'Food and You' Origins and Scientific Underpinnings

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Contents

‘Food and You’

Origins and scientific underpinnings

Preamble

‘Food and You’ (F&Y) is the Food Standards Agency’s (FSA) flagship social survey first mounted in 2010.[1] It has been an official statistic since 2014. Wave Six (2020) represents a key point in its life with the dual transition from face-to-face to online data collection and from biennial to annual. Continued in this new form, the survey is now known as Food and You 2 (F&Y2). This new form arose out of a review of the survey (Gaskell, 2019) and the review report provides details of the new design.

This document has been prepared by two members of the F&Y original Working Group, (WG). It has been agreed with all its other external members.[2] It has also been studied by the Chair of the then Social Science Research Committee (SSRC) which initiated the survey (more detail below).[3]

The purpose of what follows is to ensure that the history, and more importantly the scientific intentions, of the survey are recorded. This is useful in providing a contribution to ‘corporate memory’ for new personnel to be brought up to speed, especially as previous personnel retire/move on. It is particularly timely as F&Y moves to its new phase as F&Y2.

Origins and purpose

The social survey that became ‘Food and You’ dates from the inception of the Agency’s Social Science Research Unit (SSRU) in 2008 and the subsequent creation of the SSRC, a Scientific Advisory Committee (SAC) of the FSA. Dr Jane Barrett was appointed as Head of Social Science Research in the Agency charged with setting up the Unit and then, under its aegis, to oversee the establishment of the new SAC.

The terms of reference of the SSRC were to:

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[1] In 2009 the survey was commissioned, and question testing was carried out. A dress rehearsal pilot was held in February 2010 and main fieldwork carried out between March and August 2010. The first survey report of the first wave was published in 2011 (FSA). The convention has been to use the year of fieldwork, when data were collected, when describing or reporting the survey, for example that first wave is referred to as Food and You 2010.

[2] They are Arthur Fleiss, Richard Tiffin, later David Nuttall. We are most grateful for their wholehearted endorsement of this document and for their time, especially to Arthur Fleiss who was able to offer detailed comments.

[3] We are also grateful to Professor Peter Jackson, Professor Sir Roger Jowell’s successor as Chair of the SSRC for also kindly providing valuable comments

- support the Agency in developing its social science capacity by advising how social science can best contribute to meeting the Agency's Strategic Plans
- advise and critically assess how the Agency gathers and uses social science evidence and advice
- draw on wider expertise as appropriate to provide independent critique on social science-based evidence
- keep the Agency in touch with relevant social science activity both in the UK and internationally.

These are not dissimilar to those of its successor, the Advisory Committee on the Social Sciences (ACSS), although ACSS is charged with the provision of advice on less broad and more targeted features, including:

- how FSA frames the problem or question
- how FSA assures the quality and rigour of its social and data science evidence
- how FSA assures the quality and rigour of its advice and outputs based on these sources.[4]

The late Professor Sir Roger Jowell[5] was appointed to chair the SSRC, whose first meeting was held on 22nd and 23rd July 2008. An early recommendation was his proposal to establish a new social survey to replace the Consumer Attitudes Survey (CAS) which had been conducted annually since 2000 when the Agency was inaugurated. The argument for doing so turned on the appropriateness of the type of research design and the implications for scientific quality. Professor Jowell and the Committee argued that the CAS methodology had been suitable for its stated purposes of improving knowledge and understanding of consumer attitudes and of helping the Agency develop effective communication strategies. But, it did not have the robustness or methodological rigour needed for social scientific research, specifically research to meet the seven requirements identified by the SSRC to support the Agency's strategic plan.[6] We are confident that these requirements are just as relevant to F&Y2 in 2020 as they were to the original F&Y in 2008.

A significant improvement on CAS was to design the new social survey to provide cumulative data via successive waves of the survey, undertaken every second year. This not only continued the tracking of change over time, it also allowed data from different waves of the survey to be added together to support more detailed analysis. This feature is sustained with the move to running F&Y2 annually.

