for interviewers on exactly what sort of help they were allowed to give respondents in terms of completing the assessments (for example that answers should be written in Welsh (not English) in the Welsh assessment booklet). They also required more guidance on potential help they could inadvertently be giving respondents during the assessments. As a result the briefing content and interviewer instructions were revised accordingly.
- There was some confusion amongst respondents in relation to a question asking about the amount of teaching at school that had been in English and in Welsh. Some respondents were only thinking about Welsh language lessons, not their teaching as a whole.
- Some questions required show-cards, for example where the answer list was fairly long and difficult to remember or the question could be sensitive for some respondents

- While the average interview length was within the range of what was expected, between 60 and 70 minutes long, some respondents mentioned that it was too long, and in some cases repetitive. As such, the questionnaire was reviewed at the post-pilot meeting and a few cuts made to reduce burden to respondents as much as possible.

5. Fieldwork

Fieldwork for both surveys was carried out using in-home CAPI (computer assisted personal interviewing). For the main fieldwork, the two surveys were treated separately and interviewers were given separate assignments and provided with separate CAPI scripts for each survey. However given that much of the survey content and administration overlapped and that many interviewers worked assignments on both survey, the majority of the briefings covered both surveys, and most interviewers were given a set of instructions which covered the fieldwork processes for both surveys[31].

5.1 Interviewer Briefings

Before starting work on the survey all interviewers attended a face to face day long briefing, conducted by the TNS-BMRB research team. The first briefing was treated as a 'master' briefing, attended by all members of the TNS-BMRB research team, all interviewer supervisors, a researcher from Miller Research and a member of the client team from the Welsh Government. This was to ensure consistency of approach for all subsequent briefings. 9 briefings in total were carried out over the course of fieldwork, two of which were attended by a client. The briefings covered:

- Introduction, background and overview of the survey
- Fieldwork materials and documentation- including completing contact sheets
- Contact procedures, screening and selecting a respondent for interview
- Language issues- including carrying out a survey in Welsh
- Maximising cooperation and response- including refusal avoidance strategies, and scenarios that may arise on the doorstep
- Overview and dummy run-through of the contextual questionnaire
- Administering the assessments- including dummy run-throughs of both the English and Welsh assessments
- Field administration issues

In addition to the briefing, interviewers were provided with detailed written instructions covering the topics above in more detail, as well as providing more administrative information. Interviewers were also provided with a technical video briefing to watch before starting work, which provided technical details of how to load and navigate through the electronic assessments.

After the briefings, interviewers were required to carry out two practice interviews in their own home and submit them electronically. The submissions were then checked at head office to ensure data was being received back successfully before interviewers started work.

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[31] In the later stages of fieldwork, once the majority of the Welsh medium survey fieldwork was complete, a small number of mop-up briefings were required for the English medium survey only.

5.2   Advance Letters and Leaflets

Before starting work interviewers working on the English medium survey were required to send out an advance letter introducing the survey and a colour survey leaflet explaining in more detail what the survey involved, to all issued addresses. Welsh translations of both the letter and leaflet were enclosed. An unconditional incentive of a book of 6 first class stamps was enclosed with all advance letters. Interviewers were also provided with additional copies in their work packs to show to respondents on the doorstep or leave behind after an interview. Similar versions of the advance letter and leaflet (in both English and Welsh) were also produced to be shown to respondents on the doorstep for the Welsh medium survey[32]. The letter and leaflet were designed by TNS-BMRB (with input from Miller Research and the Welsh Government) based on the letter used for the 2004 survey and on their experience of the type of content in advance letters that encourages cooperation. The letter and leaflet were translated into Welsh. Copies of the different versions of the letter and leaflet used in both surveys along with Welsh translations are included in appendices J to M.

The decision was taken not the mention the requirement to complete an assessment in the initial letter (to avoid putting respondents off straight away), but to introduce the assessments by referring to them as 'tasks'[33] in the colour leaflet. It was felt that it would be beneficial to include an explanation up front of why respondents did not have the option to complete the 'tasks' in the language of their choice (but they did have the option to choose for the contextual questionnaire), given the legal obligation of the Welsh Government to allow Welsh citizens to participate in research in either English or Welsh. Interviewers working on the English medium survey were instructed to send the letters and leaflets to issued addresses around 3-4 days before making their first personal visit, to ensure that the occupants had had enough time to read the letter and find out more about the survey if desired, but also to ensure that the letter and leaflet were still fresh in their minds when interviewers called round. All versions of the letter and leaflet included contact details of the research team at TNS-BMRB (telephone numbers and email addresses) so that respondents could make contact in case of any queries, to inform them that they did not wish to take part, or to arrange for the contextual questionnaire to be conducted in Welsh. Any Welsh speakers that contacted TNS-BMRB were either transferred to, or called back at a later date by, a Welsh speaking researcher[34].

