DEVELOPMENTS IN DATA COLLECTION: COST VERSUS QUALITY

Charles S. Mayer[1]

Increasing costs without a concomitant increase in research budgets are putting severe strains on research quality. Improvements in technology, however, both in the physical domain and in the conceptual domain are sufficient to maintain research productivity at least at its prior level.

1. INTRODUCTION

The increasing cost of gasoline and the impact of the small foreign imported cars on the Canadian economy, are both very newsworthy items these days. In this paper on cost versus quality, an attempt will be made to use or perhaps abuse this analogy.

The essence of the analogy, however, is that at a time when there is a relentless pressure on the cost of raw materials and energy, the only way to attempt to keep such change acceptable is through modifying our requirements, and through seeking improvements in technology to mitigate the cost push. In automotive terms this means substituting more pedestrian forms of transportation, sharing rides with others, or seeking more fuel efficient cars.

What is happening to costs in data collection, particularly in personal interviews, is akin to what is happening in the automotive field. Costs are escalating at a rapid rate - outstripping inflation by a wide margin. That such escalation of cost will have an impact on the quality of work is also evident, particularly if research budgets are not rising at the same rate as research costs. To exacerbate the problem, not only are the costs of doing research going up, but it seems that the time to do them is also decreasing. This shrinkage of time is partially due to the competititve environment in which the research takes place, and sometimes also due to the lack of realistic expectations or planning on the part of the user. At any rate, less time in which to do the research means more cost to expedite it at certain crucial stages, and also a concomitant lowering of quality.

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[1]Professor of Marketing, York University

Another factor impacting on data collection costs is the increased inaccessibility, unavailability, or lack of cooperation of the designated respondent. While the published Canadian experience is sparse here, evidence from Britain seems to suggest:

1. There is some tendency toward higher refusals, but it is not as major a problem as most practitioners would have you believe
2. Field organizations have to put in more effort to cope with the problem of finding people at home.[1]

A recent major survey of telephone interviewing in the U.S.[2] first pointed out the need for standardization of such terms as refusal rates and non-contact rates. It then quantified these terms showing that with only a single attempt, the median non-contact rate was 50.6%, whereas with four or more attempts it fell dramatically to 23.5%. Non-contact rate was also affected by such factors as time of interviewing, differential callback procedures, and the number of rings specified.

Median refusal rates were 28%, but in almost 1/4 of the studies were over 40%. As could be anticipated, refusal rates were also affected by the procedures used.

One other feature should be mentioned which is unique to Canada. Especially in the larger metropolitan centres, such as Toronto, as many as 10% of the respondents cannot be interviewed in either English or French.

That lower cooperation and higher non-contact rates should affect survey costs is evident. That they will also affect the quality of the work should be equally clear.

By now the word "quality" has been used several times. It is a terrible thing to admit, but this writer is not totally sure what is meant by the term "research quality". From a strictly academic point-of-view, a research study with a higher quality is less likely to mislead the user than one of lower quality. Or alternately the user of higher quality research takes fewer risks than the user of lower quality research. But this still does not explain how such quality arises.

Let us consider research quality on three bases:

- o relevancy
- o accuracy
- o use to which the data are put

2. RELEVANCY

In order for research to be relevant, there has to be close cooperation between the research user and the research producer. The definition of the problem, an apparently simple task - is indeed very complex. The relevancy of the study is the joint responsibility of the user and the producer. In this respect, both the user and the researcher are becoming more sophisticated and hence the quality of the work being done is increasing. However, it is very difficult operationally to measure the relevancy of a particular study. For this reason, let us avoid this aspect of research quality, and concentrate on another.

3. ACCURACY

The accuracy of research is a function of sample size, of procedures, controls and methods. With experience, researchers have become more sophisticated in procedures, controls and methods. Moreover, the computer has provided additional capabilities to exercise control over studies. Nevertheless, with the increases in cost outstripping increases in research budgets, many of these methods, procedures and controls are being ignored - not because researchers are unaware of them, but because of budget constraints. One example here could be the increased use of mall-intercept personal interviews as opposed to in-home personal interviews. Few would argue that mall intercepts are used because they are superior to in-home interviews. They can only be justified on a budgetary basis. The increased substitution of telephone for personal interviews is done for much the same reason.

