

Pre-Testing Survey Instruments

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The purpose of this paper is to provide a systematic approach to the pre-testing, and hence, the validation of postal and electronic questionnaires. The pre-test instrument was first used on a research project that gathered data on the composition of environmental financial information, user groups and the decision effectiveness of different information displays. The theoretical modelling of relationships was extensive and as a consequence the research method chosen needed to be both broadly based and capable of providing the required data. The approach provides assistance to the researcher and will form the basis of instrument reliability. The implication of using the suggested approach in this paper is the strengthening of questionnaires and the greater level of reliability.

1. Introduction

Theory development entails a certain amount of intuitive invention, stemming, in some degree, from prior research that has set the parameters and assumptions under which further research will take place. The relationships are often displayed pictorially in the form of models to assist in conveying the connections and intentions of the researcher. Using a 'model' as a depiction of reality, conceptually, has more meaning and is easier to understand for researchers than the idea of a theory (Ryan et al. 1992). Theorising or model building involves visualising connections between ideas and defining those ideas in context. Moving from theorising and model development to the practicalities of measuring variables and the relationships in the questionnaire design is fraught with difficulty. The questionnaire needs to reflect the relationships and constructs developed in the model development stage. The aim of the paper is to provide researchers with an effective and practical approach to pre-testing questionnaire instruments to ensure that the questionnaire reflects the theoretical model development and the epistemological approach adopted. As such the systematic method of pre-testing or validating the questionnaire suggested in this paper is a significant contribution to research methodology and will be of use to researchers who employ survey research methods. The need for modification of the pre-testing method is likely as research projects can differ quite substantially.

The research method took into account the propositions and relationships evident in the theoretical models that were developed. A postal questionnaire that combined both survey and an experiment (vignette) satisfied the information gathering requirements and the need for user-based research and, therefore, is an appropriate research method. The survey collected data on demographics, information utilisation and decision making whilst the experiment, through a

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vignette and four different report variations, tested utilisation in a decision context. This paper is structured as follows. A brief consideration of the literature is followed by an explanation of the pre-test framework and outcomes that emerged. A discussion of the implications and indicative success is provided in Section 4. This study is concluded by a summary of the preceding analysis, study limitations and suggestions for implementation.

2. Research Literature

There is a plethora of research method texts that describe how surveys should be conducted but few offer practical suggestions for pre-testing survey instruments. Kervin (1992) is a notable exception but while providing an extensive basis for pre-testing questionnaires does not provide a practical approach. If used as suggested, the approach outlined in this paper should assist the researcher in providing a basis for the construction of reliable survey instruments. The pre-test instrument was first used on a research project that gathered data on the composition of environmental financial information, user groups and the decision effectiveness of different information displays in the context of the accounting discipline. The theoretical modelling of relationships was extensive and as a consequence the research method chosen needed to be both broadly based and capable of providing the required data.

The multi-method approach and theoretical modelling satisfies the 'theories that are translatable into action' criterion specified by Fay (1975). Consideration was given to the efficacy and cost constraints of using a multi-method survey instrument for the project. A survey has the potential to reach a more demographically and geographically diverse group of participants than could be achieved with other data-collection methods. The diversity of opinion was considered important because of the paucity of research in the area that was investigated. By approaching the problem in this manner, the breadth and depth of certain issues can be investigated.

With the above in mind it is worth considering the problems believed to be associated with surveys and why it is thought that the approach taken overcomes the issues raised. Criticism of surveys have been classified into three categories by de Vaus (1992)¹ philosophical, technique-based and political. The multi-method research instrument and the establishment of causal relationship through the theoretical models mitigate many of the concerns outlined above by de Vaus. Marsh (1982)² offers an eloquent defence of the survey method in obtaining meaning and understanding providing that certain rules are followed. Moving from the theoretical approach to what should be done to what is done, the practical level, is often quite difficult. The suggested approach assists in securing reliable information from surveys. The criticisms described by de Vaus will be considered in the ensuing discussion taking into account the points made by Marsh and Fay. Furthermore, the survey instrument; being a hybrid between questionnaire and experiment demonstrates that the philosophical stance of a

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thesis does not determine the adoption of a research method (Collis and Hussey, 2009). The procedures put in place to counteract the problems alluded to above and to safeguard the validity of the project will be discussed in the following sections.