5.3   English medium Survey Fieldwork Processes

Fieldwork for the English medium survey took place between 29th March 2010 and 14th November 2010. Sample for the English medium survey was issued in two batches, in order to aid the conduct of fieldwork which took place over a relatively long period of time. Interviewers were each issued with assignments that contained 25 sampled addresses. All respondents (including the youth boost respondent) were offered an incentive of a £10 gift voucher for taking part in the interview. Fieldwork for the English medium survey was conducted by 106 interviewers.

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[32] No letters were sent in advance for the Welsh medium survey given that quota sampling was used

[33] This word was chosen as it was seen to be less intimidating than the words 'assessments' or 'tests'

[34] No emails were received in Welsh

Some issued addresses at which the original interviewer had not managed to make contact or had received a refusal (except for office refusals or 'hard' refusals) were reissued to another interviewer during the later stages of fieldwork.

5.3.1 Selecting a respondent for interview

Given that addresses were selected using the Postal Address File (PAF), letters were not sent to named individuals. An interviewer's first task when calling at an address was to establish whether the address was residential or occupied. If it was they then established whether more than one dwelling unit and/or household was contained within the address. At each address, only one household could be selected. Where more than one dwelling unit[35] was found at an address, the interviewer would list the dwelling units in a prescribed order on the contact sheet (usually in numeric or alphabetical order where flats were numbered or lettered) and select one for interview based on a random number kish grid pre-printed on each contact sheet. Similarly where more than one household[36] was found, interviewers would randomly select one for interview in the same way. Once the household had been selected no substitute could be taken.

Only respondents aged 16-65 were eligible for interview, so once a household had been selected interviewers were required to screen the household to establish whether any individuals within this age range occupied the household. If not, the household would be classified as ineligible and no interview would be conducted. Where there was more than one individual within the household eligible for the interview (i.e. aged 16-65) one person was randomly selected for interview using a similar procedure. All eligible respondents would be listed on the contact sheet in alphabetical order by first name and one would be randomly selected based on the same random number kish grid pre-printed on the contact sheet. Once an individual had been selected no substitutes could be taken. If there was only one resident eligible adult no selection was necessary.

5.3.2 Youth boost

In order to boost the number of those aged 16-19 taking part in the survey a youth boost design was built into the English medium survey sample design. This meant that interviewers were able to conduct more than one interview within a household if there happened to be an individual aged 16-19 living there. After the selection of the main respondent, interviewers were able to screen for other individuals within the household who would be eligible to take part in the youth boost interview. If more than one individual was found to be eligible for the youth interview, one person would be selected using the same random selection procedure used for selecting the main respondent. Again once selected no substitutions could be taken.

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[35] A dwelling unit was defined as a structurally separate self-contained accommodation unit behind its own lockable front door

[36] A household was defined as one person or a group of people who have the accommodation as their only or main residence and (for a group) either share at least one meal a day or a living room or sitting room

Interviewers were advised to use their judgement on at what stage the possibility of carrying out a second interview in the household should be introduced to the respondent or gatekeeper, keeping in mind the importance of achieving at least a main interview at the address. However the screening for and selection of a youth boost respondent could take place either before or after the main interview had taken place. Interviewers were provided with a series of rules to follow when carrying out the screening and selection of youth respondents which were as follows:

- A youth boost interview could only be conducted *after* the main interview had taken place- this was in order not to jeopardise the chances of achieving a main interview, which was the primary aim[37]
- A youth boost interview could not be conducted in the household if the selected main respondent also happened to be aged 16-19
- Only one youth boost interview could be conducted per household (so no more than two interviews per household could ever be conducted)

Roughly halfway through fieldwork it became clear that the number of achieved youth boost interviews was lower than expected, therefore in an attempt to increase the numbers achieved a change in the rules was implemented for the second batch of sample. The change meant that interviewers were now able to conduct a youth boost interview if possible, even if the selected main respondent was also aged 16-19. All other rules remained unchanged. Additional communication detailing the change in the rules was sent out to interviewers.

At the end of the CAPI script for the main respondent the names of any potential youth boost respondents (as collected by the interviewer during the household information section of the contextual questionnaire) were displayed as a reminder for the interviewer.

