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**Longitudinal Attitude Surveys in Consumer Research:  
A Case Study from the Agrifood Sector**

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## **Longitudinal Attitude Surveys in Consumer Research:**

### **A Case Study from the Agrifood Sector**

#### **Research paper**

**Purpose** – The aim of this article is to consolidate the theory relating to longitudinal attitude surveys, and supplement it with knowledge gained from the execution of an annual attitude survey of consumers.

**Design/methodology/approach** – First, the article presents a distillation of current knowledge concerning longitudinal research; attitudes and behaviour; measurement of attitudes; and conduct of attitude surveys. Following that, a case study is carried out to survey consumer attitudes. This survey, which is intended to predict future behaviour and monitor changes in consumers' attitudes in response to socio-political and economic changes in the food and agricultural market environment, is then discussed.

**Findings** – The article presents the findings of a series of annual surveys of consumers' attitudes first conducted in 1997 and continued annually to 2004. Also, possible ways in which data obtained from these surveys can be treated are discussed, including frequency analysis of responses, means, and balance of opinion.

**Research limitations** – The survey on which the findings and the best practices are based upon relates to the consumers' attitudes in response to changes in the food and agricultural market environment. Further research would be required to verify the findings in respect of other market sections.

**Practical implications** – The article presents a checklist of eight good practices relating to the conduct of longitudinal attitude survey work.

**Originality/value of the paper** - Attitude surveys are a popular means of gathering market research data. Much has been written about attitudes and the conduct of *ad hoc* attitude surveys. However, much less has been published concerning longitudinal attitude surveys. Our study reports empirical findings in an important context, that is: changes in consumers' attitudes in response to changes in the food and agricultural market environment.

**Keywords** – longitudinal research; attitudes and behaviours; food and agricultural market environment; case study.

## **Introduction**

Attitude surveys are a popular means of gathering market research data relating to a wide range of products, services, and issues. Much has been written about attitudes themselves, especially in the literature on consumer behaviour (Malhotra, 2005), as well as the conduct of *ad hoc* attitude surveys. For example, a recent online search of the ABI Inform Research database identified 53,243 references to the word 'attitude' using a keyword search. However, the literature has been virtually silent about the conduct of attitude surveys on an ongoing, or longitudinal, basis, and what has been published exists in a somewhat disparate form. We contribute to the literature by consolidating the theory relating to longitudinal attitude surveys and supplementing it with knowledge gained from a case study based on the execution of an annual attitude survey of consumers.

The remaining parts of the article are organised as follows. First, the concept of longitudinal research is considered. Following this, the article presents current knowledge concerning attitudes and behaviours, the measurement of attitudes, and the conduct of attitude surveys. Also, the article reviews the theory in the light of experiences gained via the conduct of an annual survey of consumer attitudes. Subsequently, the findings of a series of consumer attitudes to changes in the food and agricultural market environment are discussed. The article finishes with a checklist of good practices relating to the conduct of longitudinal attitude survey work.

## **Longitudinal Research**

Most research is of an '*ad hoc*' nature with research projects being designed and implemented with the aim of addressing a particular problem at a particular moment in time. However, some research projects are designed to investigate problems or issues over a period of time. This latter approach is known as 'longitudinal research' and is a particularly valuable methodology where the focus of the study is change or development of a variable. Indeed, longitudinal research has been used to investigate a variety of subjects including organisational change (Huang *et al.*, 2004), organisational partnering (Wagner, 2003), quality management (van der Wiele and Brown, 2002), productivity (Bartelsman and Doms, 2000; Schoar, 2002), corporate political action (Lamberg *et al.*, 2004), work-to-family conflict (Huang *et al.*, 2004), organisational decision-making (Heller and Brown, 1995; Hunt and Ropo, 2003), leadership (Ployhart, Holtz, and Bliese, 2002), entrepreneurship (Chandler and Lyon, 2001), organisational development (Armenakis, Bedeian, and Pond, 1983), and research and development projects (Hoegl, Weinkauff, and Gemuenden, 2004).

According to Menard (2002: p. 2), "*longitudinal research is research in which data are collected for each item or variable for two or more distinctive time periods; the subjects or cases analyzed are the same or at least comparable from one period to the next; and the analysis involves some comparison of data between or among periods*". Each period for which data is collected is known as a 'wave', and while it is common for longitudinal research to take place in real time and for waves to be successive, it is possible to conduct retrospective longitudinal research (e.g., Featherman, 1980).

There are two main forms of longitudinal research. These are panel research and repeated cross-sectional designs (Menard, 2002). Panel research makes use of the same respondents in each wave of data collection. Repeated cross-sectional designs, on the other hand, do not.

Instead they survey respondents who are selected using some form of probability sampling and who are independent of each other.

