A photograph of the Flinders Street Station in Melbourne, Australia, featuring a large central dome and ornate facade. The station is surrounded by a busy street scene with pedestrians and tram tracks. The title text is overlaid on a semi-transparent white box in the upper half of the image.

Journal of Business Systems, Governance & Ethics

Journal of Business Systems, Governance & Ethics

Jointly Published By

Centre for International Corporate Governance Research
Victoria University

Victoria Graduate School of Business
Victoria University

Vol 2, No 1, 2007
ISSN 1833-4318

Copyright © Victoria University, 2007

Victoria University
PO Box 14428
MELBOURNE VIC 8001
AUSTRALIA

Editor

Arthur Tatnall

Editorial Board

Professor Anona Armstrong, Paul Darbyshire, Dr Jamie Doughney, Professor Ronald Francis, Dr Ron Kluvers, Professor Elaine Martin, Associate Professor Arthur Tatnall, Dr Andrew Wenn, Professor John Zeleznikow

The *Journal of Business Systems, Governance and Ethics* is published four times a year by Victoria University in online format for no charge. Printed copies are available, for a fee, upon request.

All articles published in this journal were subject to a process of blind peer review by at least two reviewers before selection for publication by the Editorial Board.

Submissions are welcome for research articles of between about 5,000 and 10,000 words in any area relevant to the journal's coverage. Potential articles should, in the first instance, be sent to: Kumi Heenetigala at the Centre for International Corporate Governance Research: Kumi.Heenetigala@vu.edu.au

Copying for educational purposes

The *Journal of Business Systems, Governance and Ethics* is published in both online and print formats. Educational and non-profit institutions are granted a non-exclusive licence to utilise this document in whole or in part for personal or classroom use without fee, provided that correct attribution and citation are made and this copyright statement is reproduced. Any other usage is prohibited without the express permission of the publisher. For details of the CAL licence for educational institutions please contact the Copyright Agency Limited at info@copyright.com.au.

Journal of Business Systems, Governance and Ethics

Vol 2, No 1, 2007

Contents

Editorial v

Arthur Tatnall

Professionalism and Ethics in Financial Planning 1

June Smith, Anona Armstrong and Ronald Francis

**An Empirical Investigation of the Effect of Interaction Justice
Perception on Consumer Intentions After Complaining 11**

Mahesh S. Bhandari and Michael J. Polonsky

**Implementing ERP Systems Globally:
Challenges and Lessons Learned for Asian Countries 21**

Paul Hawking

Issues and Guidance in Research Ethics 33

Ronald Francis and Anona Armstrong

**Lies, Damned Lies and 'Problem Gambling' Prevalence Rates:
The Example of Victoria, Australia 41**

James Doughney

Editorial

In common with previous issues, articles in the first issue of Volume 2 of the *Journal of Business Systems, Governance and Ethics* cover a wide range of topics. This issue has two research articles related to ethics, one to ethics in financial planning and the other to research ethics. Other articles describe research on the result of consumer complaints, and on the global implementation of Enterprise Resource Planning systems.

The first paper, by Smith, Armstrong and Francis deals with *Professionalism and Ethics in Financial Planning*. In this paper the authors describe the analytical framework and methodology of a proposed study of the ethical reasoning of financial planners, and the cognitive frameworks used to make ethical decisions in the provision of financial planning advice. The authors claim that this is a significant study because of the relationships financial planners have with their clients, and the ethical framework that underpins them is pivotal to the ability of the financial planner to provide professional and effective independent advice.

The next article, by Bhandari and Polonsky: *An Empirical Investigation of the Effect of Interaction Justice Perception on Consumer Intentions after Complaining*, deals with how an apology impacts on consumer perceptions of response to a complaint. They note that increased competition means that organisations are at greater risk of losing customers in the market place, and that this is increased when customers experience service failure. Two types of service failures are described and the impact of recovery action on each failure type is compared.

An article by Hawking: *Implementing ERP Systems Globally: Challenges and Lessons Learned for Asian Countries*, discusses growth in convergence of global corporate activities due to improved communication technologies. In an effort to further their operations many companies are implementing global information systems and, in particular, Enterprise Resource Planning (ERP) systems. He notes that very little research has been conducted on the issues associated with global implementations of ERP systems, and in particular on implementations within the Asian region. His research utilises industry presentations to identify challenges and best practice for global implementations.

The next article, by Francis and Armstrong: *Issues and Guidance in Research Ethics*, addresses the principles that govern the outlook and decisions of research ethics committees. The authors argue that ethics committees should be seen as enabling and protecting individuals rather than as a barrier to research, as they are charged with protecting the vulnerable. The paper gives insights and suggestions that should make the ethics application task more straightforward.

The final article by Doughney is entitled: *Lies, Damned Lies and 'Problem Gambling' Prevalence Rates: The Example of Victoria, Australia*. This paper examines the 2006 claim, by the Victorian Government, to have halved 'problem gambling' in the State and shows this claim to be unscientific. It reinforces this view by using evidence and argument from the Productivity Commission, the Australian Bureau of Statistics and statistical/epidemiological sources, that indicate that extant sample survey techniques used to estimate prevalence rates are seriously flawed. The paper discusses whether it is reasonably possible to overcome methodological deficiencies in published prevalence-rate estimates of 'problem gambling'.

All papers in the journal have been subjected to a process of blind peer review by at least two reviewers. Articles were then only accepted after appropriate changes and corrections had been made by the authors. We hope that you find the content of this issue interesting.

Arthur Tatnall

Editor

Professionalism and Ethics in Financial Planning

June Smith, Anona Armstrong and Ronald Francis
Victoria University, Australia

Abstract

The purpose of this paper is to describe the analytical framework and methodology of a proposed study of the ethical reasoning of financial planners and the cognitive frameworks used to make ethical decisions in the provision of financial planning advice. The framework will draw on previous studies of individual characteristics such as ethical reasoning and the values and ethical development of a financial planner and consider the influence of situational and contextual factors such as organisational ethical climate and culture and the formal and informal control systems within an organisation. This is a significant study because the relationships financial planners have with their clients and the ethical framework that underpins them are pivotal to the ability of the financial planner to provide professional and effective independent advice.

Keywords

Ethics, professionalism, financial planning.

Introduction

Recent public debate suggests that financial planning is becoming increasingly relevant to the achievement of the political and social objectives of Australians and their governments, including provision for retirement age and choice of superannuation fund (Weekes & Hoyle 2004; Wilson 2004). There is an ever increasing and commensurate need to obtain expert financial planning advice to ensure a financially sustainable lifestyle and to provide for retirement years (Peel 2004; Gallop 2003).