A total of 107 youth boost interviews were achieved over the course of fieldwork.

5.3.3 Administering the English medium Assessments in Field

After the contextual questionnaire had been administered through CAPI in the standard way, interviewers would read out the introduction to the first assessment, click to launch the assessment software and then turn the screen to the respondent. Interviewers were encouraged wherever possible to attempt to conduct the interview in a quiet location, ideally with a table as administering the assessments required the use of a computer mouse. The assessments themselves were entirely interviewer administered, i.e. all answers were entered by the interviewer, they would navigate through the assessments for the respondent and be in control of the laptop and computer mouse at all times. The respondent would read the task from the computer screen (interviewers did not read anything to the respondent once the assessments started) and then indicate to the interviewer which response they would like to give. Interviewers were briefed to make sure they were certain which answer the respondent

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[37] Since this rule was in place, it meant that the contextual questionnaire for the youth boost respondent could be shorter, given that household information would already have been collected from the main respondent. See section 4.2 for more detail.

would like to give, asking them to physically point to the answer if unsure.[38] Interviewers would enter the answer into the laptop, and then check with the respondent that they were happy with this before continuing. It is not possible to go back to a question within the assessment software once an answer has been given, however the respondent was able to change their answer to a particular item as many times as they liked before moving on to the next task.

At the time of piloting the English assessments in 2004 the use of the laptop in their administration was seen positively, given that in many cases the laptop was viewed as a neutral question-setter with the interviewer being viewed as 'on the same side' as the respondent. By ensuring that interviewers alone operated the laptops during the assessment administration, the fact that some respondents would not have had personal experience of using computers (and therefore may have been put off completing the tests for this reason), was not a barrier.

While completing the assessments all respondents were provided with a blank sheet of paper and a pen on which to do workings out if required. They were also provided with a key points card (included in appendix I), which summarised the information they were given by the interviewer in the introduction at the start of the assessments. This also served as an aid to interviewers as it contained the only information they were allowed to provide respondents. Respondents were not permitted to use calculators, rulers, or dictionaries during the assessments. If respondents did not know the answer to a particular question they were able to leave it blank, and the interviewer could move on to the next task without entering an answer[39]. Interviewers were briefed on the importance of not giving any help and appearing neutral at all times during the assessments to minimise the effect of interviewer bias. Interviewers were required to connect a computer mouse to their CAPI laptop for the purposes of administering the assessments.[40] This was for two reasons; to keep the administration as consistent as possible with the way it was administered in 2004, but also due to the fact that the assessment software itself was not designed to be used with a touch screen, and using a mouse would reduce the possibility of technical difficulties or interviewer error.[41]

No time limit was given for completing the assessments.

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[38] This was particularly important when the task required respondents to identify the correct spelling or identify punctuation marks and simply saying the answer out loud would not be sufficient for the interviewer to be sure the respondent knew the correct answer. The majority of items in the test were multiple choice items where the response options were labelled with letters, and therefore in the most part it simply required the respondent to read out the letter of the answer they wished to give.

[39] Interviewers were permitted to remind respondents of this if they were clearly struggling to avoid outright guesses

[40] When conducting standard interviews, interviewers will use the touch screen capabilities of their laptop

[41] A number of items in the assessment used a drag and drop method, which did not work well with the touch screen

5.4 Welsh medium Survey Fieldwork Processes

Fieldwork for the Welsh medium survey took place between the 29th March 2010 and 25th October 2010. A total of 56 interviewers carried out interviews for the Welsh medium survey[42]. Interviewers were provided with street lists from which they were required to screen household for eligibility (based on Welsh-speaking ability) and recruit respondents to fill quotas based on age and gender. For more details see section 3.2. Once an interview had been completed at an address, interviewers were required to leave two addresses before making their next call. As for the English medium survey all respondents were offered a £10 high street gift voucher as an incentive for taking part.

5.4.1 Language Classification and Screening

The interviewers first task when making contact at an address was to establish whether the household was eligible, by screening for age (16-65)[43] and Welsh-speaking ability. In order to retain comparability with the survey undertaken in 2004, the same Welsh-speaking ability question was used for the 2010 survey which was as follows:

Do you speak Welsh at all?