Each of the two main forms of longitudinal research has its own characteristic advantages and disadvantages. Panel research permits follow-up research to investigate and determine causal relationships, but suffers from the problem of respondent conditioning (Kent, 1989) and attrition (Goodman and Blum, 1996). Repeat cross-sectional designs do not permit investigation of causal relationships at the individual level as respondents are selected at random and are unlikely to participate more than once in the study. As such, repeat cross-sectional research designs only allow change to be investigated at the net or aggregate level (Ruspini, 2002). However, it is relatively easy to obtain the desired sample size and, as a result, repeated cross-sectional studies are considered more cost efficient. Neither form of longitudinal research is considered better than the other, but one is usually more appropriate for researching a given problem or for use in a certain situation (Ruspini, 2002).

Possibly the most important aspect of longitudinal research is comparability of the data collected in successive waves although in cross-sectional longitudinal research it is impossible to have absolute consistency because this method makes use of different samples of respondents with each wave of data collection (Menard, 2002). In cross-sectional longitudinal research therefore the objective is to maximise consistency as far as possible. In such studies variability in terms of respondents is accepted but measured, in terms of statistical significance, and evaluated via a triangulation process, in order to minimise its effects (Menard, 2002).

Now, having looked at the key characteristics of longitudinal research it is appropriate to consider the nature of attitudes and behaviours and the measurement of attitudes.

### **Attitudes and Behaviours**

In practice, the term attitude is often used as an umbrella expression covering such concepts as preferences, feelings, emotions, beliefs, expectations, judgements, appraisals, values, principles, opinions, and intentions (Bagozzi, 1994a and 1994b). However, according to Malhotra (2005: p. 477) an attitude is actually defined as “...*a summary evaluation of an object or thought*”. The object or phenomenon can be anything a person discriminates or holds in mind (Bohner and Wanke, 2002) and may include people, products, and organisations. Attitudes may be positive, negative, or neutral (valence); may vary in intensity (extremity); can be more or less resistant to change; and may be believed with differing levels of confidence or conviction.

As evaluative judgements attitudes are generated from information that comes to mind in a given situation (Kinnear and Taylor, 1996) and, because people have an imperfect knowledge of the subject on which to base their evaluations, they are perceptual in nature. Attitudes can be formed consciously in response to specific prompts, but normally they form spontaneously and without conscious effort (Ajzen, 2001; Bargh and Chartrand, 1999).

The so-called tripartite model (Figure 1) has been used to explain attitudes (Blackwell, Miniard, and Engel, 2001; Schiffman and Kanuk, 2004). This model suggests that attitudes are constructed around three components: a cognitive component (beliefs); an affective component (feelings, emotions, and moods); and a conative component (behavioural

intention). For example, consumers' attitudes toward a sports car may be based on a belief that it is fast, a feeling that it is desirable, and an intention to purchase one if it can be afforded.

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INSERT FIGURE 1 AROUND HERE

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While attitudes are often a spontaneous construct they are also fairly consistent and enduring over time. This characteristic is often ascribed to the cognitive component and especially the accessibility that people have to their own beliefs, which can be determined by a number of personal and contextual factors (Foxall and Yani-de-Soriano, 2005; Ratcliff *et al.*, 1999). For instance, Kokkinani and Lunt (1999) have demonstrated that attitudes formed under high involvement conditions are more accessible than those formed under low involvement conditions.

Traditionally, research has focused on the cognitive (beliefs) and conative (behaviour) components and especially the relationship between the two, however, in recent times the affective component has received more attention from the research community (Malhotra, 2005). Indeed, while some (e.g., Grimm, 2005) maintain that it is the cognitive component that is the most important others (e.g., Morris *et al.*, 2002) argue that in many situations it is the affective component that is dominant. Further, Malhotra (2005) as well as Barone, Miniard, and Romeo (2000) suggest that research indicates that positive emotions can lead to positive attitudes towards products and services, and that it is possible for an emotion to spread from one individual to another via a process referred to as 'emotional contagion' (Howard and Gengler, 2001; see also Dobeles *et al.*, 2006). However, it is also possible for affect to impact attitudes through a role in the evaluative process. Here, an affective



evaluation, as distinct from a reason-based judgement, may produce responses that are faster, more consistent across individuals, and are better predictors of people's thoughts (Malhotra, 2005).

Where there is conflict between the cognitive and affective components or between different beliefs an individual may develop 'ambivalence' toward an object (McGregor, Newby-Clark, and Zanna, 1999; Williams and Aaker, 2002). This is an interesting area in that while it is believed that ambivalence can impact both evaluative judgments and behaviour it is not yet properly understood (Malhotra, 2005).

Much of the interest in understanding and measuring attitudes arises from the basic premise that attitudes underpin behaviour (Malhotra, 2005), and that understanding and management of attitudes can influence behaviour. For instance, marketers seek to understand and manage attitudes to encourage consumers to buy certain products and services, while politicians seek to understand and manage attitudes to influence people's voting behaviour. While a relationship between attitudes and behaviour is reported in many marketing text-books (e.g., Kotler and Keller, 2006), the nature of the relationship is actually very complex. In the first instance, attitudes can be used as a predictor of behaviour. For example, a favourable attitude toward a product might precede the purchase of that product.

