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Improving participation through enhanced survey instrument design models

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Abstract

The process of recruiting suitably qualified and motivated subjects for survey participation presents some unique challenges to researchers, particularly when employing Internet-based survey instruments. This paper begins by identifying the advantages of online survey instruments, then examines the key elements of the survey process to gain an understanding of the reasons why people become involved in survey activities. Next, the antecedents to full survey participation are examined against four independent involvement theories. Then, survey involvement is considered against the role of rewards and values in the involvement process and cost minimisation for respondents. The influence of trust on the response process is also considered. The paper concludes with a synthesis of existing survey models to identify key characteristics and suggests a respondent recruitment strategy.

Key words: Survey, survey recruitment, online, reward.

1. Introduction

The past decade has witnessed an increase in the use of the Internet for empirical research which has provided insight into the use of online surveying methodologies and highlighted certain unique barriers not affecting traditional survey methodologies. To achieve an optimum environment for survey engagement, based on the recommendations of (Cho & LaRose, 1999), two key elements should be addressed. These may be grouped as infrastructural-centric and participation-centric, with the former encompassing environmental variables such as the use of web-based survey instruments and information sharing; whereas the latter focuses on engaging respondents through social means. By appealing to both of these elements, the often negative perceptions associated with survey involvement may be minimised and the quality of responses as well as the level of survey participation should increase accordingly. Initial challenges to online surveying such as the level of computer literacy or degree of “technological savvy” of populations Sills & Song (2002) as well as the accessibility of computer facilities Mann & Stewart (2000) have, in recent times, become less influential. This situation is attributable, in part, to technological advancements and increased user understanding of the Internet. New inhibitors have however emerged that impact on Internet-based survey participation, such as the ease by which new identities can be created and, most importantly, trust within the online context. Despite the existence of inhibitors to online survey participation, web-based survey instruments are extensively used in contemporary research as they offer a number of advantages over paper-based processes. The following are identified as key advantages of the online survey process:

- *Streamline the survey process and data collection (filtering)*

The survey gathering processes using database technology has greatly improved the efficiency of online surveys which may offer increased data capture speeds and more accurate responses (Andrews, Nonnecke, & Preece, 2003). Whilst it may be argued that by running surveys online, the sample who respond may incorporate an Internet-centric bias, the web-based process however offers the benefit of in-built filtering mechanisms to screen and profile respondents. The filtering process is useful, for example, in cases where the population being surveyed are Internet users. If the survey instrument is only available online, the mode used to

access the survey precludes those people without Internet access.

- *Improved survey instrument structures*

One of the most notable benefits of online survey instruments lies in the flexibility of the question structures. A practical example is the concealment of irrelevant questions based on conditional responses, which makes the online survey process more efficient than traditional paper-based instruments. The survey structure, such as the use of short pages which includes a dynamic progress indicator, provides a more user-friendly and functional interface than would a similar paper-based survey.

- *Cost-effective survey recruitment process*

The overall cost advantages of online surveys, as compared to traditional mail-based survey methods, may be demonstrated by savings in postage, stationery and labour costs required to respond to traditional surveys (Andrews, Nonnecke, & Preece, 2003). In addition, time factors as well as the absence of document production costs are further cited as indicators of the cost-effective nature of Internet-based survey research (Mann & Stewart, 2000). Clarifying further, Andrews, Nonnecke, & Preece (2003) note that the effectiveness of online surveys is due, in part, to the overall low cost of survey management and the ability to write data directly to a database. This saves time and minimises the possibility of mistakes occurring during data entry.

- *The use of rewards as incentives*

Whilst the use of rewards to improve response rates is applicable to both online and traditional paper-based survey processes, the introduction of rewards for participation in online survey instruments (E-incentives) improves responses in two key areas. These are: the ability to deliver instant rewards to respondents through the use of online payment certificates and electronic transfers, and, the perceived low cost of responding and time efficiencies offered by online survey responses are likely to prove an enticement to respondents to participate in the survey. E-incentives are incentives which provide compensation for the inconvenience experienced by survey respondents and may include monetary as well as non-monetary elements (Cho & LaRose, 1999).