The SSRC deemed this change timely (in 2008) given that for the first time, the Agency had the appropriate social scientific advisory infrastructure necessary to oversee a

[4] respectively items numbered i, iv and v on the ACSS webpage accessed December 31 2019.

[5] Professor Jowell founded the British Social Attitudes Survey and co-founded the European Social Attitudes Survey. He had earlier been instrumental in establishing Social and Community Planning Research (SCPR) the forerunner of the National Centre for Social Research (NatCen).

[6] The seven requirements are set out in Appendix 1; they were originally listed in paragraph 12 of SSRC/08/2/2.

scientifically robust replacement for the consumer survey. The new SSRU was staffed by those with at least a first degree in one of the social sciences, thereby augmenting and complementing the existing range of closely related expertise in the Agency in economics, operations research and statistics. Furthermore, the SSRC had the necessary social science expertise and experience to advise and support the new SSRU.[7] It was therefore recommended that the 'Communications Directorate would continue to be a key user of the new survey' but that 'SSRU's expertise puts them in the best position to oversee and manage the survey'. Commissioning of the new survey was to be carried out directly by SSRU rather than through the COI framework that then existed for consumer research.[8]

It is worth noting that before the creation of the SSRU and the SSRC, the FSA had been repeatedly criticised for the low quality of its social research, in key part associated with what was held to be its unduly heavy reliance on market research rather than academic research.

Governance of F&Y

The governance set up to manage F&Y within the FSA consisted of a Survey Management Group, with input from SSRC and from a Survey Advisory Board, later renamed the F&Y Advisory Group, and subsequently the F&Y Working Group. There was also provision for ad hoc technical advice from FSA officials to be provided to both the Survey Management Group and the Advisory Board. See Appendix 2 for the governance diagram. This is, of course, now out of date. The ACSS may wish to ensure that updated version for F&Y 2 is securely in place.

The Working Group(WG), was set up in summer 2009 by the SSRU. Staff in SSRU attended and chaired, with the members external to the Agency being drawn from SSRC[9] and GACS (General Advisory Committee on Science).[10] Initially the Advisory Board also included representatives from DEFRA and DH, until the changes in responsibility in 2010 and the corresponding changes in the topics covered by F&Y.[11]

[7] The SSRC included among its members a cross section of disciplines in the social sciences: anthropologists, economists, geographers, psychologists, and sociologists. Virtually all members had a research track record in the study of some aspect of 'food and society' and many were senior academics/full professors. The Committee also included members with long experience of survey research and the creation and management of official statistics as well as the provision of social scientific research/ advice for other government departments

[8] For all three aspects of the recommendation, see paragraph 37 of SSRC/08/2/2

[9] Joy Dobbs, Arthur Fleiss and Richard Tiffin

[10] Anne Murcott, an academic and the sole social scientist expert member at that time on GACS. In 2017 GACS was replaced by the FSA Science Council.

[11] At its inception, FSA was responsible for food safety and nutrition policy across the UK, including food labelling, and the topics covered by the survey reflected that. During 2010 responsibility for nutrition policy was transferred in England and Wales to the Department of Health (DH) and the Welsh Government respectively. Nutrition policy in Scotland and Northern Ireland remained the responsibility of the Agency. As part of the same Machinery of Government changes, DEFRA took over responsibility for food labelling in England, but the FSA remained in charge of labelling in Wales, Scotland and Northern Ireland. In 2015, Food Standards Scotland took on the functions previous undertaken by FSA (Scotland.)

The first meeting of the WG was held in October 2009, at which terms of reference were agreed and the discussion began about which topics the survey should cover. The terms of reference were 'to provide practical high level advice on strategic and social science issues by:

1. Contributing to development work including advising on topics to cover in survey

2. Scrutinising and commenting on study documentation, including questionnaires.

Scrutinising and commenting on analysis plans and reports

4. Responding to ad hoc strategic issues through the project.

Scientific underpinnings of F&Y

The scientific intentions underlying the creation of F&Y developed under the auspices of the new scientific infrastructure, namely: the new SSRC, its Chair, the newly formed Working Group and the technical social scientific expertise of the staff appointed to the SSRU. In particular there was

- experience of procuring social scientific research in other government departments
- extensive advanced social scientific expertise and experience in social survey design and method
- extensive social scientific expertise and experience in the by then burgeoning research literature on the study of 'food and society' from several disciplinary perspectives.