According to Kinnear and Taylor (1996: p. 243) *“the attitude-behaviour link does have some empirical support”* where there is *“an aggregate of buyers”*. In this type of situation the number of variables influencing or intervening between attitudes and behaviour is likely to be limited, and hence the prediction of behaviour based on the revealed attitudes is likely to be reasonably accurate. The strength of the correlation between attitude and behaviour is also

likely to be stronger the shorter the time interval between measuring the attitude and the behaviour itself (Blackwell, Miniard, and Engel, 2001). In other circumstances, however, attitudes may be a reflection of behaviour. In these situations people who behave in a certain way adopt attitudes that are consistent with their behaviour. For example, a person who is employed in the tobacco industry might hold generally favourable attitudes toward smoking.

In practice, there has been ongoing interest in studying the relationship between attitude and behaviour (e.g., Easaw, Garratt, and Heravi, 2000). This interest would seem to be stimulated by one or more of four reasons. Firstly, where there is not any past consumer behaviour (e.g., in the case of a new product) attitude measurement may still provide a useful indication of future consumer behaviour. Secondly, where there is fundamental change to either the product or the purchasing environment (e.g., food scares) it is unrealistic to expect future consumer behaviour to be an extension of the past and here again attitude measurement would seem to have a valuable role to play. Thirdly, it may be impossible to gather data on a product's past sales (e.g., a competitor's product) and that attitude measurement is a useful means of overcoming this problem. Fourthly, while much of the criticism of the attitude–behaviour link is at the individual consumer level, most marketing decisions are at the level of a group of consumers and here the link is notably stronger (Kinnear and Taylor, 1996).

### **Measurement of Attitudes**

According to Malhotra (2005), expectancy / value models remain a popular means of conceptualising attitudes. One such model, and probably the most influential (Cialdini, Petty, and Cacioppo, 1981), is the Fishbein model (Figure 2), which states that an attitude is a

function of strength of belief that an object has an attribute, an evaluation of the product on the attribute, and the number of attributes valued by the consumer.

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There has been some criticism of the Fishbein model (e.g., Foxall, 1997) because its predictive ability in terms of attitudes leading to specified behaviour is not always very strong. However, Fishbein and Ajzen (1974, 1977) have argued that weak links between attitudes and behaviour are the result of poor correspondence between action, target, context, and time being examined. They go on to suggest that where there is a strong match, or correspondence, in terms of action, target, context, and time then attitudes do have a reasonable degree of predictive utility in as far as behaviour is concerned. Indeed, multi-attribute models and structural equation modelling are a popular means of investigating attitudes and behaviour because they can accommodate the apparent complexity of the entity being studied (Agarwal and Malhotra, 2005; Allen *et al.*, 2005; Bagozzi, 1994a and 1994b).

A classic research instrument that is based on the assumption that there is a link between attitudes and behaviour is the consumer confidence survey. In this instance, the measurement of consumer attitudes is used as a means of evaluating marketing strategy. For example, a consumer attitude survey may be undertaken by a manufacturer of soup to test the effectiveness of an advertising campaign. Such data can also be usefully used as the basis for segmenting a market and developing a positional strategy (Kinnear and Taylor, 1996).

While this review has separated the attitude–behaviour relationship for the sake of simplifying the discussion, in practice many attitude surveys are conducted as a means of

consecutively evaluating past behaviour and of predicting future behaviour. To illustrate, the government will measure consumer confidence both as an evaluation of past fiscal or monetary policy, and as an indication of future consumer spending.

In practice, attitude surveys remain a popular research tool (e.g., Wilson, 2002). Possibly one of the largest attitude surveys is the *Eurobarometer*. This is a survey sponsored by the European Union and executed by the Directorate-General for Press and Communications. It is carried out in all the member states and may cover a variety of topical issues ranging from the Common Agricultural Policy (CAP) through to the European Union and women and breast cancer.

Another example of an attitude survey is the survey of *Public Attitudes To Quality of Life and the Environment*, which is conducted by the Office for National Statistics on behalf of the UK government Department for the Environment, Food and Rural Affairs (DEFRA, 2001). This survey is based on the responses of 3,700 people and establishes attitudes to the environment and knowledge and behaviour regarding environmental issues.

A final example of an attitude survey is that conducted by the UK Food Standards Agency and reported in *Consumer Attitudes to Food Standards 2004* (Food Standards Agency, 2004). This is the fifth wave in a longitudinal methodology designed “...to provide the FSA with an understanding of consumer attitudes, knowledge, behaviour and awareness with regard to food safety and food standards” (p. 1)

Although attitudes are hypothetical constructs (Eagley and Chaiken, 1993) that are not directly observable they can be inferred and measured using a variety of indirect approaches

(Bohner and Wanke, 2002). The simplest approach must be observation of behaviour. For example, people might be observed as they undertake their weekly shopping. The problem here is one of interpretation. The person who is being observed may buy one product rather than another due to availability rather than a favourable disposition, and great care is needed in relating such behaviour back to attitude. Because of this, it is more common for attitude measurement to be undertaken using a communication technique such as the completion of self-reporting consumer attitude questionnaires.