There is therefore a greater focus on how that financial advice is delivered and on the regulatory and professional regimes that govern it (Smith, J. 2003; Powell 2003). This is illustrative of an international phenomenon being played out in a myriad of countries including the United States (Wagner 2004), Hong Kong (Gallop 2003) and the United Kingdom (Powell 2003).

Like other occupations such as architects (Matteson, 2002) and psychologists (Waring et al. 2003) financial planning seems to be becoming more professionalised and participants are moving towards new and important considerations of what it means, in an ethical sense, to be a financial planner (Wagner 2004; Walker 2003).

Pursuant to the Corporations Act 2001 (Cth) (“the Act”), the primary responsibility to ensure that financial planners meet their legal obligations in the provision of financial product advice rests with an

Copyright © 2007 Victoria University. This document has been published as part of the *Journal of Business Systems, Governance and Ethics* in both online and print formats. Educational and non-profit institutions are granted a non-exclusive licence to utilise this document in whole or in part for personal or classroom use without fee, provided that correct attribution and citation are made and this copyright statement is reproduced. Any other usage is prohibited without the express permission of the

Australian Financial Services Licensee (“AFS Licensee”) which employ or authorise financial planners to represent them. These Licensees are usually companies. Financial planning, like health care (Khusf 1998) is being practiced by institutions, not just by individual advisors.

Whilst transition to the new Financial Services Reform Regime was completed on

11 March 2004, there is little focus within the legislation on the ethical obligations and decision making of the individual advisor. Most of the legal duties, such as the obligation to provide financial product advice in a fair, honest and reasonable manner or to manage, control or avoid conflict of interest rest with the AFS Licensee (ASIC 2004a; ASIC 2004c). Further, the new Act does not cover all areas of advice that may be given by a financial planner such as estate planning and strategic advice.

There is also a current public perception that despite the new regulatory regime, financial planners are unethical and incompetent (ASIC 2003), with their professional role being shaped by scams and scandals (Vessenes 1997; Bruining 2004; Brown 2003), and a system of rewards that are perceived as being associated with self interest (ASIC 2004b; Wolthuisen 2003).

It is argued that for financial planning to be regarded as a profession, it requires more than the new regulatory structure provided by the Act. It also requires a focus on the individual advisor as a professional, a strong ethical context, an altruistic motive rather than individual self interest and a high degree of self control of behaviour usually articulated in a Code of Ethics and other ethical frameworks (Barber 1988; Wagner 2004; Miller 2002). Whilst some financial planners are members of a professional association such as the Financial Planning Association of Australia or CPA Australia, and are thus bound by a Code of Ethics, there is no compulsion to be a member. It is also argued there may be gaps in the existing frameworks such as a focus on training or professional development in ethics, and the existence of formal ethical frameworks in financial planning firms.

The issues identified in the introduction provide a catalyst for our research. Our study will be one of the first of its type conducted in Australia on financial planners. It will identify the levels of ethical reasoning and the cognitive frameworks used by financial planners when making ethical decisions in the provision of financial advice, as well as the current ethical climate and culture within financial planning firms. It will investigate the factors that may be influencing financial planners in their ethical decision making, and explore gaps in the industry's existing ethical and regulatory framework.

Financial Planning: the Focus on Ethical Decision Making

Financial planners deal with a range of ethical dilemmas in their daily practice, which often arise in circumstances where there are multiple stakeholders, interests and values in conflict and where the law may be uncertain. The relationships financial planners have with their clients and the ethical framework that underpins them is pivotal to the ability of the financial planner to provide a professional and effective service and resolve these dilemmas effectively. The study aims to refocus attention on the value that professional judgment and ethical decision making can bring to the resolution of issues facing financial planners in the provision of advice to clients.

The factors that may influence that judgment also warrant greater attention. We believe the ethical climate and culture of the AFS Licensee have a significant role to play in positively influencing the ethical conduct of employees and advisers and with suitable role models, should also assist the licensee to embed a culture of compliance. The ability to influence this ethical context may have a bearing on the AFS Licensee's ability to meet its obligations, to provide services in an efficient, fair and honest manner, its reputation within the marketplace and the quality of the advice that will be given to clients. The study will endeavour to prove these links exist.

This is a relatively under-researched area. Only financial planners in the United States seem to have been the subject of a study relating to levels of ethical reasoning (Bigel 1998).

This study will replicate parts of Bigel's study on levels of ethical reasoning of financial planners within an Australian context and investigate and identify factors influencing the ethical reasoning of financial planners, in addition to analysing the impact of those factors on the ability of financial planners to meet their professional and ethical obligations.

The Key Objectives

The study's specific aims are to:

1. Identify the level of ethical reasoning of financial planners and the cognitive frameworks used to make ethical decisions in the provision of financial planning advice;
2. Identify factors influencing the ethical reasoning of financial planners and analyse the impact these factors are having on the ability of financial planners to meet their professional and ethical obligations to clients;
3. Investigate the dynamic between the individual financial planner and the organisation for whom they work, including the perceptions financial planners have of the ethical climate and culture of the organisation and whether these may be factors influencing their ability to meet their professional and ethical obligations;
4. Compare these perceptions to those of the compliance officer who is responsible for supervising the advice given by a financial planner, and
5. Identify any gaps in existing ethical frameworks within the financial planning industry and develop a model ethical framework for financial planning firms which may include a model Code of Ethics, a model of practical moral reasoning and a framework for ethical decision making.

This study will provide direction on how to align the ethical reasoning and professional obligations of an individual practitioner, with the organisation for whom they work and the ethical expectations of their stakeholder groups. It will also provide a foundation from which to develop a model ethical framework for financial planning firms that incorporates the ethical expectations of stakeholder groups and links the commercial imperatives of the financial services industry, the legal obligations of an Australian Financial Services Licensee, and the professional obligations of the financial planner. This may include a model Code of Ethics, a model of practical ethical reasoning and a framework for ethical decision making

Our key objective is to contribute to the debate on how Australian financial planners can fulfil their obligations as an emerging profession within the multi-national and commercial environment of an increasingly globalised financial services industry in the 21st century.

The Theoretical Context

Ethics is fundamentally interested in character. Francis (1994) has described it as a highly explicit form of behaviour designed to produce particular ends and actions in accordance with particular value systems. He describes the term "morals" on the other hand as standards held by the community, often in a form not explicitly articulated. Ethical principles can stem from consideration of principles at two levels: high level principles such as equitability, dignity and honesty and second level principles such as the avoidance of conflicts of interest when making commercial decisions (Francis 2000).

This study will be concerned with a financial planner's level of ethical reasoning, the values and tools they use in their ethical reasoning process in their role as professional advisers, as well as the decisions and behaviours that result from them (Weiss 2003). It will not be a study concerning religious beliefs and personal morality per se. The term "ethical behaviour" will be defined as not just ethical reasoning, but also the relationship between this reasoning and conduct (de Casterle et al. 1998, Rest & Narvaez 1994).