As a result, the creation of the new survey was informed by best practice in these important aspects. All, especially the second two, them had been underdeveloped if not wholly absent in respect of the precursor CSA. Thus three features were incorporated into F&Y from the outset: principles of rigour in survey methodology; and two substantive principles deriving from recent literatures.

1. Rigour and standards in sampling, question design, mode, analysis and interpretation

From the outset, the robustness of F&Y design was crucial with regard to the statistical rigour of the sample, the use of National Statistics questions and standards and the correspondingly rigorous analysis and interpretation of the findings.

Rigorous random probability sample

As described in in SSRC/08/2/2 para 21 'For a survey sample to be representative of the population from which it is drawn, each person should have a non-zero known probability of selection. The most robust form of sampling, adopted for most Government surveys and all major National Statistics surveys, uses random or

After 2010, the topics covered by the survey changed in line with these new responsibilities and from 2015 the survey only covers England, Wales and Northern Ireland (where FSA retains responsibility for nutrition).

probability sampling methods'. Selection is rigorously controlled at each stage[12]; no substitution is allowed for those who refuse or do not respond, ensuring that every member of the population has a known chance of selection.

Surveys of a sample of the population can only ever *estimate* the behaviours and practices they are trying to measure; with a random probability sample, statistical theory can be used to assess the precision/variability of such estimates by calculating sampling errors and confidence intervals[13] around the data variable collected. Precision is greater with larger sample sizes. In addition, the effects of non-response can be mitigated by the procedure known as weighting.[14] Thus it was recommended in SSRC/08/2/2 that a random probability sample was an essential requirement of the new survey and this has continued to be the case.

Related rigour in analysis

With a sample as described above, statistical tests of significance can be used to assess whether the differences in the survey data - over time or between sub-groups, for instance - are greater than could have arisen by chance, providing assurance that the patterns observed represent 'real' differences in the whole population. Such precision and assurance is necessary when surveys are being used to determine national policy and practice.[15] From the survey's inception, significance testing was used to help determine which differences should be highlighted in the survey report text, with the norm being to report only those differences found to be statistically significant at the 95% level.[16]

Face to face interviews and other modes

At the inception of F&Y it was also recommended that face-to-face interviews be used, as they had been for CAS, since access to, and use of, the internet was not sufficiently widespread to consider web-based interviews (those taking part would not be

[12] The aim is to avoid introducing any possibility of systematic bias in selection

[13] *Sampling Error* refers to the statistical value/error that occurs when the subset of the population (sample) deviates or differs from the 'true' characteristics or attribute of the total population. Confidence intervals use the sampling error to construct a range within which the true value of the characteristic for the population is likely to occur. One selects a confidence level, such as 95 %; if the same population were to be sampled on numerous occasions and an estimate of the characteristic was made on each occasion, the resulting intervals would bracket the true population parameter in approximately 95 % of the cases.

[14] With selection rigorously controlled, the non-response rate is recorded at each stage of selection and allows differences between the characteristics of the sample and the population to be calculated. Statistical procedures can then be applied to take account of non-response, known as weighting for non-response.

[15] CAS, like many consumer surveys, had used quota sampling, which allows substitution of non-responders thus risking bias and making it impossible to calculate the chance of selection for each member of the population. The statistical theory of sampling errors and significance testing cannot then be legitimately applied.

[16] The identification of a difference as statistically significant means that there is less than a five per cent likelihood that an observed difference is due to chance rather than as a result of a true difference in the population. This confidence level is generally seen as acceptable and is used commonly across government social surveys.

representative of the general population). It was noted, however, that consideration might be given in the longer term to 'mixed mode' surveys. With the rapid increase in web access since then, developments in the survey world have focussed on the mixed mode of 'web plus postal', hence the proposed changes for wave 6 of F&Y (now F&Y2).