1. Yes, I do fluently
2. Yes, I do fairly well
3. Yes, I do some
4. Yes, I do a few words only
5. No, (I don't)

In 2004 respondents who classified themselves in categories 1 to 3 were included in the survey and subsequently given the opportunity to complete the Welsh literacy assessment. Extensive consideration was given to the screening question for the Welsh medium survey during the inception phase of the 2010 survey. It was acknowledged that there were many different ways of defining whether someone was a Welsh-speaker, of which all were dependent on self-classification by the respondent rendering them unavoidably subjective. It was recognised that the question asked in 2004 did not sufficiently distinguish language ability in Welsh, given that respondents who self-classified themselves as only being able to speak 'some' Welsh were then given the opportunity to complete a reading and writing assessment of Welsh, the majority of whom were likely to use English as their primary language medium, and could potentially only have limited language ability, thereby biasing the results from their assessments. As such, the decision was made to use a more restrictive selection approach, only including respondents who classified themselves in categories 1 or 2 of the screening question as eligible to be included in the survey. Over half of the respondents

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[42] A number of interviewers worked on both surveys therefore the total number of interviewers who carried out interviews across both surveys was 111

[43] The definition of working age adults was defined slightly differently as 16-64 year olds in the 2004 Welsh medium survey; however this definition was amended to 16-65 for the 2010 Welsh medium survey to keep consistency with the English medium survey. When making comparisons any 65 year olds included in the Welsh medium survey data should be excluded from analysis

included in the 2004 survey had claimed they were fluent in Welsh; therefore a sizeable sample of fluent Welsh speakers alone would be available for comparison. It was also considered that there was just cause for also including respondents classifying themselves as being able to speak Welsh 'fairly well', given anecdotal evidence for competent Welsh speakers underestimating their language ability and avoiding claiming to be fluent despite having proficient Welsh language skills.

5.4.2 Administering the Welsh medium Survey Assessment in Field

As previously mentioned the Welsh medium survey assessment was redesigned for this survey to allow it to be administered by non-Welsh speaking interviewers. After the contextual questionnaire had been completed, interviewers would be given on screen instructions to turn the screen away from the respondent, give the respondent a task booklet and pen, and to connect the headphones to the laptop and hand them to the respondent. Before the respondent started the assessment the interviewer would play a test audio file to ensure the volume was correct and adjust if necessary. The pre-recorded audio files were integrated into the CAPI programme and would play at the relevant point in the assessment as the interviewer navigated through the programme. Interviewers were also able to repeat an audio instruction if required and go back in the programme to replay a previous audio file if necessary. At the end of each task interviewers would check with the respondent if they were ready to move on before playing the next audio file. Instructions on the screen gave interviewers the task number and what the respondent was hearing on the audio file so that they could follow the task through. Not all tasks in the booklet required the respondent to listen to audio instructions; some were self-contained within the paper booklet[44], so for these tasks the interviewer played no role. The only information interviewers were permitted to provide respondents with were; a) that there was no time limit and they could spend as long as they liked on the tasks b) the task number that the audio file instruction corresponded to c) that the answers should be written in Welsh, and d) that the questions were hypothetical and only a test of language skills (therefore they could make up answers)[45].

Each task booklet had a unique serial number and check digit pre-printed on the front and at the end of the survey, interviewers would enter the serial number from the booklet completed by the respondent into the CAPI script so that once marked, the marks from the task booklet could be matched up to the answers given in the contextual questionnaire[46]. The check digits corresponded uniquely to each serial number, so the CAPI script would only allow the interviewer to continue if the serial and check digit matched up. This was to prevent any errors occurring in the matching up process due to incorrectly entered serial numbers. Interviewers returned the booklets to head office to be booked in and marked, by recorded delivery.

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[44] For example punctuating a section of text

[45] Point c) and d) came about as a result of feedback and findings from the pilot

[46] This also meant that no personally identifying information such as name and address needed to be written on the task booklet itself, ensuring confidentiality and data protection