4. USE TO WHICH THE DATA ARE PUT

Principally due to the advance of computer technology, but also due to a better

understanding of the structure of some of the research problems, researchers are able to perform more sophisticated analysis with the collected data, thereby increasing its utility and hence quality. Owing to such concepts as market segmentation, various scaling techniques or conjoint measurement, much more meaning can be teased out of a relatively simple data set than ever before. Also, with a better understanding of structure, simpler research instruments can be developed and administered by less skillful interviewers. "Less skillful" is not a question of choice, but often an unavoidable necessity.

5. RESEARCH COSTS

The major cost of any study is the cost of interviewing. This is the most labour intensive part of any survey. Generally, interviewing costs account for at least half the total study costs. Particularly in personal interviewing, these costs have been rising rapidly. They have doubled over the last three years. Currently, the average pay for interviewers is around $5.00 per hour in major centres, and is increased at least two times per year. There are many reasons for such increases - among them acute competition among various users, the playing-off of one company against the other by the interviewers themselves, and the role that the rates on government surveys play in putting upward pressure on interviewer demands. As one would expect, problems in some places will be more acute than others. For example, the province of Alberta creates problems both in the absolute cost sense, and in just being able to find and train interviewers.

This leads to another problem with interviewing. The previously obtainable pool of interviewers - usually categorized as middle-aged housewives who are fed up with doing volunteer work - has largely dried up. These people have returned to the workforce on a full-time basis. The result is that interviewing is viewed as much more of a casual or fill-in type of job, with a much higher rate of turnover. More students are used for interviewing, and are lasting for shorter periods on the job.

The higher turnover in interviewers also leads to a lower level of training. Not all companies train their interviewers equally well. Those that do so,

often end up losing their interviewers to others who can afford to bid them away in the marketplace.

All of these factors lead to the conclusion that personal interviewing in the field is not being done as well as it used to be. Just to make matters worse, the demands made on the interviewers can also be greater. Complex questionnaires are the ones that usually end up as in-home personal interviews.

Two other factors are pushing interviewing costs up. One of these is the difficulty one encounters in not paying for bad work. Recent rulings have been that as long as the interviewer had "good intentions", even bad work has to be paid for. Also in some provinces, if an interviewer is asked to work, he or she has to be paid for at least 4 hours per day. For students, this figure drops to 2 hours on school days, and 4 hours otherwise.

The indirect costs associated with interviewing are also increasing. For example, while not too long ago the charge per mile was 10¢, currently it is around 23¢ per mile. Parking and shipping expenses are also high. With the danger of using mail, many of the research houses are also switching to courier services for an additional expense.

If we take the ratio of quality to cost, a sort of output/input ratio, it becomes evident that we are talking about research productivity. To keep this ratio constant we have to find ways to increase the numerator (research quality) at the same rate as the denominator (research cost) is increasing - a question of research technology - or to decrease the denominator at the same rate as we debase the numerator - a question of technique substitution.

6. ALTERNATIVE FORMS OF DATA COLLECTION

With the above problems in personal interviewing, it is not strange that the research industry has looked for substitute ways of obtaining data. These will be touched on briefly.

Mail surveys - Despite potential problems with rates of return, the mail continues to be used for research. With the appropriate design, such as a

balanced consumer mail panel, useful results can be obtained. The only really new development here is the havoc that a postal strike or threat of a strike can create with a survey.

Mall intercepts - Rather than talking to respondents in their homes, they are stopped in shopping malls and either questioned on the spot or invited to participate in a more extensive interview in an office or booth set up for such purposes. Needless to say concepts such as sampling frame representativeness, methods of selection, or cooperation rates lose almost all meaning with mall intercept studies.

Telephone surveys - There is a significant increase in the number of studies done over the telephone. Some of this increase is motivated by the increased costs of personal interviews. However, some of it is caused by the increased technological capability of the telephone itself. Specifically, centralized telephone interviewing has increased substantially the quality control that can be exercised. This can further be improved through computer assisted telephone interviewing from centralized locations. Centralized telephone interviewing is more costly in Canada than in the U.S. because of the differential, structure of wide area telephone service (WATS) rates. For this reason, it is unlikely that the same amount of centralization will occur here. Rather, the emergence of regionally centralized telephone centres seems to be the trend.