Consumer attitude surveys based on a questionnaire comprise a battery of statements relating to people's cognitive beliefs about a subject (e.g., "I believe that car X is sporty") or their affective feelings to the object or phenomenon (e.g., "I dislike car B"). These are usually identified prior to quantification through qualitative research either in the form of group discussions, depth interviews, or a projective technique such as repertory grid analysis.

The statements are normally incorporated into a scale of one sort or another. There are several scales that can be used to measure attitudes including nominal scales, graphic rating scales, and semantic differential scales. However, probably the most widely used is the Likert scale (Figure 3).

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The success of attitude research, like any other type of research, is measured in terms of reliability and validity. There are many issues relating to reliability and validity in *ad hoc* attitude surveys including interpretation of questions, effect of situation (e.g., Gregory, Munch, and Peterson, 2002), influence of scale design (Flynn and Percy, 2001), question

order, interviewer effect, purpose of survey, and polarity of statements (e.g., Garg, 1996). According to Bohner and Wanke (2002), these issues are well documented. However, what is not so well documented are the issues relating to reliability and validity in longitudinal research studies based on attitude measurement. Our article, therefore, adds to this area of knowledge based on experience acquired during the execution of an annual attitude survey of consumers. To this end a case study was carried out.

### **The Case Study**

According to Yin (1989: p. 13), a case study that is used for research purposes is “*an empirical enquiry that investigates a contemporary phenomenon within its real-life context*”. As such, a case study is an inductive research method that, like surveys or experiments, is used in the social sciences to develop theory against a complex background.

Case-study research has inherent disadvantages in terms of bias arising from the selective reporting of information and the tendency to generate findings that are exploratory rather than definitive in nature. However, case-study research has the advantage of providing considerable insight into complex issues and situations, and it is this characteristic that renders the case-study method such a valuable tool for undertaking research (Bromley, 1986).

In the social sciences, theory is developed from case law that, in turn, is developed by comparing and contrasting cases (Gill, 1995). The analysis of a particular case is used to develop more generalizable 'case law' in much the same way that an individual experiment contributes to knowledge in the natural sciences. The data generated via a case study is used “*...as an example, illustration, pointer, lead, or whatever in relation to a general claim or*

*rule of inference*” (Bromley, 1986). According to Western and Zering (1998), good case-study research is based upon 'process rigour', and so the methodology and analytical techniques used in this case will be explicated in some detail.

The case study, which constitutes the focus of this article, is based on an annual survey of consumer attitudes. The surveys began in 1997 in response to dramatic changes in farming and the rural environment, and are intended to both predict future behaviour and monitor changes in consumers' attitudes in response to socio-political and economic changes in the food and agricultural food market environment. A cross-sectional methodology was used because, relative to a panel approach, it was cheaper and avoided the problems of respondent conditioning (Kent, 1989) and attrition (Goodman and Blum, 1996).

A common, though somewhat simplified, view of quantitative and qualitative research is that the former produces results that are reliable while the latter produces results that are valid (Cooper and Branthwaite, 1977). In this context reliability is the extent to which a measurement procedure yields the same answer however and whenever it is carried out (Kirk and Miller, 1986) and it is concerned with consistency through repetition of the research design and process (Dey, 1993; Kirk and Miller, 1986; Yin, 2003). Conversely, validity is the extent to which a measurement gives the correct answer (Kirk and Miller, 1986) and it is concerned with accuracy in measurement and logic in interpretation (Stake, 1995).

The obvious implication is that if research is to be both valid and reliable then it must incorporate both qualitative and quantitative elements and, indeed, this logic has led to the development of what have now become known as mixed methodologies (Tashakkori and Teddlie, 1998). Essentially, within the qualitative component the researcher simply sets out to

see what is ‘out there’ and to identify variables and the relationships between them. This type of research is often “exploratory” in nature and referred to as “inductive” (Gill and Johnson, 2002). Within the quantitative component the researcher has some understanding of the relationship between the variables being studied (often gained through initial qualitative research) and is now seeking to measure the strength of that relationship. This type of research is “confirmatory” in nature, may seek to test hypotheses, and is labelled “deductive” (Gill and Johnson, 2002).

In order that the findings of this project are both valid and reliable it was deemed appropriate to adopt a mixed method approach. An initial phase of qualitative research was used to inform a subsequent phase of quantitative research.

In the initial phase a large number of attitude statements were generated in a group discussion involving five experts in the field. The experts were selected using a judgment sampling approach. All were academics at the time that the research was carried out but most also had industrial experience. As a consequence the researchers felt that the five individuals had the breadth and depth of knowledge to fulfil the task of identifying the major issues impacting farming and the rural environment but to ensure that this was the case the experts were asked to undertake some pre-reading. The literary base was self-selected by the experts but, given their knowledge and experience, it appeared reasonable to assume that they would review appropriate literature. Indeed, the experts were able to inform the project further by providing their references and in many instances these have been used to underpin subsequent publications including this paper.