Habermas (1988) classifies the process of scientific inquiry as, the empirical-analytic, the historical hermeneutic and the emancipatory sciences. The differences in approach are to do with the aspects of social existence under investigation. Identifying accounting as having an empirical-analytical objective also identifies the potential weaknesses of the discipline developing as a critical social science. The process of critical inquiry and how it may be applied in accounting is offered through the consensus theory of truth, which is a pragmatic way of agreeing to meanings as opposed to the positivistic correspondence theory of truth (Blaikie, 1993). As Outhwaite (1996, p 99) points out, the systematic sciences of social action, of which accounting is one, must go further than identifying causal relationships, which in themselves are questionable, to investigating how social action is affected by behaviour and, in turn, how behaviour is affected by beliefs.

The influence of critical theory on the project is evident in acknowledging, as part of the epistemology, the consensus theory of truth which represents the pragmatic adoption of shared meanings or the recognition that semantic meanings are dynamic. Laughlin (1987) in discussing accounting systems in organisational contexts, makes two points concerning shared (general) meanings.

Firstly, meanings need to be discovered and defined by human actors, and this is to be achieved through that distinctly human attribute, namely language. Secondly, there is every possibility that these meanings transcend the organisation (p.487).

Critical perspectives, in particular critical theory, seem to be constrained by the adoption of research methods that claim to provide dialogic depth such as case study methods. A divergence of opinion occurs at the adoption of a research method. The method used in the project upon which the pre-test method is based was a survey and is considered adequate to provide the dialogic depth to explain the theoretical modelling detailed because of the pre-test method used.

The esoteric description of accounting as an empirical-analytical social science whilst useful does not aid either the conduct of research or the assessment of research outcomes. Fay (1975) identifies the need to establish the practicalities of conducting critical research by developing a 'critical model'. The critical model proposed by Fay (1975) provides, within the general framework of critical theory, the practical tests for determining the success of any depiction of social reality and as such is particularly useful. Fay establishes certain characteristics aimed at assisting researchers in developing the methodological or the meta-theoretical level of the research process. The most significant criterion reflects the

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connection between social theory and social practice. Researchers using the critical model approach must identify this connection in the selection of appropriate research methods.

According to Faye (1975) a social theory is explicitly inter-connected with social practice and it is this relationship that determines the validity of theories. The theoretical model becomes a critical model when it is adopted practically.

The critical model takes this hidden connection between theory and practice as one of its starting points, and this means that it ties its knowledge claims to the satisfaction of human purposes and desires. Thus the theories of such a science will necessarily be composed of, among other things, an account of how such theories are translatable into action, and this means that the truth or falsity of these theories will be partially determined by whether they are in fact translated into action. (Faye 1975, p. 96)

In a profession as practice-orientated as accounting this interaction is particularly relevant. The research method adopted must provide the opportunity and be capable of generating answers to the propositions and relationships identified by the modelling. Marsh (1982) offers an eloquent defence of the survey method in obtaining meaning and understanding providing that certain rules are followed and represents not only an approach to secure reliable information from surveys but is an effective methodology through which most survey research can be undertaken².

The criticism of certain research methods (Gaffikin, 1997) as not being critical stems from a perceived lack of dialogic depth. The criticisms described by de Vaus (see Note¹) will be discussed taking into account the points made by Marsh and Fay. Furthermore, the survey instrument when combined with extensive theory development, demonstrates that the philosophical approach of any project will not determine the adoption of a research method. Consequently, the suggested pre-test method in this paper has a general application to other philosophical approaches and particularly to positivism which is the most common approach in the accounting discipline.

3. Pre-test Framework and Outcomes

Surveys (postal and electronic) often suffer from low response rates therefore inducing problems of response bias and non-response bias. However, attention to questionnaire design and administration leads to improved response rates and, hence, improved reliability and validity. Increasing response rates not only requires attention to design but also to characterize concurrent techniques such as length, size, paper, format, survey sponsorship, personalizing covering letters, assurances as to anonymity and return-postage-paid envelopes. The ensuing discussion on the survey instrument and the pre-test provides information on how the issues of reliability and validity were resolved.