Question design: National Statistics standard questions and question testing
Responses to survey questions are sensitive to many factors, particularly the way the questions are worded and the context in which they are asked. For a range of topics that are frequently included in Government surveys[17], ONS and the Statistics Authority have compiled a set of standard or 'harmonised' concepts and questions[18] that are recommended for use in government surveys and more widely. They relate both to inputs (for example, interview questions and answer categories) and outputs (for example, analysis variables derived from inputs). Such harmonisation provides improved comparability of statistics as well as building on best practice where concepts and questions have been refined and proven over decades. For the new F&Y survey it was therefore recommended[19] that 'to strengthen evidence and enable comparisons with related research, demographic and socio-economic questions in the new survey should, where appropriate, use standard questions from National Statistics or other government surveys'. This continues to be important.

For questions that are specific to F&Y, part of the rigour of the new survey in adhering to best practice was to use 'precise, unambiguous questions that have been piloted and, where appropriate, tested cognitively'.[20] It was also noted that 'consideration of the effects of question wording, question order and context' should form part of the regular questionnaire review that was anticipated to occur before each wave. The issue of social desirability was also flagged to be part of questionnaire reviews.

2. The implied relation between the Agency and survey respondents
The relationship between the Agency and respondents to its surveys shifted in the replacement of its precursor by F&Y. Since the earlier CAS was associated with improving knowledge and understanding of consumer attitudes to help the Agency develop effective communication strategies to the public, this quasi-pedagogical relationship was reflected in an attitude that sought to communicate nutritional information, provide advice about kitchen hygiene, food safety and so on.[21] In effect, the

[17] Many but not all of these are socio-demographic/classificatory questions, which will be used as independent variables in the survey's analysis.

[18] See the Statistics Authority Guide to Harmonised Concepts and Questions for Government Social Surveys

[19] In SSRC/08/2/2 para 34.

[20] See SSRC/08/2/2 paras 29 and 30. Furthermore paragraph 31 recommended including pre-survey qualitative research where appropriate (recommendation 9).

[21] When the Agency was inaugurated in 2000, under the Food Standards Act 1999 (accessed 12 March 2020) it was charged with 'putting consumers first' in respect of all aspects of food and eating, including nutrition and food safety. As mentioned above, the Coalition Government of 2010 split the Agency, relocating responsibility for nutrition to the Department of Health where it had been before 2000 and when MAFF (DEFRA's predecessor) had been responsible for food safety among other things. As already noted, Northern Ireland retains responsibility for nutrition. And in 2015 Scotland separated from the

relationship entails evaluation if not of the respondents themselves, at least the answers respondents provide - respondents' knowledge is being assessed and the activities they report judged as 'correct' or 'incorrect' with a view to renewed education.

The relationship between a sponsor of a social survey and respondents is, however, substantially different. A social survey is conducted independently of the provision to the public of information, education or advice (as well as of the promotion of commercial and other services, sales and marketing). Best practice requires that respondents be assured that 'there are no right or wrong answers', irrespective of whether respondents' responses are well or poorly aligned with any formal advice, information, scientific knowledge etc. (See also the discussion about 'victim blaming' in the next section, page 9.)

3. A careful discrimination between the nature of the data collected and the type of interpretation that can be attributed to them.

It is very common, especially in opinion polling and market research, to regard respondents' answers about their activities as if they are direct evidence of those activities, analogous to a photograph of them. While a moment's thought confirms that so doing is to use what people say they do as *proxy* for evidence of what they actually do, this is, none the less, also to conflate the respondents' answers about their activities with their actual activities. There is sufficient evidence in the literature to support a claim that reported activities are not identical to actual activities, often described by psychologists among others (e.g. de Barcellos *et al* 2011) as a gap between attitudes and behaviour. The gap is frequently taken as evidence of a mismatch between the two, resting on the assumption that attitude and behaviour ought somehow to be aligned.

An alternative interpretation, however, is that the difference may be artefactual[22] and thus cannot unequivocally support evidence of misalignment, whether or not *prima facie* it might be expected. This recognition is reflected in that F&Y reports and documentation always include careful note that activities are always *reported* behaviour.