- *Collaborative benefits*

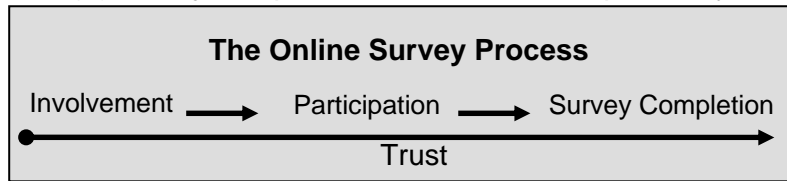
One of the key features of the Internet is its collaborative structure which encourages the sharing of information amongst users Cho & LaRose (1999). Specifically, the act of sharing information fosters a culture of participation and through it a sense of community involvement is developed. The result of this participatory engagement is that requests for survey participation are more likely to be treated with a greater sense of urgency than those occurring outside the involvement environment. In addition, the provision of detailed information about the researcher, the research focus and institution supporting the study provides a greater level of disclosure to survey participants. An important benefit of disclosing information related to the survey is that survey subjects are likely to be less inclined to submit false information, including their identity (Cho & LaRose, 1999). As an extension to information disclosure, privacy certification by a reputable auditing organisation, which provides enhanced protection for personal data, further strengthens the likelihood of receiving accurate survey responses (Cho & LaRose, 1999).

The use of widely known domains, such as .edu for universities, further provides a form of certification and attests to the credibility of the project (Cho & LaRose, 1999; Fox, Crask, & Kim, 1989). The triggering of a survey response due to the use of a credible domain highlights the importance of trust as motivator for survey participation (Andrews, Nonnecke, & Preece, 2003).

Whilst the technology supporting web surveys has evolved, with online surveys gaining considerable popularity in recent times, the recruitment of suitable survey subjects however remains a key challenge to ensure successful survey participation. To begin to understand why people respond to online surveys, it is first necessary to examine the key elements of the online survey process.

2. The online survey process

The online survey process is characterised by three distinct stages of survey activity, based on the level of engagement of the survey subject. These are (i) *involvement*, (ii) *participation* and (iii) *survey completion*. To increase the possibility of survey completion, any negative elements associated with the



first two stages must be addressed at the outset of the survey process. In addition, the important role of trust, which underpins online

survey responses, must also be addressed at the commencement of the survey, and reinforced throughout the survey process, in order to increase the likelihood of survey completion and reliable data being submitted.

Trust, within the online survey process, is adversely influenced by two key elements. These are: the provision of false data and non-participation, and both have a negative impact on the survey data gathering process. Prior surveys conducted on Internet related trust have indicated that trust plays an important role in the survey participations levels as people are cautious in divulging information if this element is absent (Andrews, Nonnecke, & Preece, 2003). Reasons for non-participation in surveys where trust is absent is attributable to the perception that sites lacking trust are likely to divulge information to others, which may result in spam or other unsolicited approaches being received by respondents. The fostering and maintenance of a climate of trust throughout the survey transactional process is thus likely to diminish the privacy concerns of respondents and encourage survey participation. Once the issue of trust has been addressed, the next area of focus on the continuum towards full survey participation is survey involvement.