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Data needed to be gathered about research areas that included; users, composition of environmental financial information, decision process, display, materiality, and demographic information regarding respondents. The questionnaire, which was the basis for the pre-test survey, was ten pages long with 32 questions. Five questions concerning the key concepts had eight part scales and took up half the total length. Questionnaires were coded to reflect the four display choices contained within the vignette, monetary, statistical, pictorial and narrative, and also to identify the respondent user groups. By administering the survey in this fashion four display and three user categories were established providing twelve potential categories (see Table 1). The four structural areas of the questionnaire are demographic, conceptual, issues of utilization and the vignette. The construction of the questionnaire went through several stages. In the early stage, the questionnaire was revised several times to ensure that questions related to the concepts being tested. General issues of question flow, usefulness of instructions and readability of the questionnaire were considered on several occasions prior to pre-testing. The screening stage took place with researchers experienced in postal questionnaires.

In Table 1 a letter code is employed to identify the 3 user categories and the 4 format choices. This code accompanied questionnaires along with a numerical identification of the participant. One individual from each category was selected for the pre-test interview.

Table 1 Category Letter Codes

FORMAT	USER		
	Shareholder	Shareholder/ Environmental	Environmental
Monetary	A	B	C
Statistical	D	E	F
Pictorial	G	H	I
Narrative	J	K	L

Whilst pre-testing with experienced researchers is crucial, it is also important to pre-test on potential respondents (see Note ², point 1). The intention was to interview twelve people representing the twelve categories of user and display / format choices. The pre-test survey (see Appendix 1) was conducted as an in-depth interview. Interviewees were provided with the covering letter and questionnaire and asked to complete the questionnaire without interruption or asking for clarification. The interview was conducted upon completion of the questionnaire. The design of the questionnaire is a factor which affects completion rates. Zikmund (2003, p. 215) comments that attention to design and format of survey questions, particularly making sure that questions are easy to understand is essential to assisting with completion rates. The time taken provides an indication of possible reasons for failure to complete the questionnaire because of design and format problems. The purpose of providing a possible completion time is to induce some level of commitment in the

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participant to finish the questionnaire. A balance between asking the necessary questions and encouraging people to reply is essential. Pre-test interviewees completed the questionnaire in 20 minutes or less whilst two had difficulty remembering their shareholding and had to refer to their financial documents. The indication was that shareholders would probably take longer to complete the questionnaire. The final instructions indicated a completion time of between 15 and 20 minutes. The pre-test procedure was comprehensive in an attempt to minimize low response rates caused by misunderstandings and ambiguity and to detect problems with the design and formatting of questions.

In the questionnaire pre-test the four main issues of design were considered; question content, question form, the instrument and procedures and process. Space was provided for interviewees to indicate which questions presented content problems with regard to clarity, specificity, appropriate language, emphasis, simplicity, brevity, neutrality and relevance. The detection of problem questions suggested that further consideration be given, however, in some circumstances it was deemed unnecessary to make any alterations. For instance, some interviewees did not like the idea of reading the vignette at the end of the questionnaire but it was found that moving the vignette to another location presented a problem of the logical ordering of questions which may have provided respondents with an inappropriate frame of reference. The use of technical terms relating to accounting concepts posed problems for some interviewees and further clarification was provided but the constraints of questionnaire space limited any major revision of the questions.

Questionnaire form related to the logical placement of questions and whether understanding or readability had been affected by the format. The pre-testing proved invaluable in this area and as a result distinctions were made between questions, instructions and definitions. Questions were highlighted in bold, instructions were formatted in italics and highlighted in bold whilst the font size of definitions was increased. The questionnaire was also examined for clutter, the creation of inappropriate frames of reference, whether the instrument was too long to maintain completion commitment, whether the instrument was too boring to maintain completion commitment, and whether filter patterns were clear. Filter or contingency questions aid survey design by directing respondents to questions that relate specifically to their circumstances (Cooper and Schindler, 2001). Several interviewees had trouble with the filter patterns and as a consequence changes were made. One question was thought, by some, to create the impression that information meant environmental information. In an attempt to remove what may be considered an inappropriate frame of reference the question was moved to another location. The position of some questions was altered to improve the readability of the document. The survey was considered to be long and in parts complicated but not excessively so and interviewees believed that completion commitment would be maintained.