The Group Discussion was led by one of the researchers with the discussion taped and subsequently transcribed. Analysis of such transcripts involves some form of content analysis which Weber (1985) defines as a research methodology that utilises a set of procedures to make valid inferences from text. Patton (2002) and Sayre (2001) see content analysis as identifying coherent and important examples, themes, and patterns in the data.

Analysis of transcripts can be undertaken with varying degrees of rigor. At one extreme a researcher may simply read through a transcript and judgementally pick out relevant material. At the next level of sophistication the researcher may undertake a more systematic analysis utilising a cut-and-paste or coding approach. Finally, at the other extreme, the researcher may undertake a content analysis by making use of sophisticated computer programmes such as Atlas or Nudist. In this instance, where the aim was simply to generate a list of issues for further investigation via quantitative research, the researchers felt that a simple 'read through' approach was sufficiently rigorous.

Analysis of the transcript resulted in a long list of statements. It was immediately apparent, however, that many of them overlapped with each other and as a consequence the list was reviewed and rationalised by the researchers. This process involved the researchers in considering each and every statement such that all issues considered important by the experts were included but that overlap was minimised and the statements were deemed reasonably discrete.

The statements were then developed into a series of Likert scales and incorporated into a questionnaire that was then tested in a series of intercept street interviews. A total of 100

interviews were conducted in a small West Midlands town. The pilot study suggested the need for two modifications to the survey instrument.

The first modification related to a small number of statements that respondents appeared to have difficulty in understanding. Along with the initial review by the authors, this modification ensured that the statements had 'face' or 'content' validity (Churchill, 1992; Kinnear and Taylor, 1996).

The second modification had implications both for the survey instrument and the research design. Initial feelings among the researchers were that the large number of statements generated meant that any one questionnaire comprising all of them would take an inordinate length of time to complete and the pilot study served to confirm this point. However, the researchers were also of the view that to omit any statements would seriously detract from the comprehensiveness of the study and so eventually it was decided that the initial questionnaire be split in two. Half of the statements were used to construct one questionnaire and the other half a second questionnaire.

The questionnaires were subsequently completed in a series of street interviews conducted in four different locations. The locations were chosen so as to be able to assess whether the place of respondent residence would have any impact on the survey results. The four locations were Birmingham (city), Hanley (urban town), Shrewsbury (large rural town), and Ludlow (small rural town). An interlocking quota sampling approach was used such that half the respondents were male, and equal numbers of respondents fell into six predetermined age bands. Each year, 300 respondents complete each questionnaire, which makes the results statistically significant at the 90% level (given +/- 5% margin of error).

Profiles of respondents and further details can be found in Walley, Custance, and Parsons (1999) and Walley, Parsons, and Custance (2000), and include the following. For example, the respondents' residence were town (52%), city (20%), village (15%), and country (13%). 41% of the respondents were the principal wage earner of the household. 90% of the respondents were not vegetarians. There were some differences in occupation between respondents in general and principal wage earners; for example, relatively fewer principal wage earners were house wives or in education. Also, a selection of the key results of the survey are presented in Figure 4 along with a brief consideration of the implications for consumers, the government and other policy makers.

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### **Findings of the case study**

The positive regard in which British farmers are viewed as 'good food producers' is strongly supported in the results of the survey. Allied to this continued strength of regard has been an awareness, albeit slight, that farms are businesses, which whilst forming the financial backbone of the rural community are at present members of a struggling industry. There has been a general realisation across the sample that farm incomes are in decline.

It is notable that there is agreement that the Government does not care for the countryside. There is a strong perception that young people leave rural areas for jobs. Most respondents believed that farmers do not receive a fair price from supermarkets. Respondents indicated that they were more likely to buy locally to support farms, to preserve rural jobs, and would

pay more for local goods. Overall, there was a positive response to all these issues from respondents although there is also a strong perception of the poorer nature of services in rural areas among all respondents.

The data shows an overall positive view to the statement that British farmers have high standards of animal welfare, but that BSE ('mad cow disease') is seen to be the result of the unnatural way animals are farmed today. It is perhaps not surprising that the genetic engineering of animals is not deemed very acceptable. Farmers are generally felt to look after the countryside, and there would appear to be support for farmers spending more on the environment. Issues regarding organic foods were explored, and while people seem overall to want to eat more organic food, its price is clearly an important issue.

Having outlined some of the key findings of the survey it is now possible to consider a few of the issues and the implications for those involved in agriculture and those making policy for the rural sector.

Firstly, the perception of farmers as rural businessmen facing difficult times is held by all four respondent groups. That they are also seen as good food producers may support the policy makers' efforts to relieve the current pressures on the sector. There has been an increasing level of agreement over time that agriculture is a struggling industry, although the strength of agreement is more pronounced among country- and village-based respondents than among town-based ones.