Features of substantive literatures incorporated into the initiation of F&Y

One of two key substantive features derives from the literature on Science & Technology Studies (STS) particularly that devoted to the Public Understanding of Science (PUS). That literature includes critical commentary on the so-called 'deficit model' of the publics' grasp of things scientific. This model holds (a) that the public's

Agency and created Food Standards Scotland which has responsibility for both nutrition and food safety (Food Standards Scotland Webpage)

[22] Data on actual activities can vary from direct observation (either quantitative or qualitative) with or without accompanying commentary (e.g. 'accompanied shops' used by market researchers) to aggregate purchase statistics. Data on self-reported activities are to be analysed as a product of the social relationships and context of the very occasion of data collection itself (Silverman 1993, 2017). The social nature of the occasion of an interview as distinct from the social nature of occasions of actually engaging in the activity in question, are markedly different. Until it is possible to regard the two types of data source as sufficiently similar for dependable comparisons to be made, it remains difficult to defend assertions about the gap between attitudes and behaviour as substantive rather than simply artefactual.

knowledge etc is poor and (b) that improving it - and with it a better appreciation of the sciences - is achieved by education in scientific knowledge. The model has been widely criticised on several grounds.[23] Critics of assumptions associated with the deficit model, it is noted, are themselves the subject of further criticism, not least in proposing that discussions are unduly simplistic (e.g. Durant 2008, Irwin, Simmons, and Walker 1999).

Although less likely to be explicit in the original development phase, successive waves of F&Y were carried out against an occasional, albeit minor, tension between the SSRU, SSRC and the WG on the one hand and some other parts of the Agency on the other. For the former detected in some of the latter's public education activities the adoption of thinking in terms of a deficit model. Such thinking is also linked to an orientation to 'victim-blaming' in respect of social problems in general and, in particular, issues such as diets that are not well aligned with nutritional advice and food handling that does not follow best hygiene practice (for discussion and critique see Evans 2011).

The view of the SSRC, WG and SSRU, grounded in the literature, was that it was important to avoid both the provision of public education in terms of a deficit model and the characterisation of causes of problems that blamed the victim. There are several reasons for taking care to avoid victim-blaming. A *practical* reason is that there will be some people who know what is recommended but have neither the resources nor enjoy suitable circumstances to be able to follow them. Blaming such people runs an inevitable risk of alienating them. This is closely linked with a *reputational* reason. This is the wisdom of any organisation seeking to be trusted by the public in avoiding reprimanding and thus also alienating members of the latter. As closely related is a *communication* reason. A messenger is less likely to be listened to by anyone they may have riled by even mild finger-wagging. Thus the questions adopted for F&Y and devised for the interviews were carefully worded to avoid perpetuating a deficit orientation in coverage of nutrition, kitchen safety etc.

A second substantive feature incorporated into F&Y is the widespread adoption of understanding activities not as behaviour but as practices (Shove 2010). This theorised approach aims to surmount the individualism often associated with the characterisation of activities as behaviour. Instead activities are regarded in supra-individual terms to include cultural dimensions, material artefacts, social relationships and explicit recognition of the social context of activities (summarised and discussed critically in respect of food and eating by Warde 2017). This approach is also commonly associated with side-stepping a deficit model and/or victim blaming and became especially prominent in research on the social organisation of eating in various social contexts (e.g. Meah 2014) including research funded by FSA.[24]

[23] Including: patronising attitudes - *d'haut en bas* - to the public; an assumption that formal scientific knowledge is the only legitimate form of apprehension of matters scientific; a failure to understand that knowledge about scientific matters among the public may not at first sight chime with that of trained scientists even though that does not make it inherently unscientific in its logic (e.g. Blaxter 1983, Marks 2001, Simis *et al* 2016, Wynne 2006,).