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The procedures associated with the questionnaire such as the purpose of the research and assurances as to confidentiality and anonymity were examined. All interviewees thought the covering letter was clear and unambiguous; several thought further assurances were necessary at a particular question and changes were made to accommodate the suggestion. The covering letter was constructed in order to comply with ethics requirements and interviewees thought it to be quite clear.

4. Implications and discussion

The purpose of a pre-test survey is to improve the primary questionnaire and ultimately the response rate. It follows that the success of a pre-test questionnaire can be measured by the response rate. The primary questionnaire, described earlier in this paper, was long, complex and incorporated a multi-method approach (questionnaire and experiment). 810 shareholder participants and 1072 environmental participants in the survey; a total of 1882 were surveyed. A filter question was used to determine those respondents that exhibited characteristics of both shareholder and environmentalist categories. The total number of respondents was 1088. Response rates have been calculated in accordance with Zikmund (2003), i.e., surveyed less non-response, which indicates a high overall response rate of 57.8%. The environmental database contributed 58.6% of responses whilst the shareholder database contributed 56.7%. The valid or usable response rate was 46.5% which was lower than the overall response rate as can be identified by an inspection of Table 2.

Table 2 Valid Response Rates User Group and Display Type

User / Display	Shareholders	Shareholders & Environmentalists	Environmentalists	Total
Monetary	67	65	98	230
Statistical	67	47	103	217
Pictorial	60	63	85	208
Narrative	59	65	97	221
Total	253 (28.9%)	240 (27.4%)	383 (43.7%)	876 (46.5%)

Whilst all surveys differ in complexity and perceived importance to respondents the inference from the response rates from two distinct database groups to the primary questionnaire is substantial. As mentioned earlier the project employed a multi-method approach which contributed to the complexity of the questionnaire. The inference that can be drawn is that the methodical approach to pre-testing the questionnaire was successful and can be used as an exemplar for undertaking questionnaires. The validation process described in the preceding sections can be applied to all questionnaire types to improve reliability and validity.

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5. Conclusion

The objective of the paper was to demonstrate an effective and practical approach to pre-testing questionnaire instruments to ensure that the questionnaire reflects the theoretical model development and is also understood by participants. The suggested benefits of the approach are improved questionnaire reliability and planning which results in better response rates. Whilst the process described was very effective in this instance the transferability to other research projects may be problematical and require modification. The philosophical point of view of the researcher does not affect the usefulness of the pre-test approach and therefore is equally useful for researchers from a positivist or critical perspective. This may present as a limitation to the validation process suggested in this paper.

Endnotes

Note¹

Philosophical

- a. Surveys cannot adequately establish causal connections between variables.
- b. Surveys are incapable of getting at the meaningful aspects of social action.
- c. Surveys just look at particular aspects of people's beliefs and actions without looking at the context in which they occur.
- d. Surveys seem to assume that human action is determined by external forces and neglect the role of human consciousness.
- e. Survey research is equated with a sterile, ritualistic and rigid model of science centred around hypothesis testing and significance tests, which involves no imagination or creative thinking.
- f. Survey research is basically empiricist collecting a mass of facts and statistics and provides nothing of theoretical value.
- g. Some things are not measurable particularly by surveys.

Technique

- a. Surveys are too restricted because they rely on highly structured questionnaires that are necessarily limited.
- b. Surveys are too statistical and reduce interesting questions to totally incomprehensible numbers.

Political

- a. Survey research provides knowledge about the social world that gives power to those in control that may lead to abuse.
- b. Survey research can lead to ideological manipulation because it produces an ideological reflection of reality that furthers the interests of particular interests.

(Adapted from de Vaus 1992: 7-9)

Note²

Defence of the Survey Method

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1. We can summarize the lessons to be learnt from this study about systematic measurement of qualitative, subjective, meaningful aspects of social life as follows:
 - Categories used in social research do not have to be demonstrated to be actor's categories.
 - It helps if one can show clusters, or syndromes, of attitudes, emotions or whatever.
 - Where the intuitive judgement of outsiders is required, great care must be taken to demonstrate that there is consensus; inter-coder reliability is vital.
2. Explanations of the form run an omnipresent risk of circularity:
 - the outcome may lead the respondent, the interviewer, or the researcher to imbue a previous event with meaning it did not have at the time;
 - the outcome may have been defined in such a way that only particular events could possibly explain it;
 - if the event is purely subjective, it may be possible to distinguish it as an external, separate event.
3. These lead to the following rules of guidance:
 - make measures of units and their qualities as independent as possible from measures of outcome, aiming for a moderate correlation between the two;
 - avoid aetiological classifications.
4. Complex variables should wherever possible be broken down into their component parts for sharper clarity. (Marsh 1982)