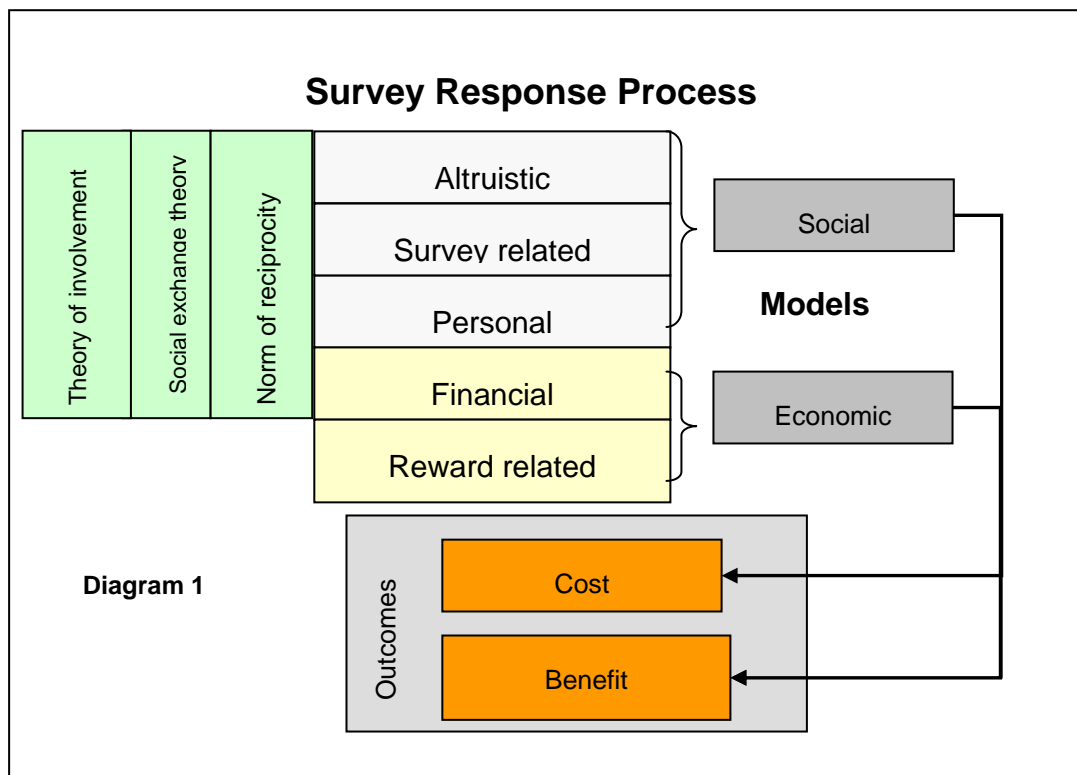
3. Survey involvement

Survey involvement is the antecedent of full participation, and the following views by Mittal & Myung-Soo, Hemetsberger, Bloch & Richins and Singer help understand how involvement leads to participation, and ultimately, survey completion. The theory of involvement offered by Mittal & Myung-Soo, (1989) proposes three sources of motivation for involvement in collaborative activities. They are *utilitarian*, *sign* and *hedonic*, and all are driven by the desire by individuals to pursue value-based outcomes. The *utilitarian* element encompasses economic, rational and functional goals and may be product specific. In addition, the *economic* model (Hemetsberger, 2003) suggests that there is overlap with the *utilitarian* element inasmuch as both components are driven, in part, by monetary rewards. The *sign* source includes social or self-concept related goals and aligns with the *social* model proposed by (Hemetsberger, 2003) in that there exists a strong personal identity element as driver for initial as well as ongoing survey participation. The last source, *hedonic*, as proposed by Mittal & Myung-Soo (1989) incorporates abstract components such as sensory pleasure and experiential goals and as Hemetsberger (2003) suggests, it refers to an individual's pursuit of valued outcomes. The theory of involvement thus plays a significant role as trigger for survey responses and will be explored in some depth in this paper.

Progressing the notion of an individual involvement framework (Bloch & Richins, 1983) identify three key involvement components. Firstly, *situational involvement* is concerned with contextual issues such as commodity value, which are influenced by variables such as price and perceived value. Secondly, *enduring involvement* is influenced by past experience or exposure to certain situations. The final component, *response involvement*, refers to the extensiveness and outcomes of the decision making process and may be described as the "consequences of the inner state of being involved". All three, according to (Bloch & Richins, 1983) exert influence on the subject's decision making process for survey

participation and therefore researchers should remain cognisant of these elements when recruiting survey participants.

Based on earlier research, (Singer, 2003) outlines three key reasons why survey participants respond to requests to participate in online surveys. People may respond for *altruistic reasons*, that is, the survey is useful or deemed to be addressing certain social obligations to which the respondent subscribes. People may also respond for *survey-related reasons*, inasmuch as they may be interested in the survey topic. Supporting the notion of correlation between response rates and participant interest level in the topic being researched, (Groves, Presser, & Dipko, 2004) note that there is a significantly higher response rate where the subjects are interested in the topic than those who held little or no interest in the topic. Lastly, survey responses may be driven by *personal reasons*, for example, in cases where the subject had provided an earlier undertaking to participate in the survey and then seeks to honour that commitment. The key elements identified by Singer (2003) share a common system based on the abstract, perceived values of the survey respondent. All three key reasons may be classified as functioning within a social or interpersonal framework. When read with the *social exchange theory* supported by (Carroll, 1999; Coiera, 2000; Hann, Hui, Lee, & Png, 2003; Kropf & Blair, 2001; Lyon, 2003; Spinello, 2003) to improve survey responses, an additional “economic” element is introduced which extends the original proposal offered by (Singer & Kulka, 2003). The extension of the combined notions of (Singer & Kulka, 2003) and (Carroll, 1999; Coiera, 2000; Hann, Hui, Lee, & Png, 2003; Kropf & Blair, 2001; Lyon, 2003; Spinello, 2003) however offer a multi-dimensional model incorporating both an economic and a social layer (See Diagram 1). This revised model aligns with the structure proposed by (Hemetsberger, 2003), which notes the existence of two disparate “economic” and “social” components and proposes a broad-based structure which is useful as an underpinning framework for improving survey responses.