The concept of a profession by definition implies infinite levels of ethical complexity and ambiguity in decision making (Francis 1994). This demands a strong ethical context and a high degree of self control of behaviour, usually articulated in a Code of Ethics (Barber 1988). Whilst acknowledging that there is no absolute common morality that can be identified in such a Code (Seedhouse 1994), it should refer to

moral principles and ideals of the good, it should reinforce desirable behaviour, the character (habits) and affective attitudes that condition and motivate that behaviour (Miller 2002).

Professional ethics and legal principles seldom exist in isolation (Winston et al. 1998). Aspirational ethical standards for financial planners should sit above the legal obligations of the Act to ensure this level of decision making can take place. Such standards and the minimum legal obligations in the Act can be complementary aspects of regulatory control (Coady and Sampford 1993).

Whilst there have been numerous studies of the ethical reasoning of other professionals such as accountants (Armstrong 1984; Arnold and Ponemon 1991; Porco 2003), medical students (Munro et al. 2003), journalists (Westbrook 1994) and nurses (de Casterle et al. 1998; Thissen 2003) only financial planners in the United States seem to have been the subject of a study similar to the one proposed (Bigel 1998).

Bigel's study of the level of ethical reasoning amongst U.S financial planners is based on Kohlberg's work (Bigel 2000). Kohlberg (1976) argued that the development of an ethical sense goes through phases that represent more significant levels of ethical reasoning. Kohlberg (1969) identified a total of six stages across three levels of ethical development: the pre-conventional, the conventional and the post-conventional, based on the premise that ethical maturity evolves and can be measured by the different ways in which people organise and structure their social and moral world and associated experiences. At stage one, ethical judgement is motivated by a desire to avoid punishment. At stage six, judgement is motivated by the individual's own conscience. Studies have shown that few individuals progress to the post-conventional level (Weber and Green 1991), with the majority of individuals motivated by either a need to avoid isolation from a group or to abide by governing laws (Kelloway et al. 1999).

Kohlberg (1976) argued there is a relationship between ethical reasoning (and judgement) and ethical behaviour. Rest's (1984) model confirms this and suggests that ethical behaviour emerges from a process of (a) recognising an ethical issue, (b) making an ethical judgement, (c) establishing an ethical intent and (d) engaging in ethical behaviour (Jones 1991, Rest & Narvaez 1994). A high level of ethical reasoning is required to act according to high ethical standards and a person cannot follow high ethical principles if they neither understand nor believe in them (Rest 1984). The proposition that a high level of ethical reasoning among financial planners will be necessary for them to meet their professional obligations to clients is consistent with these models.

Criticism of Kohlberg's work includes arguments that cognitive development is not the only contributor to ethical development, that the work is based on western ideologies and ethnocentrism (Langford 1995), that it fails to properly address gender differences (Francis 2000) and social experience (Gilligan 1982). Researchers have therefore moved from a sole focus on individual cognitive development as a predictor of individual behaviour (Kelloway et al. 1999). This study will therefore consider individual factors (values and ethical development of the financial planner as measured by Rest's model), situational and contextual factors (the ethical climate and culture of the financial planning organisation as measured by Trevino's model). This approach recognises that ethical decision making is determined by numerous factors (Suzuki & Knudson 1989) and recognises Preston's (1999) contention that the ethical obligations of a professional stems from the role they play or institution they serve.

There is relatively little empirical work in this area in relation to financial planners. Bigel's (1998) study focused on only two correlates to individual ethical reasoning, being compensation or payment sources and professionalisation (as defined by him by the attainment of the Certified Financial Planner¹ designation which comprises specialised study, examination, and ethics for financial planners). He found that Certified Financial Planner designees scored higher on Rest's moral judgement scale than other financial planners. Fee based financial planners manifested no significantly different development scores than combination or commission based planners.

¹ CERTIFIED FINANCIAL PLANNER™ and CFP® are marks owned by the Certified Financial Planner Board of Standards, inc. (USA) and used by the FPA under license.

It is the dynamic between the individual planner and the organisation for which they work and the factors within that relationship which may be influencing individual ethical behaviour and reasoning, which is of additional interest to the researchers. Jackall (1998) and Pederson (1999) argue it is inevitable that corporate structures, organisational norms and payment structures will conflict with individual values and beliefs, and that this makes independent ethical thinking impossible. This may be a factor influencing the ethical behaviour and the development of high ethical reasoning in financial planners engaged or employed by large financial institutions in particular (Braithwaite 1993; Lepper 1983). It is also not a phenomenon unique to financial planning, but known to other professions such as the law (Cull 2002) and accounting (Brown 2002).

There appears to be no empirical data on the ethical climate and culture of financial planning organisations, despite significant studies in other areas such as not for profit organisations (Deshpande 1996), IT managers (Okpara 2002) and marketers (Barnett 2000). This study therefore will investigate the determinants of ethical behaviour in financial planning organisations to increase the understanding of factors that are associated with the ethical decision making of the individual advisor. It may be, for example, that any discrepancy between a financial planner's internal ethical values and their perception of management and ethical climate within the organisation, results in a moral conflict and cognitive dissonance.

This study will use the Ethical Climate Questionnaire developed by Victor and Cullen (1988) and modified by Trevino et al. (1998) to measure how financial planners view the ethical climate of the organisation for which they work. Victor and Cullen (1988) defined ethical climate as a shared perception of what behaviour is right and what behaviour the organisation expects from its members (Kelloway et al. 1999). This is based on the assumption that group members know what the climate is and can describe it in an objective way to outsiders (Weber 1993). The model suggests five climate types:

1. Caring (friendship, team interest, social responsibility);
2. Law and Code (use of ethical principles from outside the organisation);
3. Rules (use of organisation's ethical principles);
4. Instrumental (maximising self interest on an individual or organisational level);
5. Independence (use of personal ethical values in decision making).

These climates correspond to three major classes of ethical theory: egoism, utilitarianism and deontology and are consistent with Kohlberg's theory of moral development (Cullen 2001).

This research is important because an organisation's ethical climate should help to determine:

- a) What employees/advisers believe constitutes ethical behaviour at work;
- b) Which issues employees/advisers consider to be ethically pertinent; and
- c) What criteria they use to understand, weigh and resolve issues.

The study will examine whether the ethical climate of the organisation is effectively contributing to the:

- a) Types of ethical choices and conduct that the organisation wants from its employees/ advisers; and the
- b) Quality and consistency of ethical decision making.

For it to be effective, the ethical climate must also be consistent with and contribute to the strategic direction and goals of the organisation. The study will measure whether this is in fact happening.