References

- Blaikie, N. 1993, *Approaches to Social Enquiry*, Polity Press, Cambridge, UK.
- Collis, J. and Hussey, R. 2009, *Business Research: A Practical Guide for Undergraduate and Postgraduate Students*, 3rd. Edn. Palgrave MacMillan Press, London.
- Cooper, D. and Schindler, P. 2001, *Business Research Methods*, 7th. Edn. McGraw-Hill/Irwin, New York.
- de Vaus, D. A. 2002, *Surveys in Social Research (Social Research Today)*, 5th edn, Routledge, UK.
- Fay, B. 1975, *Social Theory and Political Practice*, Allen & Unwin, London.
- Gaffikin, M. 1997, 'An Introduction to Critical Accounting Research', Victoria University of Technology, Seminar Series, Melbourne.

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- Habermas, J. 1988, *On the Logic of the Social Sciences*, Polity Press, Cambridge.
- Kervin, J. 1992, *Methods for Business Research*, Harper Collins Publishers, New York.
- Laughlin, R. 1987, 'Accounting Systems in Organizational Contexts: A Case for Critical Theory,' *Accounting, Organizations and Society*, Vol. 12/5, pp. 479-502.
- Marsh, C. 1982, *The Survey Method: The Contribution of Surveys to Sociological Explanation*, George Allen & Unwin, London.
- Outhwaite, W. 1996, *The Habermas Reader*, Polity Press, Cambridge.
- Ryan, B., Scapens, R. and Theobald, M. 1992, *Research Method and Methodology in Finance and Accounting*, Academic Press, London.
- Zikmund, W. G. 2003, *Business Research Methods*, 7th. edn, Thomson/South-Western, Ohio.

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Appendix

The 'question/response and comment' panel appears below questions 3a-3h, and 4a-4c. Pre-test survey questions 5 and 6 have a 'comment' panel only. Comment panels should be of sufficient size to allow interviewees to provide an adequate response

Pre-test of Questionnaire Conducted by Interview

1. Interviewee code:
2. Completion time:
3. Question content.
 - a. Clarity: (Are there words, phrases or terms you do not understand?)
 - b. Specificity: (Are specific events, instances or options clear?)
 - c. Appropriate language: (Is there any jargon or terms you do not understand?)
 - d. Emphasis: (Are the italicised sections noticeable? Should other emphasis be used?)
 - e. Simplicity: (Is sentence structure and questioning easy to follow? Did you have to read any questions twice?)
 - f. Brevity: (Which questions are too long? Which questions are should be longer?)
 - g. Neutrality: (Do you feel any question begs an answer?)
 - h. Relevance: (Are the filter questions appropriate? Should there be other filters to aid response?)

The following 'question/response and comment' panel is inserted below Q3a-Q3h.

Question	1	To the number of questions in survey								#
Response										

Comments:

4. Question form.
 - a. Do questions follow logically?
 - b. Does the format of any question restrict your understanding of that question?
 - c. Does the format of any question restrict the readability of a question?

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The following 'question/response and comment' panel is inserted below Q4a-Q4c.

Question	1	To the number of questions in survey								#
Response										

Comments:

.....

5. Instrument.
 - a. Is the questionnaire easy to read?
 - b. Is the questionnaire too cluttered?
 - c. Do earlier questions provide inappropriate frames of reference for later questions?
 - d. Is the instrument too long to maintain completion commitment?
 - e. Is the instrument too boring to maintain completion commitment?
 - f. Are the filter patterns clear?

The following 'comment' panel is inserted below Q5a-Q5f.

Comments:

.....

6. Procedures and Process.
 - a. Are you clear about the purpose of the research?
 - b. Are you clear that your anonymity and the confidentiality of your response is assured?
 - c. Do you feel satisfied with the experience?

The following 'comment' panel is inserted below Q6a-Q6c.

Comments:

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