[24] Food Standards Agency Kitchen Life Report

In 2012 it was decided to develop an index which could serve as a summary of F&Y data on reported activities associated with kitchen hygiene.[25] This is designed to support making intelligible general comparisons of data across different waves of the survey to provide a high-level understanding of the state of activities associated with food safety in general. It is significant that the index devised is entitled the 'Index of Recommended Practices' (IRP) rather than something such as the 'Index of Correct Hygiene Behaviour'. The name adopted deflects value judgements of respondents' answers, side-steps a deficit model of understanding the extent/ nature of nutritional food safety/ hygiene knowledge and evades victim blaming.

Note also that the IRP is a significant example of the type of analysis that the more rigorous F&Y was designed to support and aspired to provide, over and above the simpler cross-tabulations typically provided by consumer research. Those aspirations have until now been limited by the resource available to the SSRU; it is anticipated that the economies of F&Y2 and its new wave 6 web design will facilitate additional resource and new analyses.

Concluding note

As observed at the outset, this document has been put together in order to support an understanding of the scientific and substantive underpinnings of F&Y. Initially we saw its purpose being to mitigate the loss of corporate memory arising from the inevitable change of personnel over time. The significant changes at Wave 6 make it especially timely, so that we all avoid 'reinventing the wheel' at the same time as supporting the maintenance of levels of conceptual and methodological rigour integral to F&Y's origins and subsequent evolution.

In compiling the document, however, we have become aware that many of the sources we have drawn on (SSRC and WG papers, for example) may not be available to current staff, or to members of ACSS and the F&Y Task Force. This points to the importance of creating a summary record as the survey continues with subsequent waves. Thus, as well as recording the past, this is also a good moment to make provision for systematically recording the thinking behind F&Y/F&Y2 decisions in the future.

We therefore propose that this document be presented for information to the Advisory Committee on Social Sciences (ACSS), together with a recommendation that it be updated at judiciously selected intervals and duly presented to the ACSS as a matter of formal record. In recording this decision, ACSS may wish to discuss the establishment of mechanisms for regular implementation of such updating into the future and, in the process, to refresh the arrangements for the governance of F&Y2.

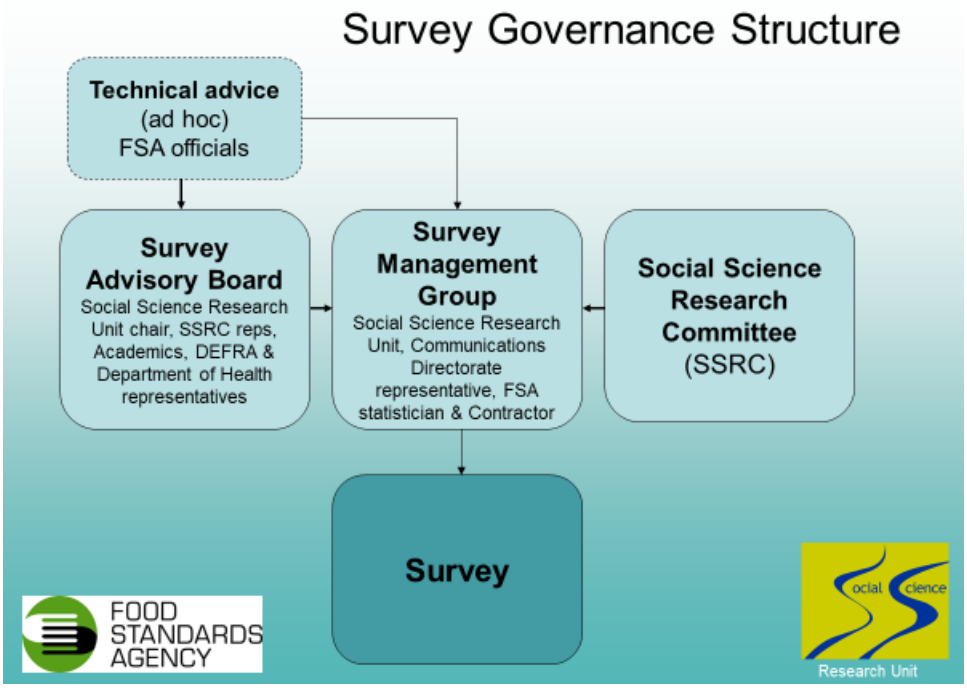
[25] At Wave 2 (Food and You 2012) a composite measure of domestic food safety practices, known as the index of recommended practice (IRP), was developed. Subsequently the Agency did further work to refine the index. The refined index was not published in the Wave 3 report; although that report said that 'analysis of wave 3 data using the refined index will be published in due course', it was not until the Wave 4 report , F&Y 2016, that it was published again (with full trend data back to 2010).