5.5   Language Issues in the Field

As previously mentioned respondents from either survey were permitted to complete the contextual questionnaire in either English or Welsh depending on their preference. In order to cater for this the contextual questionnaire was programmed in both English and Welsh and the language choice was controlled by a question at the beginning of the survey. Two interviewers who could speak and read Welsh fluently were used to resource this[47]. In addition to picking up requests for Welsh interviews from respondents in any area of Wales, they worked their own pre-allocated assignments in the following areas: Carmarthen, Llandrindod Wells, Llanelli, Aberystwyth, Aberdare and Cardiff. Welsh speaking interviewers were, as far as was practically possible given where they lived, allocated assignments in areas that were expected to have a higher proportion of Welsh-speakers[48]. Respondents were informed in the advance letter and leaflet of the option to complete the contextual questionnaire in either English or Welsh and were advised that if they wanted to complete the contextual questionnaire in Welsh they should either inform the interviewer who first contacts them (if not a Welsh-speaker) or contact the research team using details provided who would arrange this. Overall over the course of both surveys 29 contextual questionnaires were conducted in Welsh. Interviewers were provided with a set of Welsh show-cards to use when conducting the contextual questionnaire in Welsh, and the screener show-card used for the Welsh medium survey was also provided in Welsh. All interviewers were also given a doorstep translation card with a short paragraph in Welsh explaining the purpose of the survey and why they were calling for the unlikely possibility that they encountered someone who did not have sufficient English language skills to allow the interviewer to introduce the survey to them. When conducting the contextual questionnaire in Welsh, interviewers were briefed to record any verbatim answers to open ended or other specify questions in both Welsh and English. The English translations provided by the interviewers were checked by a Welsh-speaking researcher at TNS-BMRB to ensure that they accurately captured what the respondent had said in Welsh, and that enough detail was given to allow the answer to be coded.

For cases where a respondent selected for the English medium survey did not speak sufficient English or Welsh in order to be able to complete the contextual questionnaire, household translators could be used. This required a friend, relative or neighbour who spoke English and the language of the respondent to act as a translator as the interviewer went through the contextual questionnaire. Interviewers were briefed to attempt to complete the contextual questionnaire in all cases, even if it was obvious that the respondent would not subsequently be capable of completing the assessment, to ensure that no specific groups of respondents were excluded from the survey.

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[47] Other interviewers were able to speak conversational Welsh, but were not able to read Welsh therefore could not conduct full interviews in Welsh

[48] On average the areas allocated to Welsh speaking interviewers had a 26 per cent penetration of Welsh speakers aged 16-64 according to the 2001 census.

5.6   Parental Permission

For both surveys where a respondent was aged under 18 and lived in the same household as their parents or guardians, interviewers were required to get written parental permission from them for their son/daughter to take part in the interview. A consent form was included on the contact sheet for this purpose. Where the respondent was under 18 years of age but was living independently parental permission was not required.

5.7   Data checking during Fieldwork

The data received back from the assessments was checked on a regular basis during fieldwork to ensure that there were no issues and that any missing data was followed up promptly with the interviewer. Answers provided by interviewers in the script relating to whether or not the assessments were completed and if not the reasons for non-completion, were checked against actual data received back (either the electronic data received from the English assessments or the hard copy of the task booklet from the Welsh assessments). Where any inconsistencies were flagged, interviewers were contacted immediately to attempt to resolve the issue.

5.8   Telephone Supplementary Information

In the early stages of fieldwork it was discovered that an error in the questionnaire programme was causing some respondents to miss the household reference person employment information. The script was corrected and reissued to interviewers as soon as the error was discovered. Where respondents who had missed these questions had indicated that they would be willing to be re-contacted and had provided a telephone number, they were re-contacted by TNS-BMRB telephone interviewers and given a very short questionnaire covering these questions.

5.9   Quality Control Checking during Fieldwork

Interviewer's work on 13% of all interviews was back-checked by a telephone call from TNS-BMRB's quality control team. This was to ensure that the interview was carried out as it should have been. In addition 21% of all interviews were supervised as part of our standard quality control procedures.

5.10 Response Rates and Fieldwork Figures

5.10.1 English medium Survey Response Rates and Fieldwork Figures

Given that the survey consisted of a number of different elements and that a screening exercise was involved, there are a number of ways of presenting response rates. Table 5.1 below gives a summary of the number of households that were screened and the total achieved response rate assuming that a proportion of the unscreened households would have been ineligible had they been screened[49]. Using this method, overall **60%** of assumed eligible households took part in at least one part of the survey. This represents a 2% fall in response rate since the previous English medium survey in Wales, however this represents a good response rate considering the unusual demands of the survey and falling response rates in general on social surveys.

Table 5.1: Summary of screened households and response rate

Issued addresses	**5525**	**100%**		
Total Deadwood	620	11%		
Unscreened households	558	10%		
Total screened households	**4347**		**100%**	
Ineligible for survey (no one aged 16-65)	1345		31%	
Eligible household	3002		69%	
Total number of assumed eligible households*	**3387**			**100%**
Achieved interviews	2027			**60%**

*This figure is calculated by applying the survey eligibility rate of 69% to the number of unscreened households and adding to the number of screened eligible households.