In further synthesising the “social” and “economic” models of survey response triggers, two outcomes exist within the identified framework. These are the “cost” and the “benefit”

dimensions and represent the final filtering of the *theory of involvement*, *social exchange theory* and *norm of reciprocity*, and which are expanded upon later in this paper. These final classifications describe outcomes which may act as triggers in shaping individual survey participation, and propose that individuals may approach surveys by evaluating their involvement in terms of “costs” and “benefits”. Both perceived and tangible values thus play a significant role in acting as a trigger for individual involvement in the survey process. The need, therefore, to engage prospective survey respondents in a climate which includes value elements should be treated as a priority at the commencement of the survey process, in order to increase the likelihood of respondents progressing to the critical participation and survey completion stages.

4. Survey participation

At the outset of the research, participants often view the provision of survey response data as having a value associated with their involvement, that is, whether their investment in time, money and energy expended warrants the perceived rewards (Mann & Stewart, 2000). The rewards may include more abstract elements such as personal satisfaction that they are helping others with research, to more tangible incentives such as financial gain (Bosnjak & Tuten, 2003; Groves, Presser, & Dipko, 2004; Van Kenhove, Wijnen, & De Wulf, 2000). The notion of transactional value is a significant motivator for online survey participation, when viewed in the context of the “social exchange theory” (Summerhill & Taylor, 1992). Elaborating further (Summerhill & Taylor, 1992), note that the actions of individuals are motivated by the return that their actions are expected to bring in their engagements with others, based on the assumptions that:

- people engage in any activity because of the reward they perceive to receive;
- all activities they perform incur certain costs; and
- people attempt to keep their costs below the rewards they expect to receive.

Expanding further on the social exchange theory, (Dillman, 2000; Goodwin, 1991; Groves, Presser, & Dipko, 2004; Summerhill & Taylor, 1992) highlight that while there is a perception that this interaction is only measured in financial terms, such as through monetary transactions, the definition may however be much broader. Encompassing elements such as personal, value-driven bargaining, the return or benefit derived from the interaction is left to the individual to measure the quantum worth of the engagement. To encourage survey participation, Summerhill & Taylor (1992) citing Dillman (1978) propose that the social exchange theory requires that the following elements be brought into effect: Minimising costs to the respondent; maximising rewards for the respondent and; establishing a trust relationship. Based, in part, on the interpretations of Summerhill & Taylor (1992), which were formulated based on the use of traditional mail questionnaires, the aforementioned elements also have relevance to online survey environments.

- a) *Minimise the cost of responding to the survey.* In interpreting the contextual use of the word “cost”, there is evidence to suggest that the definition should include both monetary as well as non-monetary components. The former may include the provision of stamped return envelopes, whilst the latter involves physical and mental effort in obtaining optimum survey responses (Hemetsberger, 2003).

From the individual's perspective therefore it could be argued that the influence of the cost element in relation to survey responses is evaluated according to a composite of broad-based, perceived and value-transactional worth. In highlighting the cost advantages of online surveying, evidence suggests that whereas traditional mail-based surveys incur costs for postage, stationery and labour to respond to surveys, online surveys however do not incur these costs (Andrews, Nonnecke, & Preece, 2003). In support of the notion of online survey cost-effectiveness, Mann & Stewart (2000)

suggest that the issue of reduced costs is one of the most significant advantages of using online surveys for qualitative research. Noting further benefits of Internet-based survey research, (Mann & Stewart, 2000) cite time factors as well as the absence of document production costs, as significant advantages of online surveys when compared to traditional survey methods. Whilst the notions of reduced costs and time efficiency may be applied equally to surveyors and survey respondents, the benefits of a cost effective, short duration survey instrument should therefore be promoted when seeking survey respondents. As the overall assessment of the cost of the interaction occurs across multiple dimensions, the cost element should be minimised where possible by researchers in order to make the survey attractive to subjects.

The notion of a cost efficient online survey model also encompasses the provision of a more streamlined process for survey respondents, who may save costs of transport and postage, in instances where completed surveys are required to be physically returned (Mann & Stewart, 2000). The overall research process efficiency levels, as noted by Andrews, Nonnecke, & Preece (2003), should be viewed against the potential savings attributable to conducting online surveys, which may include time and labour saving practices as well as cost advantages.