Appendix 1. Requirements identified by the SSRC to contribute evidence supporting the Agency's strategic plan (extract from SSRC/08/2/2, para 12)

- to provide robust and representative evidence on the nature and prevalence of public attitudes on food-related issues
- to enable the Agency to monitor changes in attitudes over time
- to provide evidence to develop measures of the Agency's impact
- to identify differences in change across sectors of the population/geographical regions
- to identify the association between attitudes, knowledge, individual characteristics and, where possible, behaviour and thus to assist the Agency in developing and targeting messages and initiatives
- to provide a research instrument that collects basic data at each wave but which is flexible enough to provide additional information on specific topics of current interest
- to establish a central and evolving source of evidence that:
    - identifies topics of particular public concern to which the Agency can respond
    - contributes to understanding the many and complex influences on public knowledge, attitudes and behaviour
    - identifies areas for further research or action by the Agency e.g. groups resistant to adopting a healthier diet or with a poor understanding of food health practices
    - helps to identify which interventions are, and are not, effective

Appendix 2. Governance Structure for the 'new Food and You' survey (2009)

This diagram was part of a presentation by SSRU to the Food and You Advisory Group at their first meeting on October 15th 2009.[26]



[26] Email communication from Rachel Conner, SSRU, on 16/10/2009; the PowerPoint file (filename AG background slides), note of the meeting and other documents were sent out to Advisory Group members after the first meeting.

References

Adler, N.E. and Stewart, J (2009) 'Reducing obesity: motivating action while not blaming the victim' *The Milbank Quarterly* 87(1): 49-70.

Blaxter, M (1983) 'The causes of disease: women talking' *Social science & Medicine* 17(2): 59-69.

de Barcellos, M.D. *et al* (2011) 'Investigating the gap between citizens' sustainability attitudes and food purchasing behaviour: empirical evidence from Brazilian pork consumers' *International Journal of Consumer Studies*, *35*(4): 391-402.

Durant, D (2008) 'Accounting for expertise: Wynne and the autonomy of the lay public actor' *Public Understanding of Science* 17(1): 5-20.

Evans, D (2011) 'Blaming the consumer–once again: the social and material contexts of everyday food waste practices in some English households' *Critical Public Health* 21(4): 429-440.

Gaskell, George (2019) 'Review of Food and You' *Food Standards Agency ACSS.*

Irwin, A., Simmons, P. and Walker, G, (1999) 'Faulty environments and risk reasoning: the local understanding of industrial hazards' *Environment and planning A*, 31(7): 1311-1326.

Marks, N. J (2001) 'Public understanding of genetics: the deficit model' in *e LS* Chichester: Wiley.

Meah, A (2014) 'Still blaming the consumer? Geographies of responsibility in domestic food safety practices' *Critical Public Health* 24(1): 88-103.

SSRC (2008) Monitoring public attitudes and behaviour – a review of the Agency's Consumer Attitudes Survey *SSRC/08/2/2.*

Silverman, David (1993) *Interpreting Qualitative Data* London; Sage.

Shove, E (2010) 'Beyond the ABC: climate change policy and theories of social change' *Environment and planning A* 42(6): 1273-1285.

Simis, M.J., Madden, H., Cacciatore, M.A. and Yeo, S.K. (2016) 'The lure of rationality: Why does the deficit model persist in science communication?' *Public Understanding of Science* 25(4): 400-414.

Silverman, D (2017) 'How was it for you? The Interview Society and the irresistible rise of the (poorly analyzed) interview' *Qualitative Research* 17(2): 144-158.

Wynne, B. (2006) 'Public engagement as a means of restoring public trust in science–hitting the notes, but missing the music?' *Public Health Genomics*, *9*(3): 211-220.