Ethical culture, defined by Trevino et al. (1990) to mean the formal and informal control systems within an organisation, will also be measured.

Methodology

One research question relates to the current level of ethical reasoning among financial planners. Currently financial planners derive from a diverse range of educational and professional backgrounds. There is no minimum undergraduate degree entry as would be expected of a true profession. Further, only planners who either have an undergraduate degree or who hold professional designations such as Certified Financial Planner or CPA will have been exposed to formal training in ethics and professional obligations. This may influence the level of ethical reasoning currently held by financial planners. Age and gender are also two demographic variables that have been tested as factors which influence ethical reasoning. Studies have suggested in particular that the moral development and reasoning of men and women differ (Gilligan 1982, Straub 1994, Dawson 1992). Bigel's (1998) study also tested the correlation between compensation source and ethical reasoning.

Accordingly, the study will examine whether the ethical reasoning of financial planners differs according to experience, gender, age, education level and compensation source.

Research has shown that employees desire consistency between their ethical value system and the ethical climate of their organisation (Okpara 2002). Further, the ethical climate of an organisation plays a major role in addressing specific unethical behaviour (Whitehead and Novak 2003). It might be that one influence on the levels of ethical reasoning and ethical behaviour of financial planners within Australia is a weak organisational system where acceptable ethical behaviour is not clearly defined and ethical culture is not promoted. It is anticipated that the existence of formal and informal ethical frameworks within financial planning organisations will also be rare and may be an influencing factor. It may also be that differences in perception and levels of ethical reasoning between financial planners and compliance managers are influencing outcomes.

Accordingly, the study will determine whether the levels of ethical reasoning and perceptions of ethical climate will differ between financial planners and compliance managers and whether Financial Planners who exhibit low levels of ethical reasoning will be employed by organisations where systems related to ethical culture are weak and the ethical climate is perceived as rules based.

Another question to be answered by the research is whether a rules based climate (which it is expected will be perceived as the most likely climate type among financial planning organisations given the heavy regulation of the financial services industry), is sufficient to allow financial planners to meet the aspirational ethical standards expected of them or impedes their ability to achieve high levels of ethical reasoning and undertake a principled, creative and flexible approach to ethical decision making (Dal Pont 2003).

The research will also consider whether the perception of an instrumental climate within a financial services organisation is associated with a perception of higher levels of unethical behaviour among peers, given the emphasis within that climate on self interest.

The research will consist of six stages. Stage One will consist of an analysis of complaints of unethical behaviour made against financial planners to ASIC and the alternative dispute resolution scheme for financial planning complaints, the Financial Industry Complaint Service over the last two years.

The next three stages will be concerned with the development of case scenarios, derived from this analysis, that describe ethical dilemmas, a pilot survey of financial planners to assist in identifying factors they believe may be influencing the ethical decision making of financial planners and the formulation of the research questionnaire.

The first part of the questionnaire will use the scenarios developed in Stage Two and Rest's (1984) short form of the Defining Issues Test (the "DIT"). This part will measure levels of ethical reasoning and the methods adopted by financial planners in solving professional ethical dilemmas. Each scenario will be followed by groups of questions to discern how the participants' reason, act in that situation perceive the conflict and how they arrived at the perceptions held (Hansen and Morrow 2003). The

higher the score the more the subject makes ethical judgements akin to Kohlberg's highest level of ethical reasoning.

Whilst the DIT has limitations, it has been extensively tested over time and is justified on the empirical literature. All scales have acceptable levels of reliability. The DIT is also indicative of a taxonomy of ethical development particularly as it may be used to reflect post conventional thinking and is a written test which is easily administered by mail survey.

A replicated version of Bigel's (1998) demographic questionnaire will also be used to inquire into the participant's education, employment, compensation, career experience, age and gender.

The second part of the research questionnaire will be a modified version of the instrument used by Trevino et al. (1998) in a study of 1200 alumni of U.S. private colleges. The questions will measure the organisational characteristics, ethical climate and culture of the financial planner's work place. All items will be measured using a seven point Likert scale. The subjects' perceptions of ethical climate will be based on the Ethical Climate Questionnaire developed by Victor and Cullen (1988) as modified by Trevino et al. (1998) and will measure the five theoretical climates outlined previously, being caring, law and codes, rules, instrumental and independence. This part of the instrument will also test the financial planner's perceptions of the possible factors influencing their ethical decision making, as identified by the pilot study of financial planners.

The fifth and sixth stages of the study will comprise full data collection and analysis of the research questionnaire responses and delivery of findings. It is estimated that there are currently between 15,000 and 18,000 financial planners in Australia (Spits 2003) so the study's sample group of 1,000 financial planners, drawn from the membership lists of peak professional associations representing financial planners and ASIC registers, should represent approximately 7% of the industry. The sample will be stratified by education level, compensation source, age, gender and experience. To be part of the study, subjects in this group must represent or be authorised to represent an Australian Financial Services Licensee in the provision of financial product advice to clients.

The second group will be a random sample of 100 compliance managers of financial planning organisations drawn from the ASIC register of Australian Financial Services Licensees under the Corporations Act 2001 (Cwlth). The replication of the study with this group is designed to determine whether their level of ethical reasoning and perceptions of ethical culture and ethical climate within financial planning firms, differ from those held by financial planners.

Conducting the Study

The pilot studies are expected to be conducted in early 2007. Data collection for the main study is due to begin in April/May 2007 and final findings released in early 2008.

Conclusion

Our study will be one of the first of its type conducted in Australia on financial planners. It will identify the levels of ethical reasoning and the cognitive frameworks used by financial planners when making ethical decisions in the provision of financial advice, as well as the current ethical climate and culture within financial planning firms. It will also investigate the factors that may be influencing financial planners in their ethical decision making, and explore gaps in the industry's existing ethical and regulatory framework.

This study will refocus attention on the impact ethical decision making and conduct can have on the quality of financial advice provided by financial planning practitioners.

The study will provide direction on:

- How to align the ethical reasoning and professional obligations of an individual practitioner, with the organisation for whom they work and the ethical expectations of their stakeholder groups.
- The development of a model ethical framework for financial planning firms that incorporates the ethical expectations of stakeholder groups and links the commercial imperatives of the financial services industry, the legal obligations of an Australian Financial Services Licensee, and the professional obligations of the financial planner.

This study also will contribute to the current debate on how Australian financial planners can fulfil their obligations as an emerging profession within the multi-national and commercial environment of an increasingly globalised financial services industry in the 21st century.