A second point arises from the finding that not all aspects of rural life are seen as being good. All respondent groups believed overall that the Government does not care for the countryside.

This may have led to the plethora of Government-inspired rural initiatives and, conversely, the rural protests that have taken place. The outbreak in 2001 of foot-and-mouth disease brought home to both the countryside population and many urban dwellers that the Government seems unsure of how to deal with farming crises.

Although it is unlikely that the supermarkets will weaken their bargaining position in their dealings with farmers they have recently been trying to explain their position in the farming press. However, they may need to enhance their public relations activities in explaining their buying policies to the consumer. Some supermarkets have already stocked locally produced foodstuffs. That many respondents would pay more for local goods may support a more generous deal for local (often small) suppliers.

Of all the results generated by the survey the most contentious for farmers relate to animals. On the one hand, all respondents acknowledge that welfare standards are high, but feelings remain high over issues relating to BSE and genetic engineering. While the incidence of vegetarianism is still low in the UK, those involved in producing, processing, and marketing food derived from animals need to be sensitive to the situation and take every opportunity to promote the benefits of eating such foods and emphasise the high standards of welfare.

Government and EU policy on agriculture has shifted in recent years from price support to environmental support. This appears to have implicit consumer support in that while farmers are deemed by all groups to look after the countryside, more should be spent on the (rural) environment.

Lastly, the high level of interest in organic food is reflected in the positive claim by respondents that they would like to eat more organic food. Attitudes do not always lead to actions, however, and the issue of price is one that may temper many consumers' enthusiasm for such produce even though consumers would appreciate the environmental benefits that come with organic food production.

## **Discussion**

Having outlined the findings from the survey used in the case study, it is now pertinent to consider the wider implications of the study so as to go some way toward establishing case law concerning the conduct of longitudinal attitude surveys in general. In the first instance, and if only by consideration of anecdotal evidence and subjective judgements, the study supports the contention that attitudes are related to human behaviour. Further, the case study is a classic example of an attitude survey that is conducted both as a means of evaluating past behaviour and of predicting future behaviour.

Analysis of our attitude data may appear to be relatively simple and straightforward, but this has not been the case. Menard (2002) refers to the analytical approach adopted in our study as being a bivariate analysis involving time and the attitude scores. As such, the analysis may appear to be relatively simple, but as Menard (2002: p. 57) warns that *“This apparently simple task can sometimes be deceptively difficult, in terms of selecting the most appropriate measure of change”*. This was certainly the case in developing a meaningful approach to analysing the attitude data in the present study. The various analytical options considered are outlined in Figure 5.

Each of the various treatments has its inherent advantages and disadvantages, and each is likely to portray a slightly different picture of the issue being investigated. Many studies that make use of an attitude survey use a simple count of the frequency of responses to conduct the analysis (Treatment 1). However, our own experience suggests that this approach can be difficult to implement when attempting to make judgements concerning the whole data set. As a consequence, it is often better to adopt an analytical technique that produces a summative evaluation of the data set such as by calculating a mean score for each rating statement (Treatment 2). This approach is more systematic than simply trying to judgementally weigh-up the frequency data, but experience again suggests that in trading-off conflicting views trends in the data are ameliorated and, to some extent, 'hidden' from the researcher. As a consequence, it would seem reasonable to adopt a 'balance of opinions' approach whereby agree and disagree data is traded-off. One balance of opinion approach would be to trade-off agree / disagree responses (Treatment 3), but this is somewhat simplistic because it does not take into account the 'Don't know' responses. Further, even if the 'Don't know' responses were included (Treatment 4), the 'Neither agree nor disagree' responses would still be omitted, which is again simplistic and not comprehensive. The most comprehensive, and therefore useful 'balance of opinion' approach, would appear to include both 'Don't know' and 'Neither agree nor disagree' data (Treatment 5), and it is this approach, which has been used to analyse the data presented in this study.

This latter approach is based on the principle of 'conservativism'. The final measure is not just based on the proportion of the sample that agrees or disagrees with the statement, but is adjusted for the worst case scenario of the respondents who claim to hold no opinion in

practice actually holding an opinion that is diametrically opposite to the majority of those who do. This in practice, we argue, seems to be the most prudent treatment of the data.

Another issue that has become apparent is the need to review the *stimuli* statements each time the survey is implemented. Menard (2000) recommends not changing hypotheses or questionnaires at all in order to retain consistency. However, experience from our study suggests that this is not always practicable. The environment can and does change, and in order to maintain the validity of our survey it has been necessary to add, subtract, or modify various statements over time. As such, it would perhaps be more realistic to suggest that researchers seek to minimise changes in order to maximise consistency when undertaking longitudinal attitude research.

The addition and deletion of statements is a very important activity in the conduct of the longitudinal attitude survey. There is potential for much confusion if more than one person has the authority to make such changes so editing of the questionnaire is best accomplished by a single person. However, as the decision to delete one statement and add another is something of a value judgement it is prudent that advice is sought from an editorial panel. In this way the combined judgement of the individuals comprising the panel ensures that the survey instrument retains face validity.