- b) *Maximise rewards to respondents.* This element proposes that the display of a positive regard for respondents as well as articulating the need for the contributory survey information will increase the likelihood of survey participation (Summerhill & Taylor, 1992). According to (Hemetsberger, 2003), two distinct models of exchange exist which have influence on the levels of survey participation. These are the “economic model” and the “social model” and both are linked to the *social exchange theory* (Carroll, 1999; Coiera, 2000; Hann, Hui, Lee, & Png, 2003; Kropf & Blair, 2001; Lyon, 2003; Spinello, 2003). These two models subscribe to the notion that individuals engage in exchanges in order to achieve certain important goals that are extrinsic to the behaviour that they engage in, in the belief that such actions may lead to certain value-based outcomes. The models offered by (Hemetsberger, 2003) provide a framework for survey participation and are useful in gaining a better understanding of the trigger mechanisms underpinning survey involvement.

Applying contextual meaning to the two survey response models proposed by (Hemetsberger, 2003), the “economic model” assumes a more traditional, financially-based environment wherein money or other tangible rewards may be exchanged. In contrast, the “social model” proposes a relationship of social engagement, supported by a two way exchange process. Money incentives increase cooperation by survey subjects, and is a widely used tool to boost survey response rates for online surveys (Fox, Crask, & Kim, 1989; Groves, Presser, & Dipko, 2004; Yammarino, Skinner, & Childers, 1991). There is further evidence to suggest that the “economic model” may be extended to include not only monetary values but also time values, that is, making the task of responding appear as minimal and requiring little time and effort to complete. Short estimated time frames for survey completion for web-based surveys produce higher response rates than those with longer estimated completion times (Trouteaud, 2004). By streamlining the survey questionnaire through the use of concise questions and by reducing the questions to cover only the most relevant topics, one could conclude that people are more likely to participate in the survey. The inherent benefit of using web based survey instruments is demonstrated by design techniques where, for example, non-applicable questions can be hidden, thereby saving completion time.

The “social model” proposed by (Hemetsberger, 2003; Kropf & Blair, 2001), introduce another dimension to the personal reward framework, asserting that the perceived personal relevance of an object further influences survey participation. When pursuing the social model, individuals may evaluate their self-worth against survey participation,

measured against their contributory influence. The evaluation process employed may be further based on the strength of the individual's relationship with the subject matter being surveyed. If the topic being surveyed is of interest to the participant, then there is a greater likelihood that those concerned will engage in extensive cognitive processing of the message (Groves, Presser, & Dipko, 2004).

In elaborating on his definition of the "social model", (Hemetsberger, 2003) proposes that individuals pursue social interactions in which "...the receipt of a needed valuable is contingent on the supply of a favour in return". The receipt of rewards under the "social model" may not be instantaneous, but could be deferred to some future time, introducing an element of trust into the relationship between parties to the transaction. The significance of this assertion lies in the fact that self assessed determinations of quality by survey respondents may provide a perceived value to which a balance is ultimately sought and implemented. This may occur where financial incentives have been provided to respondents in advance of their participation in a survey, or in instances where respondents may perceive participation as a transactional arrangement which needs to be repaid.

Having examined the two distinct models of exchange, a further model may be introduced which provides a link between the social and economic models. The *personal equity theory* proposes that prepaid rewards establish an expectation of equity that should follow in terms of potential effort expenditure (Biner & Kidd, 1994). In applying this concept to online survey responses, the use of monetary incentives is an example of the application of this theory. The use of monetary rewards to encourage survey participation is the most effective method available to researchers, as it is the least influenced by bias (Kanuk & Berenson, 1975). Where rewards, particularly monetary incentives, are offered to survey respondents, response rates are significantly increased (Bosnjak & Tuten, 2003; Fox, Crask, & Kim, 1989; Singer & Kulka, 2003; Tuten, Mirta, & Bosnjak, 2004; Yammarino, Skinner, & Childers, 1991). Monetary incentives increase the survey participation level in instances where incentives were paid prior to survey participation (Church, 1993), as well as in cases where rewards were paid after survey completion (Yu & Cooper, 1983). Further research which did not specifically define the timing of the provision of the reward also advanced the survey participation rate (Fox, Crask, & Kim, 1989), effectively confirming the positive influence that rewards have on overall survey response rates.