References

- Armstrong, M. B. 1984, "Internalisation of the professional ethic by Certified Public Accountants: A multi dimensional scaling approach", *Unpublished Doctoral Dissertation*, University of Southern California.
- Arnold, D. & Ponemon, L. 1991, "Internal auditors' perceptions of whistleblowing and the influence of moral reasoning", *Auditing: A Journal of Practice and Theory*, Fall 1-115.
- Australian Securities and Investment Commission 2003, *Survey on the Quality of Financial Planning Advice – ASIC Research Report*, February, ASIC, Sydney.
- Australian Securities & Investment Commission 2004, *Preferential Remuneration Project – An ASIC Report*, April, ASIC, Sydney.
- Australian Securities & Investment Commission 2004, *Disclosure of Soft Dollar Benefits - An ASIC Research Report*, June, ASIC, Sydney.
- Australian Securities & Investment Commission 2004, *The Management of Conflicts of Interest – An ASIC Research Report*, February, ASIC, Sydney.
- Barber, B. 1988, "Professions and emerging professions", in Callahan, J.C. (eds.) *Ethical Issues in Professional Life*, Oxford University Press, New York, pp.35-38.
- Barnett, T. 2000, "The moderating effect of individual perceptions of ethical work climate on ethical judgements and behavioural intent," *Journal of Business Ethics*, October, part 2, vol. 27, issue 4, p.351.
- Bigel, K. S. 1998, "The correlations of professionalization and compensation sources with the ethical development of personal investment planners", *Financial Services Review*, vol. 7, pp.223-236.
- Bigel, K. S. 2000, "The ethical orientation of financial planners who are engaged in investment activities: A comparison of United States practitioners based on professionalization and compensation sources", *Journal of Business Ethics*, vol. 28, issue 4, pp. 323-337.
- Braithwaite, J. 1993, "Responsive business regulatory institutions", in Coady, C.A.J. & Sampford, C.J.G. 1993, *Business Ethics and the Law*, The Federation Press, Sydney.
- Brown, R. M. C. 2003, "Salesmen can't be planners", *The Australian Newspaper*, 11 June, Wealth p.2.
- Brown, R. M. C. 2002, "Have the professions lost the plot?" *Living Ethics, Newsletter of St. James Ethics Centre*, Winter, issue 48, pp.6-7.
- Bruining, N. 2004, "Planners found to be liable over tax scheme loss", *The West Australian Newspaper*, Business News, 19 July, p.30.
- Coady, C.A.J & Sampford, C.J.G. 1993 *Business Ethics and the Law*, The Federation Press, Sydney.
- Cull, K. 2002, "Presidents message: The role of the profession", *N.S.W. Law Society Journal*, February, p.3.
- Cullen, J. B., Victor, B., & Stephens, C. 2001, "An ethical weather report: Assessing the organisation's ethical climate." *Organizational Dynamics*, Autumn, vol. 18, issue 2, p.50-63.
- Dal Pont, G. 2003, "Ethical Issues Confronting Lawyers - What Should I Do When?" Paper presented to the *13th Commonwealth Law Conference*, Melbourne, 13-17 April.

- Dawson, L. M. 1992, "Will feminization change the ethics of the sales profession?" *Journal of Personal Selling and Sales Management*, Winter, vol.12, issue 1, p.21.
- de Casterle, B. D., Rulens, A. & Gastrams, C. 1998, "An adjusted version of Kohlberg's moral theory; Discussion of its validity for researching in Nursing Ethics", *Journal of Advanced Nursing*, April, vol. 27, issue 4, pp.829-836.
- Deshpande, S. P. 1996, "The impact of ethical climate types on facets of job satisfaction," *Journal of Business Ethics*, vol.15, p. 655.
- Financial Planning Association of Australia Pty. Ltd. 1997, *Code of Ethics and Rules of Professional Conduct*, F.P.A., Melbourne.
- Francis, R. D. 1994, *Business Ethics in Australia- A Practical Guide*, Centre for Professional Development, the Law Book Company Limited, Kew, Victoria.
- Francis, R. D. 2000, *Ethics and Corporate Governance: An Australian Handbook*, University of NSW Press Ltd., Sydney.
- Gallop, S. 2003, "Awareness dawning", *Hong Kong Financial Planner*, Autumn, issue 3, p.12, Institute of Financial Planners, Hong Kong.
- Gilligan, C. 1982, *In a Different Voice*, Harvard University Press, Cambridge, Massachusetts.
- Hansen, M. & Morrow, J.L. Jnr. 2003 "Trust and the decision to outsource: Affective responses and cognitive processes," *International Food and Agribusiness Management Review*, vol. 6, issue 3, International Food and Agribusiness Management Association.
- Jackall, R. 1988, *Moral Mazes*, Oxford University Press, New York.
- Jones, T. M. 1991, "Ethical decision making by individuals in organizations: An issues contingent model," *Academy of Management Review*, vol.16, pp.366-395.
- Kelloway, E. K., Barling, J., Harvey, S., Adams-Roy, J. E. 1999, "Ethical Decision Making in DND: The development of a measuring instrument", *Phase I Report, Defence Ethics Program*, National Defence Headquarters, Ottawa, Canada.
- Khushf, G. 1998, "A radical rupture in the paradigm of modern medicine: Conflicts of interest, fiduciary obligations & the scientific ideal", *Journal of Medicine & Philosophy*, February, vol. 23, issue 1, pp.98-122.
- Kohlberg, L. 1969, "Stage and sequence: The cognitive developmental approach to socialization", in D Goslin, (ed.) *The Handbook of Socialisation Theory & Research*, Rand McNally, Skokie, Illinois.
- Kohlberg, L. 1976, "Moral stages and moralization: the cognitive developmental approach", in Lickona, T. (eds.) *Moral Development and Behaviour Theory: Research and Social Issues*, Holt Rinehart and Winston, New York.
- Langford, P. E. 1995, *Approaches to the Development of Moral Reasoning*, Lawrence Erlbaum, Hove, United Kingdom.
- Lepper, M. R. 1983, "Social control processes, Attributions of motivation and the internalisation of social values", in Higgins, E.T., Ruble, D.N. & Hartup, D.W. (eds.), *Social Cognition and Social Development: A Sociocultural Perspective*, Cambridge University Press, New York.
- Matteson, J. T. & Donovan, M. Z. 2002, "Ethics and the Architect", *Architectural Record*, October, vol. 190, issue 10, p.96.
- Miller, S. 2002, *Model Code of Ethics Principles*, paper prepared for the Professional Standards Council, June, P.S.C., Sydney.
- Munro, D., Bore, M., & Powis, D. 2003, "Personality factors in professional ethical behaviour: Studies of empathy and narcissism", *Australian Journal of Psychology*, Supplement, vol. 55, p.54.
- Okpara, J. O. 2002 "The influence of ethical climate types on job satisfaction of IT managers; Implications for management practice and development in a developing economy." paper presented to the *Academy of Business and Administrative Services Seventh International Conference*, July 6-8, San Jose, Costa Rica.
- Pederson, R. P. 1999, "Learning the hard way: That ethical behaviour can't be learned", *Community College Week*, 4 May, vol. 11, issue 18, pp.12-14.
- Peel, K. 2004, "P.R. problems: Why advice has failed to sell", *IFA Magazine*, July 19-25, p.31.