Table 5.2 shows a detailed breakdown of achieved outcomes for all issued addresses.

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[49] Unscreened households include cases where all information about the household was refused, no contact with anyone in the household was made, or an office refusal was received

Table 5.2: Final outcomes for all issued addresses

Issued addresses	5525	100%	
Deadwood:			
Address not traced/ inaccessible	60	1%	
Not built/derelict/demolished	17	*	
Business, industrial, institution	94	2%	
Not main residence	83	2%	
Vacant, not occupied	345	6%	
Other deadwood	21	*	
Unscreened households:			
No contact with household	212	4%	
All household information refused	287	5%	
Office refusal	59	1%	
Screened households:			
Ineligible for survey (no one aged 16-65)	1345	24%	
Total screened eligible households	**3002**	**54%**	**100%**
Interview achieved	2027	37%	68%
Partial interview achieved (test data lost)*	2	*	*
No interview achieved:			
No contact with selected respondent	46	1%	2%
Personal refusal by selected person (before or during interview)**	521	9%	17%
Proxy refusal on behalf of selected person	64	1%	2%
Broken appointment	94	2%	3%
Away/ in hospital during fieldwork period	41	1%	2%
Ill or incapacitated	56	1%	2%
Inadequate spoken English (no translator available)	29	1%	1%
Other reason	122	2%	4%

* For these cases data from both tests was lost due to technical difficulties or interviewer error therefore no data has been included in the final dataset

** This figure includes respondents who refused to continue the interview further than the contextual questionnaire. Respondents who refused to continue after having completed at least one assessment have been included in the figure for interview achieved

In addition 107 youth boost interviews were achieved, which constitutes 66% of all households that were eligible for a youth boost interview. Table 5.3 shows a detailed breakdown of all achieved youth boost outcomes for all issued addresses:

Table 5.3: Final youth boost outcomes for all addresses

Issued addresses	5525	100%	
No interview with main respondent achieved	3498	63%	
Main respondent aged 16-19 (before rule change)	39	1%	
No 16-19 year olds in the household	1825	33%	
Information about additional occupants of household refused	2	*	
Households eligible for youth interview	**161**	**3%**	**100%**
Interview achieved	107	2%	66%
No interview achieved:			
No contact with selected respondent	3	*	2%
Personal refusal by selected person (before or during interview)*	14	*	9%
Proxy refusal on behalf of selected person	5	*	3%
Parental permission refused	8	*	5%
Broken appointment	5	*	3%
Away/ in hospital during fieldwork period	3	*	2%
Ill or incapacitated	6	*	4%
Inadequate spoken English (no translator available)	1	*	1%
Other reason	9	*	6%

* This figure includes respondents who refused to continue the interview further than the contextual questionnaire. Respondents who refused to continue after having completed at least one assessment have been included in the figure for interview achieved

Thus interviews were achieved with a total of 2,134 respondents in the English medium survey. However test data is not available for all of these respondents for the following reasons:

- Some respondents either could not, or did not want to complete or finish both tests[50]
- Some test data was lost due to technical difficulties or interviewer error[51]
- Some respondents were unable to complete one or both tests due to poor sight

The assessment response for the main survey is shown in Table 5.4 below:

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[50] The assessment software does not save answers to a partially complete test, so only data from complete tests is usable.

[51] For example a small number of interviewers had difficulty loading the tests during the interview or they accidentally closed out of the tests before completion

Table 5.4: Summary of assessment response

Assumed eligible households	**3387**	**100%**	
Interview achieved	2027	60%	**100%**
Literacy test:			
No test due to sight problem	4	*	*
Respondent did not want to/ could not complete test	6	*	*
Technical difficulty/ interviewer error	8	*	*
Literacy test completed and scored	**2009**	59%	99%
Numeracy test:			
No test due to sight problem	3	*	*
Respondent did not want to/ could not complete test	10	*	*
Technical difficulty/ interviewer error	2	*	*
Numeracy test completed and scored	**2012**	**59%**	**99%**
Both tests completed and scored	**1997**	**59%**	**99%**

In 2 youth boost cases we do not have data for the numeracy test because the respondents could not or did not want to complete them.

5.10.2 Welsh medium Survey Fieldwork Figures

The target of 1000 interviews for the Welsh medium survey was met and a total of 1001 complete interviews were achieved on the Welsh medium survey.