Incentive influenced survey participation levels may also be explained by the *cognitive dissonance theory* (Festinger, 1967), which proposes that the state of "psychological discomfort" is experienced by some respondents when presented with a reward. In pursuit of an equity balance, (Festinger, 1967) proposes that where dissonance is present, individuals are likely to seek a preservation of the original state of balance position, through the minimisation of further dissonance factors. The effect of cognitive dissonance on survey response is likely to occur when the subject has received the reward and has also made the decision not to participate in the survey (Biner & Kidd, 1994). Highlighting the characteristics of the cognitive dissonance theory as a "...drive-like motivation to maintain consistency among relevant thoughts" (Balcetis & Dunning, 2005), note that where the actions of an individual becomes discrepant, this leads to psychological discomfort, and triggers a corrective response. The harnessing of this psychological processing is widely believed to be an important motivator for improving survey response rates.

In exploring the triggers to survey participation, one channel of research suggests that heuristic factors such as the *norm of reciprocity* influence the participants decision making process (Porter, 2004). The *norm of reciprocity* proposes that people respond to

others based on the treatment they receive, and people are more likely to contribute to a group which provides it with benefits, than to one which does not (Gouldner, 1960) . The receipt of a favour, such as monetary reward or the advancement of social standing, warrants a response commensurate with such advantage received. Whilst there may be some perceived overlap with the “economic” trigger for survey responses, research has identified that where the quantum of the monetary incentive provided to induce subjects to respond to surveys is minimal, the response is usually greater as people seek to balance additional values such as social responsibility in pursuit of equitability (Porter, 2004).

- c) *Establish a trust relationship.* According to (Andrews, Nonnecke, & Preece, 2003), the need to develop a trust relationship between subject and researcher is essential to ensure maximum survey participation. Reinforcing this notion, (Cho & LaRose, 1999) propose that trust is a crucial factor in the survey exchange process, and one that significantly influences response rates. Trust may also be viewed as a method of reducing complexity through the provision of information which minimises barriers of understanding between the parties involved, and should accordingly be defined and managed as an investment (Osterwalder, 2002). The key to establishing the appropriate degree of trust lies in the level of survey transparency, the credibility and association of the researchers , and the delivery of a non-intrusive survey distribution process (Andrews, Nonnecke, & Preece, 2003). This approach addresses what Kaye & Johnson (1999), citing Swoboda, et al. (1997) suggests is an inherent mistrust of online surveys and an aversion to information sharing in what is viewed by many as a non-traditional environment.

Once barriers to participation in the survey process have been addressed, the focus should shift to the engagement of subjects in the survey response process.

5. Survey response process

The engagement and maintenance of the survey participants within the transactional process is the final critical element of the survey response process. Whilst the antecedent steps of *involvement* and *participation* must be fulfilled prior to concluding the survey process, the respondent must nonetheless be kept within a state of interest and any claims such as the expected completion time of the survey must be adhered to in order to prevent early termination of the survey.

Any rewards offered for survey participation must also be honoured in order to reinforce the trust element associated with the research process and to increase the possibility that the survey will be completed. In addition, questions should be carefully streamlined to avoid the introduction of any unrelated, conditional responses to maintain the credibility of the survey instrument. The sense of value, either perceived or monetarily based, should be maintained throughout the survey process to sustain participation through to completion.

6. Conclusion

The effective recruitment of suitable survey subjects may be approached by firstly gaining an understanding of, and overcoming, environmental and social inhibitors of the survey process. In addition, the inclusion of key motivators for survey participation which trigger involvement should be harnessed to provide a credible and secure environment in which to channel information to the researcher. The interactive engagement process between the survey participant and surveyor should be characterised by a relationship based on trust, from the recruitment stage through to survey completion. The fostering of a climate of trust between parties promotes the submission of quality and accurate data, thus facilitating more

meaningful statistical analyses.

The use of reward-based incentives encourages survey participation is a further significant motivator for survey participation, and should be deployed to increase involvement levels. In addition, the perceived value of collaborative and contributory participation, time and resources also play an important role in the survey process and survey instruments should be constructed to reflect efficient methodologies to make surveys more appealing to prospective participants. By focusing on the maintenance of an environment of mutual benefit to all players in the survey arena, inhibitors to survey participation will be diminished and respondents will be more likely to contribute accurate and meaningful data to the survey process.

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