- Porco, B. M. 2003, "Factors affecting the cognitive moral development of undergraduate accounting students: Ethical education, internships, volunteerism, and Beta Alpha Psi", *PhD Thesis*, Fordham University.
- Powell, J. L. 2003, "Fiduciary Duties in the New Millennium: Quo Vadis", *paper presented to the 13th Commonwealth Law Conference*, Melbourne, 13-17 April.
- Preston, N. 1996, *Understanding Ethics*. The Federation Press, Sydney.
- Rest, J. R. 1984, "The major components of morality", in Kurtines, W. & Gewirtz, J. (eds.) *Morality, Moral Behaviour and Moral Development*, Wiley, New York.
- Rest, J. R. & Narvaez, D. (eds.) 1994, *Moral Development in the Professions: Psychology and Applied Ethics*, Erlbaum, Hillsdale, New Jersey.
- Seedhouse, D. 1994, "Commitment to health: A shared bond between the professions", *Journal of International Professional Care*, August, vol.16, issue 3, p.249
- Smith, J. 2003, "Current FSR issues for financial planners", *Financial Services Newsletter*, July, vol.2, no. 2, p.19.
- Straub, M. 1994, "An analysis of factors affecting cognitive moral development of auditors and auditing students", *Journal of Accounting Education*, Spring, pp.1-24.
- Suzuki, D. & Knudson, P. 1989, *Genethics*, Allen and Unwin, Sydney.
- Thissen, M. 2003, "*Nursing Education and the Ethics of Care*", MA Thesis, Concordia University, Canada.
- Trevino, L. K., Butterfield, K. D. & McCabe, D. 1998, "The ethical context in organisations: Influence on employee attitudes and behaviour," *Business Ethics Quarterly*, vol.8, issue 3, pp. 447 -476.
- Trevino, L. K. & Youngblood, S. A. 1990, "Bad apples in bad barrels: A causal analysis of ethical decision making behaviours," *Journal of Applied Psychology*, vol.75, pp. 378 -385.
- Vessenes, K. 1997, "Avoiding law suits based on conflicts of interest", *Journal of Financial Planning*, vol. 10, issue 6, p.22.
- Victor, B. & Cullen, J. B. 1988, "The organisational bases of ethical work climates," *Administrative Science Quarterly*, vol. 33, pp.101-125.
- Wagner, R. B. 2004, "To think ...like a CFP", *Journal of Financial Planning*, February, vol. 17, issue 2, pp.64-70.
- Walker, L. J. 2003, "A not so subtle threat to professional freedom", *Journal of Financial Planning*, October, vol. 16, issue 10, p.22.
- Waring, T. 2003, "Do we need to worry about ethics in practice: What can really go wrong?" *Australian Journal of Psychology*, Supplement, vol. 55, p.111.
- Weber, J. 1993, "Institutionalising ethics into business organisations: A model and research agenda," *Business Ethics Quarterly*, vol.3, issue 4, p. 419.
- Weber, J. & Green, S. 1991, "Principled moral reasoning: Is it a viable approach to promote ethical integrity?" *Journal of Business Ethics*, vol. 10, pp.325 – 353.
- Weekes, P. & Hoyle, S. 2004, "Super start out of the blocks...or not", *The Age Newspaper*, June 26, Business 5.
- Weiss, J. A. 2003, *Business Ethics: A Stakeholder and Issues Management Approach*, (3rd ed.) Thomson South Western, Canada.
- Westbrook, T. 1994, "Tracking the moral development of journalists: A look at them and their work." in Rest, J. R. & Narvaez, D. (eds.) *Moral Development in the Professions: Psychology and Applied Ethics*, Erlbaum, Hillsdale, New Jersey.
- Whitehead, A. W. & Novak, K.F. 2003, "A model for assessing the ethical environment in academic dentistry." *Journal of Dental Education*, October, pp. 1113-1121.
- Wilson, W. 2004, "Soft dollars will help soft landing", *Money Management*, 26 February, vol. 18, issue 6, p.14.
- Winston, R, B. & Saunders, S.A., 1998, "Professional ethics in a risky world", *New Directions for Student Services*, no.82, Summer, Jossey-Bass, San Francisco.
- Wolthuizen, C. 2003, "Professionalising the planners: A first step towards quality financial advice" *Living Ethics*, Newsletter of St. James Ethics Centre, issue 52, Winter, p.4.

An Empirical Investigation of the Effect of Interaction Justice Perception on Consumer Intentions After Complaining

Mahesh S. Bhandari and Michael J. Polonsky
Victoria University, Australia

Abstract

This study examined how apology as interaction justice impacts on consumer perceptions of service recovery attempt. Data was collected using hypothetical scenarios. Two types of service failures were proposed and the impact of recovery action on each failure type was compared. Findings include that there is direct effect of recovery action on consumer future intentions in both type of failures. Implications and direction to the future research were proposed.

Keywords

Marketing and Sales

Introduction

Organisations are at more risk of losing customers because of increased competition in the market place. This is further increased especially when customers experience service failure (Zemke and Bell, 1990). Competition reduces the costs of switching providers, which in turn reduces market share and profitability of those service providers who lose these customers (Keaveney, 1995). It has been suggested that customer switching, as a result of service failure, can be prevented if organisations undertake effective service recovery processes (Hart, Hesket and Sasser, 1990; Bailey, 1994). According to Tax, Brown and Chandrashekar (1998), existing customers may still be ready to repurchase if their complaints are properly attended. As such, service firms must ensure that once they attract customers they should also undertake activities to keep those customers in a regular business (Andreassen, 2001).

The intangible nature of service makes service failure inevitable. However, literature suggested the option of service recovery to the service providers. Boshoff (1998) indicated that effective service recovery processes allow service firms to turn dissatisfied customers into satisfied ones. In relation to the effectiveness of service recovery actions, justice perceptions appear to be associated with consumer future intentions (Mattila 2001; Sparks and McColl-Kennedy 1998). Services are process where consumer involvement is inevitable in most encounters. Therefore, interactional justice perception is likely to be the most influencing one on consumer future intentions (Wirtz and Mattila 2004).