In a small number of cases the respondent refused to continue the interview part way through the assessment. The decision was made not to mark data for partial booklets for these cases given that the marks achieved would not be an accurate representation of the respondent's ability. Instead these interviews were replaced wherever possible by another interview within the same quota cell, and data from the original interview was not used. Similarly in a small number of cases task booklets were lost in the post. Again, the data from these interviews was not used but they were replaced by another interview within the same quota cell wherever possible.

There were three other reasons why a respondent may not have completed the assessment. Firstly, some respondents may not have completed the booklet in entirety because they were unable to, and therefore left some questions blank. Given that there is no way of knowing whether or not the respondent had attempted each task within the booklet to the best of their ability, and left questions blank that were too difficult for them, or that they had merely made a decision not to attempt certain tasks, the decision was made to treat all booklets in the same way and mark any tasks left blank as incorrect[52]. Therefore marks and a literacy level score has been included for these respondents. Secondly, some respondents were unable to read

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[52] Interviewers recorded cases where respondents refused to complete the assessment and stopped the interview and these cases were not marked or included in the data

or write Welsh and therefore could not complete the assessment[53]. These respondents were given a default level in the data of Entry Level 1 or below. And finally, 1 respondent was unable to complete the assessment due to hearing difficulties. This is the only case in the Welsh medium survey for which assessment data is not available.

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[53] The screening question only asked ability to 'speak' Welsh therefore respondents who could speak Welsh but not read or write it, were still eligible

6.   Data Processing

6.1   Coding

For all other specify and open ended questions included in the contextual questionnaire, code frames were set up to replicate those used in the 2004 surveys (where questions were unchanged). In a few cases amendments were made to the code frames where it was clear that the context had changed with time. For example, additional codes were added to be used for a question on computer use. For any new questions, code frames were drawn up by TNS-BMRB based on a random selection of verbatim answers from the early part of fieldwork. The proportion of answers that could not be coded i.e. that were left as 'other', was monitored throughout fieldwork to ensure that the code frames were working successfully.

As part of the coding procedures for other specify questions, coders conducted 'backcoding' to see whether any of the verbatim answers given could actually be coded into one of the original pre-coded response options.

To classify the current or previous occupation and industry of both the respondent and the household reference person, SIC2007[54] and SOC2000 coding was also conducted. NSSEC codes were generated from the SOC outcome code for both the respondent and the household reference person using SPSS syntax.

6.2   Editing

To ensure that the data was as clean as possible, logic checks were run on the household grid variables. Checks and edits followed (where relevant) checks detailed by ONS in the Harmonised Concepts and Questions for Social Data Sources.

6.3   Assessment data processing

6.3.1   English medium assessment data processing

The final literacy and numeracy levels were calculated differently. With the literacy assessment, the final 'level' was linked to the difficulty of questions tackled at the final stage (i.e. if the respondent tackled relatively difficult questions at the end, he/she was more likely to be classified at a higher level than someone who answered relatively easy questions at the end). As such the assessment software itself outputs the level each respondent scored once the test is complete. This was then converted into a numeric variable to include in the SPSS dataset. The numeracy level was based on a weighted aggregate score of all items (e.g. successfully answering a Level 2 question scored 5 points, whereas successfully answering an Entry level 1 question scored 1 point). The level achieved for the numeracy assessment was calculated in SPSS syntax using the outputted scores of individual items.

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[54] SIC1992 was used as the industrial classification in the 2004 surveys

6.3.2 Welsh medium survey assessment data processing

6.4 Marking

In 2004 the Welsh medium assessment scripts had been marked manually by secondary school Welsh teachers and fluent Welsh speaking staff[55] within Beaufort Research, following a scoring system and marking guidelines that had been designed by Dr Cen Williams, University of Wales, Bangor. For the National Survey of Adult Skills in Wales 2010, independent examiners, with experience of marking Welsh medium GCSE and A' Level scripts on behalf of the Welsh Joint Education Committee were approached and contracted to take on the task of marking and moderating the Welsh medium assessment scripts.

The examiners had trialled the marking scheme by marking the scripts completed during the pilot. They subsequently met face-to-face with the Welsh Government to discuss any issues or queries arising from the pilot scripts and to compare interpretations of the marking guidelines[56]. For both the pilot and the main survey the same scoring system as the one developed and used in 2004 was used. The original 2004 marking guidelines were updated slightly for the 2010 survey and included some marking clarifications and instructions about data entering[57].

The scripts were marked in batches during between September 2010 and January 2011, and the marks were entered into an Excel spreadsheet, devised by TNS-BMRB for the purpose of the survey.