As with editing the questionnaire, there is considerable potential for confusion to arise from storage of the data if more than one person is responsible for storing the data, or if the data is stored in more than one place. Experience from the case study suggests one person must be given the responsibility for storing the data, and that one data repository is designated as the



master copy. Individuals working with the data would have access to this master repository, but they cannot edit it without prior agreement of the designated person.

Another problem that has been encountered during the attitude survey relates once again to consistency of treatment, but in this case in respect to the analysis of the data. Despite the best will in the world it is very easy to treat different years' data in different ways. This is obviously a problem when it comes to comparing year-on-year data, as it means that like is not compared with like. Great care and attention to detail is needed to ensure consistency, and the individuals undertaking the analysis must be thoroughly briefed at the outset.

A suggestion made by Menard (2002) is that successive waves of data gathering employ the same principal researcher. This has the advantage of ensuring consistency in informal, as well as formal, research procedures. This is an advice that we would concur with as a means of facilitating consistency in questionnaire design and statement editing, storage of data, and analysis of the data.

Armenakis, Bedeian, and Pond (1983) consider the 'time interval' (the period of time between waves) and the 'measurement span' (the period of time required to complete the fieldwork) as the bases for potential issues. Again, we would concur that these aspects of a longitudinal study may form the basis of an issue. For example, it is quite conceivable that consumer attitudes could change during the course of completing the fieldwork for a particular wave of research in response to media reports. However, this has not yet affected our study, and if such an issue were to arise could be dealt with via a careful weighting of the data.

Having outlined a number of actual and potential issues that have arisen from our experiences in conducting a longitudinal study of attitudes based on an annual attitude survey, it is possible to produce a number of suggestions of good practice regarding the operation of projects based on longitudinal research (Figure 6).

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INSERT FIGURE 6 AROUND HERE

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Based upon the previous discussion, suggestions of good practices include appointing a person to coordinate the survey and to set up regular meetings of the survey team. Individual responsibilities within the team should be determined, and detailed records of decisions and changes must be noted. There should be consistency in the methodology used in the surveys; this include piloting the survey instrument at regular intervals. To facilitate modification, feedback should be collected systematically. Lastly, to facilitate team organisation the survey should be planned at regular times.

Lastly, the results of annual attitude surveys are often very similar year-on-year. This does not usually make for particularly interesting reporting, but does suggest that the surveys are reliable. In a broader context this characteristic would seem to support the conventional wisdom that attitudes are enduring, and that some significant impetus is required to change them.

### **Conclusions and Further Research**

While the case study on which this article is based has its limitations in terms of sample size as well as being but one case study, which means that these conclusions must be treated as

speculative rather than conclusive (Yin, 1984), it does provide some useful insights into the conduct of longitudinal attitude surveys. Indeed, this case study makes a contribution to knowledge regarding the conduct of longitudinal attitude surveys by considering a number of pragmatic issues and providing a number of points of advice.

In a broader context this case study suggests that longitudinal attitude surveys are of value to decision makers, as they can be used to evaluate past policy and as an indication of future action. While the conduct of attitude surveys is covered in many textbooks there is still something to be learnt from practical implementation of such studies, particularly when conducted on an ongoing basis. The case study, which was used as the basis for this study, draws particular attention to the need for good management to avoid problems with coordination, especially in relation to instrument design, data storage, and analysis.

While the case study has provided a useful insight into the conduct of regular attitude surveys there is still potential for developing further knowledge concerning longitudinal surveys and attitudinal research. Indeed, the next step for the survey is to link the attitudes being surveyed to measures of actual behaviour to investigate the strength of the relationship between attitude and behaviour over time.

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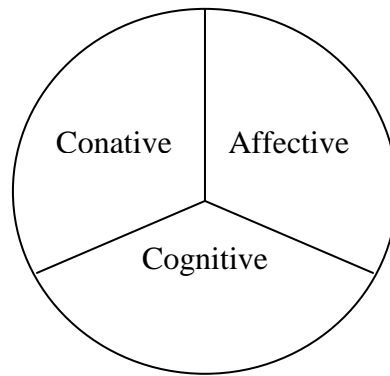
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**Figure 1. The tripartite attitude model**



Source: Schiffman and Kanuk (2004)

**Figure 2. The Fishbein model**

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$$A_o = \sum_{i=1}^n b_i e_i$$

where:

$A_o$  = attitude toward the object

$b_i$  = the strength of the belief that the object has attribute  $i$

$e_i$  = the evaluation of attribute

$n$  = the number of salient attributes

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**Figure 3. Examples of rating scales**

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Example 1. Likert scale.

The British winter is:	Strongly disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Strongly agree	Don't know
Cold	1	2	3	4	5	6
Dry	1	2	3	4	5	6
Long	1	2	3	4	5	6

Example 2. Semantic differential scale.

The British winter is:	Cold	-----	Warm
	Wet	-----	Dry
	Long	-----	Short

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Source: Adapted from Kotler and Keller (2006).