Copyright © 2007 Victoria University. This document has been published as part of the *Journal of Business Systems, Governance and Ethics* in both online and print formats. Educational and non-profit institutions are granted a non-exclusive licence to utilise this document in whole or in part for personal or classroom use without fee, provided that correct attribution and citation are made and this copyright statement is reproduced. Any other usage is prohibited without the express permission of the

There are a number of consumer future intentions mentioned in the literature which may vary with consumers' negative service experience. This includes both behavioral and cognitive attitudes such as referrals (Dabholkar and Verby 2004), repurchase

(Bamford and Xystouri 2005), loyalty (Ndubishi and Ling 2006), satisfactions (Barnes and Eagle 2004) and expectations (Writz and Mattila 2004). Existing literature intended to investigate these consumer intentions following service failure, and the majority of studies seem to agree that consumers will generally have negative evaluation about the service organisation if the service delivery process fails. However, only limited studies attempted to identify the variations in justice perception when consumers and employees interact with each other while attempting to rectify the problems (Bhandari and Polonsky 2004). This study aimed to explore the possibilities of improvement in negative consumer intentions triggered by negative perception of service delivery.

Consumer Complaining

The comparison of pre-purchase expectations and post-purchase outcome leads to situations of either confirmation or disconfirmation (Lovelock, Patterson and Walker 2004). When a customer finds that the post-purchase outcome is not similar to what was expected, disconfirmations occurs (James, 2003). In such conditions, satisfaction results from how well the actual service performance, in other words the service process and outcome, matches the customer's expectations (Jukka, 2001). If service performance is below expectation it will be a negative disconfirmation and customers are more likely to complain (Snellman, 2000).

Complaining customers are among the most loyal customers (Tax et al., 1998). Complaining also indicates that customers are willingness to remain in business with the current organisation (Patterson 2001). Research also indicated that customers who complain are also more likely to repurchase, even when their complaint is not handled satisfactorily (Zekme and Bell, 1990). If the problem is resolved they will tell even more people about this successful recovery than if they had received 'good' service in the first place (Brown, 2000).

Service Failure and Recovery

Although the concept of service failure is relatively new, recent trends show that it is one of the main topics of research within services marketing. Defined as 'the specific event that occurs when service providers do not fulfil their promise to the customers, researchers seem to agree that service failure is inevitable. A recent study of Zhu, Shivkumar and Parasuraman (2004) further indicated that service failure can be of two types; process and outcome failure. Further, customers react to the service failure in various ways such as complaining, seeking redress, negative voice responses and stopping business relationships with the service organisation. Meaning that customers have willingness to express dissatisfaction as well as take some actions if they are not happy with what they received. In addition unsatisfactory service experience could also affect customer loyalty. Therefore, to keep customers in regular business, service organisations need to overcome the negative impact of poorly performed service. In other words, organisations need to have a process of corrective actions know as service recovery. There are a range of strategies that a firm can implement as service recovery actions such as, apology and compensation. However, apology is regarded as the most important action to improve consumer perception of interaction fairness. Zemke and Bell (1990, p. 44) were first to highlight the importance of apology in service recovery strategy. They stated, "When disconfirmation does occur, most consumers want the service they were promised in the first place, along with some personal attention and a decent apology". They suggested that the reason why people take the trouble to complain is that they only want what they were denied. Further Eccles and Durand (1998) suggested that this can be managed by a simple apology. Meaning; if a company fulfils the needs of a complaining customer then this individual will reciprocate by continuing to do business.

Boshoff and Leong (1997 p 42) also identified the importance of apology for three reasons. First, it can be done quickly and, in this way, reduce the customer's anxiety. Second, it conveys to the customer that the problem is being attended to and that the firm cares about them and their wellbeing. Third, a complaining customer is often an angry customer. An apology can, at least to some extent, defuse that anger and curb the possible harmful effects of service failure such as negative word-of-mouth (WOM).

An apology is recognition that the customer has been inconvenienced and enhances the possibility of a continued relationship (Zemke and Bell, 1990). This is more effective when accompanied by some tangible token of restitution (Conlon and Murray, 1996; Goodwin and Ross, 1992).

An apology can take various forms, (Boshoff and Leong 1998). One alternative is a telephone apology, which offers the advantages of speed and reasonable cost-effectiveness while still retaining a sizeable personal element. A letter, on the other hand, is less costly but lacks the ability to demonstrate sincerity and authenticity (Bell and Ridge, 1992). Both Zemke (1994, p. 17) and Bell and Ridge (1992, p. 61) argue, however, that a personal apology is best because it offers the opportunity to demonstrate that the firm understands the frustration of being inconvenienced.

Consumer Future Intentions

Literature seems to suggest that consumers' behavioural and cognitive responses can vary with service recovery activities. Firstly, WOM has been identified as an important post-purchase behaviour for several reasons (Day 1980). Several services marketing researchers have considered the word-of-mouth intentions associated with service encounters e.g., Parasuraman, Zeithaml, and Berry (1988). Word of mouth communication provides face-to-face, often vivid information that is highly credible (Liu, Sudharshan and Hamer 2000).

Secondly, Loyalty is one of the responses a customer has to a service failure. Loyalty is a build through a series of successful service encounters over a long period of time. But it is widely recognised by service marketers that loyalty generated through enormously successful service delivery attempts can be lost with few negative service experiences (Reichheld and Sasser 1990). Therefore effective service recovery could be the means of regaining customer loyalty and hence the likelihood of remaining in the business (Jones and Sasser 1995).

Thirdly, variation in complaint intentions with service failure is indicated by various researchers (e.g. Edvardsson and Roos 2003; Heung and Lam 2003; Hocutt et al., 2006; Kim et al., 2003; Lee and Hu 2004). However, literature search shows that the complaining intentions following a service failure are yet to be examined (Maxham and Netemyer 2003; Schoefer and Ennew 2004). This is probably because service firms intend to assume a customer is identical to a satisfied customer once a complaint is attended to satisfactorily (Eccles and Durand 1998; Stauss 2002). Knowing that complaints are the most useful and meaningful source of information to improve customer service, it is essential to examine complaining intentions as post recovery intentions of a customer who encountered a service failure (Heung and Lam 2003).

Fourthly, customer satisfaction is the primary focus of service organisations. This is however, limited to the initial service delivery (eg, Reichheld and Sasser, 1990). More recent empirical studies indicated that overall satisfaction is essential to the service organisations (Kanousi 2005; Hoffman et al., 2003 and Snellman and Vihtkari, 2003).

Fifth, a customer is assumed to have expectations regarding service performance, and these expectations are compared with actual perceptions of performance as the service is consumed (Swanson and Kelley 2001). When expectations are not met, it could lead to customer defection and their future expectations could be changed with lower quality of service performed.

Another important consumer decision based on service performance and corresponding customer perception is intention to switch a service provider. Service switching is one of the most prominent outcomes of service failure (Keaveney 1995). Considerable efforts in service research have been given to identify the reason for customers switching service providers (eg. Keaveney 1999; Reardon and McCorkle 2002).