Once the final marks were received back, they were checked for completeness and then all tasks that had been marked as blank by the markers were given a score of 0. The final marks were then merged into the SPSS dataset using the unique serial number that appeared on the front of the booklet and that had been entered into the CAPI script by the markers to match up the marks with the contextual questionnaire data. The raw marks were then converted into an overall percentage score, which were then used to calculate literacy levels. The percentage boundaries used were taken from those presented in the final report produced in 2004[58]. Table 6.1 shows the percentage boundaries for each literacy level:

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[55] Internal staff marked the spelling, reading and punctuation tasks and the written tasks were marked externally.

[56] Each examiner had marked the same set of scripts, and they were therefore able to compare results for like-for-like answers.

[57] For example, in 2004 the marking guidelines had been separated into two document; one for those sections of the assessment that were marked in-house, and another for those sections that were marked externally by school teachers. For 2010 the original two guidelines were combined into one document. The 2010 marking guidelines also included guidance on entering the results into the Excel spreadsheet. Any queries that had arisen during the post pilot moderation meeting regarding interpretation of the guidelines were considered, and further explanation included in the 2010 marking guidelines, where necessary.

[58] Note that the literacy level calculations used in 2004 were based on the total score for the task booklet including the (now excluded) section 11. Exact details of how the percentage boundaries for literacy levels were decided upon

Table 6.1: Literacy level percentage boundaries

Percentage scored	Literacy level
0 – 17	Entry Level 1 or below
18 – 39	Entry Level 2
40 - 61	Entry Level 3
62 – 80	Level 1
81 - 100	Level 2

Summary variables of total marks achieved for all tasks testing particular types of skills (e.g. writing, spelling etc) as well as summary variables for all tasks testing particular levels were included in the SPSS along with the raw marks achieved for each individual task.

6.5 Data outputs

6.5.1 SPSS dataset

Data from both surveys were combined into one SPSS dataset with a single weight included. This weight can be applied either to the English medium survey alone for national estimates or analysis of the English assessments or to all Welsh speakers (as per the survey definition) for Welsh speaker estimates or analysis of the Welsh assessment. See section 3.1.1 and 3.2.1 for more detail on the weights included. Variable names followed the names used on the paper version of the questionnaire[59].

Derived variables were created using SPSS syntax and included in the SPSS dataset. Where appropriate, derived variables that were created for the 2004 dataset were re-created (if the same information had been collected) for the 2010 survey. Where new or amended information was collected in the contextual questionnaire for this survey (for example in relation to Welsh language skills), additional or amended derived variables were created.

6.5.2 Data tables

The following two sets of weighted data tables were produced by TNS-BMRB:

Set A: All data from the English medium survey, including scores from the English assessments, to be used for national estimates

Set B: All data from the Welsh medium survey (including scores from the Welsh assessment) combined with contextual questionnaire data from the Welsh speaking sample members from the English medium survey, to be used for more in-depth analysis amongst Welsh speakers

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were not available therefore it was assumed that the same percentage boundaries would still apply despite the removal of section 11

[59] In some cases these differ from those used in the 2004 English medium survey dataset

A spec for which variables would be used as cross breaks in each set of tables was discussed and agreed at a meeting with the steering group. The cross-breaks that were included on tables for both surveys in 2004 was used as a basis for consideration and amended dependent on analysis needs for the 2010 survey. The variables used as cross-breaks on table set A were as follows:

- English medium Literacy Level
- English medium Numeracy Level
- Summary of Basic Skills levels in both Literacy and Numeracy
- Ability to speak Welsh
- Gender
- Age
- Gender within Age
- Working status
- Whether had non-school training in English
- Respondent's NS-SEC classification
- Household NS-SEC classification
- Highest qualification level achieved
- Whether children under 16 present in the household
- Region

The variables used as cross-breaks in tables set B were as follows:

- Welsh medium literacy level
- Fluency in Welsh
- Gender
- Age
- Gender within Age
- Working status
- Whether Welsh is main language spoken at home
- Whether Welsh is main language spoken at work/school/college
- Whether had non-school training in Welsh
- Respondent's NS-SEC classification
- Household NS-SEC classification
- Highest qualification level achieved
- Whether children under 16 present in the household
- Region[60]

Questionnaire variables that were only asked on the probability survey were excluded from table set B and questionnaire variables that were only asked of Welsh speakers were excluded from set A.

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[60] For both sets of tables DCELLS standard regional classifications were used as a break, this differs from the regional breaks used in 2004

7.   References

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