**Figure 4. Selected data**

	Balance of Opinion [in %]					
	1999	2000	2001	2002	2003	2004
British farmers are good producers	52.5	42.0	48.7	49.4	53.2	55.5
British farmers are the financial backbone of the rural community	21.1	35.3	22.0	21.4	23.9	32.6
Agriculture is a struggling industry	35.8	53.3	64.7	64.0	47.5	43.2
Farm incomes are declining	27.9	45.3	60.6	38.6	46.7	45.4
The Government does not care for the countryside	ø	3.3	26.6	25.2	34.8	28.7
Young people leave rural areas for jobs	64.0	61.3	66.7	58.1	53.3	49.2
The farmer receives a fair price from the supermarket for his produce	-24.3	-30.6	-30.7	-22.1	-71.3	-63.4
I buy locally produced produce to support farmers	8.2	30.7	26.7	28.8	33.9	19.9
I buy locally to preserve jobs in the area	2.0	22.0	23.3	18.0	16.0	10.0
I would pay more for goods produced locally	X	23.3	22.0	17.4	32.1	17.4
Services in rural areas are not as good as urban areas	50.4	54.0	56.7	50.0	53.2	45.2
British farmers have high standards of animal welfare	X	8.70	10.0	14.0	-1.4	3.9
BSE is the result of the unnatural way we farm animals today	26.6	30.0	31.9	27.3	26.0	42.0
Genetic engineering of animals is acceptable	-39.2	-53.3	-40.0	-39.2	-78.6	-74.6
Farmers look after the countryside	20.1	17.3	24.7	36.0	33.3	39.3
Farmers should spend more money on the environment	7.8	16.6	20.0	4.0	18.7	5.3
I would like to eat more organic food	44.4	23.3	27.3	13.9	34.7	30.0
Organic food is too expensive	59.8	54.0	49.3	58.8	68.0	66.0

Notes.

1. A positive score indicates agreement with the statement. A negative score indicates disagreement with the statement.

2. "ø" indicates that the statement was added to the survey in 2000 and, therefore, no data is available for 1999.

3. "X" indicates that the "Don't know" and "Neither agree nor disagree" responses were greater than the balance of the "Agree" / "disagree" responses and that, therefore, it is impossible to calculate a meaningful balance-of-opinion score.

**Figure 5. Possible treatments of the data**

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**Treatment 1. Frequency analysis of responses.**

	strongly agree (1)	slightly agree (2)	Neither agree nor disagree (3)	disagree (4)	slightly disagree (5)	strongly don't know (6)
E.g.: British farmers are good food producers	118 (39.3%)	105 (35.0%)	36 (12.0%)	15 (5.0%)	7 (2.3%)	19 (6.3%)

**Treatment 2. Mean.**

Calculation –  $(118 \times 1) + (105 \times 2) + (36 \times 3) + (15 \times 4) + (7 \times 5) + (19 \times 6) / (118 + 105 + 36 + 15 + 7 + 19)$

E.g.: 2.15

**Treatment 3. Balance of Opinion I**

Calculation –  $(\text{Strongly agree} + \text{Slightly agree}) - (\text{Slightly disagree} + \text{Strongly disagree})$

$(39.3\% + 35.0\%) - (5.0\% + 2.3\%)$

E.g.: 67.0%

**Treatment 4. Balance of Opinion II**

Calculation –  $(\text{Strongly agree} + \text{Slightly agree}) - (\text{Slightly disagree} + \text{Strongly disagree}) - \text{Don't know}$

$(39.3\% + 35.0\%) - (5.0\% + 2.3\%) - 6.3\%$

E.g.: 60.7%

**Treatment 5. Balance of Opinion III**

Calculation –  $(\text{Strongly agree} + \text{Slightly agree}) - (\text{Slightly disagree} + \text{Strongly disagree}) - (\text{Don't know} + \text{Neither agree nor disagree})$

$(39.3\% + 35.0\%) - (5.0\% + 2.3\%) - (6.3\% + 12.0\%)$

E.g.: 48.7%

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### **Figure 6. Check-list of good practice**

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- ❑ If the survey is a team effort then one person should act as coordinator.
  - ❑ Hold regular meetings of the team to ensure effective coordination.
  - ❑ Determine individual responsibilities within the survey team to prevent confusion and work replication.
  - ❑ Make detailed records of decisions and changes.
  - ❑ Aim for consistency in methodology (and personnel) across surveys.
  - ❑ Pilot the survey instrument (not just when it has been modified but at regular intervals to ensure that it retains validity in a changing environment).
  - ❑ Collect feedback systematically from interviewers to facilitate modification.
  - ❑ Plan the survey on a regular basis to facilitate organisation of survey team members.
-



## Biographies

Dr. Keith Walley works with Harper Adams University College. He has published in *British Food Journal*, *Business Strategy and the Environment*, *Industrial Marketing Management*, *International Small Business Journal*, and *International Studies of Management and Organization*. His research interests include competition and coopetition.

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