Omnibus or shared surveys - Another way of attempting to reduce costs is to share studies with other users. Such shared studies may not significantly lower the quality, particularly if not too much information is being sought.

Syndicated industry studies - There seems to be a tendency for more industries to have their own syndicated studies. This has several implications for quality. First, a higher level of quality can be achieved on such a syndicated study since the costs are shared among users. However, since the same information is available to all competitors, perhaps the value of the information - and hence its quality may be less.

7. IMPROVEMENTS IN TECHNOLOGY

Offsetting the deterioration of quality in research caused by escalating costs is an improvement in technology. Several ideas are subsumed under technology, some strictly physical technology and some more conceptual technology.

At the conceptual level, the computer provides us with tremendous capabilities in the analytic sense. Better analytical capability can be combined with a better understanding of models of consumer behaviour and give rise to better questioning techniques. For example, in trade-off analysis one merely has to ask consumers to show at what levels they would trade-off among different concepts to be able to generate their underlying utilities for these various concepts. Another example is multidimensional scaling where all that a consumer has to say is how similar or dissimilar they feel a particular set of products or services are, in order to generate a product space map. The respondents do not even have to be aware of the degree to which their answers are displaying their own set of values.

As with any such developments, however, there are some real dangers with the increased sophistication of computer applications. When the chips are down it is not uncommon to get a request from the analyst which says "just give me clean tapes so that I can perform my analysis", without really paying too much attention on how those clean tapes are obtained. An elegant computer analysis can hide an awful lot of sins - or compromises to quality that have been taken along the way.

At the technical end of the spectrum we find a number of interesting developments. Perhaps most interesting are the computer interactive interviewing systems. These can be utilized from a centralized telephone interviewing facility, or in a central location interview - such as a mall intercept study - where a dedicated mini-computer is all that is needed. Highly transportable terminals which rely on telephone communications with the host computer, and which can be linked to that computer from the individuals' homes or offices can simplify the tasks of the interviewer, shorten the questionnaire, and perform an on-line edit.[3] This type of questioning, as well as more pictorial

questionnaires seems to be necessary with a generation that is becoming less verbal, and more used to responding to a TV set.

Other forms of electronic gadgetry include television meters with memories that are dialed directly through dedicated telephone lines by a host computer, much more data available on computer tapes, that obviate the need for such labour intensive steps as physical audits, automated check-out stands and scanning devices that record the flow of goods through stores, and the promising, through infant two-way television capability exemplified by Canada's own videotex system, Telidon.

8. CONCLUSION

In this paper an attempt has been made to sketch out briefly what is happening in Canada in the area of data collection. On the one hand data collection costs are escalating rapidly. On the other hand, there is an improvement in technology which permits us to gather data in different ways than we have been used to. As to what the impact on quality of these new techniques is, is not clear.

There is need for much more experimentation with the various methods. For example, one could easily set up a split-half experiment in which half of the study was conducted by personal interviews in the home and half was conducted through mall intercepts, or over the telephone. Differences between the halves would show how much error was introduced through the change in methodology. Only in this way can the industry learn what the real impact on quality is of the alternative forms of data collection.

This paper began by suggesting that, in research, we face a situation not unlike that faced by today's motorist. With the rapid increases in data collection costs, new techniques and technologies are needed to keep quality high despite high costs. This young profession has demonstrated repeatedly its ingenuity in coping with difficult times. Nevertheless, the task of maintaining productivity in the industry will indeed be hard. Just as one can safely predict that in the future we will be driving smaller and more fuel efficient cards, we may also have to look to different and perhaps less accommodating research tools. However, as with the smaller cars, if well designed, they may be sufficient for our requirements, or possibly even serve us better.

RESUME

Les coûts qui augmentent plus rapidement que les budgets de recherche nuisent considérablement à la qualité de la recherche. Toutefois, les progrès technologiques sur le plan physique aussi bien que sur le plan conceptuel permettent de conserver une productivité au moins aussi grande qu'auparavant.

9. REFERENCES

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