Although research findings agree that switching of service providers has multiple damaging effects on the firm including reductions in market share and profitability (Lewis and Spyropoulos 2001), only

few attempts are made to investigate how a decision once made would vary with a service recovery effort in regards to these switching intentions.

Finally, intention to repurchase is another important consumer outcome (Bamford and Xystouri 2005). Although repurchase intentions following a service experience are well researched, the strategy to get a customer back to the business, or Customer “winback” strategies, are neglected in the service marketing literature (Thomas et al., 2004). Customer winback is the process of firms’ revitalising relationships with customers who have defected (Griffin and Lowenstein 2001). Similarly, Grace and O’Cass, (2001) and Keaveney (1995) found that repurchase intentions can be increased when effective service recovery activities are undertaken. In addition, Ranaweera and Prabhu (2003), Zemke and Bell (1990) and Johnson and Fern (1999) all suggested that consumers’ repurchase intentions vary depending on organisational and/or employee recovery actions. Thus the intention to repurchase from a service provider is an important measure of service recovery effectiveness (Palmer et al. 2000).

Interaction Justice

Service literature included impact of justice perceptions to explain consumer complaint behaviour (Hoffman and Kelly 2000; Tax et al., 1998). One of the prominent justice considerations is in regards to interaction fairness (Poon et al. 2003). Lovelock et al. (2001) defined interactional justice as the way people are treated during a complaint. A recent study of Writz and Mattila (2004) indicated interaction justice perception to the apology offered by service employees. Interaction fairness when perceived as favourable by the consumer has a positive effect on consumer future intentions such as re-patronage decisions and a negative effect on negative word-of-mouth. Together with this, a framework of service recovery (Figure 1) and hypotheses are proposed:

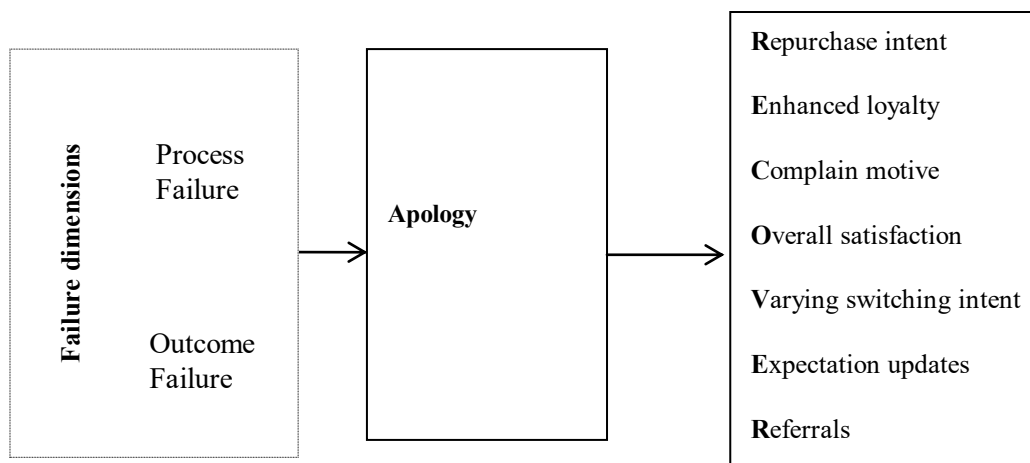


Figure 1: A framework of service recovery

- H1.1 Offering (not offering) apology to a customer during process failure recovery will have the same effect on a) complaint motives and b) future expectation from the service provider to that of outcome failure recovery.
- H1.2 Offering (not offering) apology to a customer during process failure recovery will have same effect on a) word of mouth referrals b) consumer loyalty c) repurchase intentions d) overall satisfaction and e) switching intentions to that of outcome failure recovery.

The Investigation

This research is an experimental study conducted on the responses of participants on 32 hypothetical scenarios. An experimental study is the investigation in which independent variables can be manipulated to test a hypothesis about a dependent variable in controlled conditions (Zikmund 2003). The controlled situations helped to evaluate the causal relationship among variables. This study consisted of

randomised block design. It has the benefit of increased efficiency as compared to the completely randomised design.

The respondents were provided a hypothetical scenario (Boshoff 1998, Wason et al. 2002). Scenario based studies in the service recovery area were conducted more frequently in the recent past. Several reasons are cited within the literature indicating superiority of scenarios over the conventional survey methods. For example, a scenario does not require respondents to recall the real incident (Wirtz and Mattila 2004); a scenario controls all extraneous variables otherwise uncontrollable (Swanson and Kelley 2001); the resemblance of scenarios with real incidents can be tested with a realism test (Kanousi 2005). Within the scenarios of this study, apology was varied as ‘apology offered’ and ‘apology not offered’. The scenario examined focused on a hotel visit in which participants were asked to assume the situation explained in it had happened with them before completing the survey. An example scenario is included below.

“...You are travelling on an important business trip. You arrive at the hotel at 10 pm after having travelled the whole day. The desk clerk looks up your prepaid reservation on the computer and informs you that your room is ready. However, when you get to your room, you find that the room has not been cleaned. You call the desk clerk and say that you want a clean room. The desk clerk indicates that he cannot fix it himself. They will have to ask the manager how to proceed. The manager contacts you and indicates that he will send up a porter to move you to a new room. The Manager explains that there is a large conference in town and they have faced unanticipated demand, with people checking out late or wanting to stay an extra day. They go on to say that these things happen in big organisations. You ask whether you will be compensated for the inconvenience. The Manager indicates that the hotel will organise for you to be credited with a free nights stay on another visit.”

Prior to distributing the survey to hotel guests we undertook in-depth interviews with eight hotel managers to ensure realism of the scenarios with real world recovery incidents identical to the method applied by Ruyter and Wetzels (2000). In addition a sample of university students were asked rate the hypothetical incidents as suggested by Swanson and Kelley (2001). They had a mean rating of 8.1 that indicate manipulations are highly effective (Writz and Mattila 2004). The composite dependent items were measured with 7 point Likert type scale.

A pre-test of the survey was conducted with 32 employees of a hotel to ensure face validity. The data collection for the final study followed the propose proposed by Lewis and Spyrapopoulos (2001) whereby 80 hotel guests (46 female and 34 male) visiting one Melbourne hotel were selected to complete a version of the survey in which one service failure scenario was provided. The highest numbers of participants were between age 18 and 30 years (more than 45%) followed by 31 to 40 years (38%). A block analysis was used, where 20 valid responses were sought for each block before changing the scenario (Johnston and Fern 1999). A reliability test was conducted to identify the overall reliability of dependent measures and all variables were within acceptable criteria with the alpha value equal to or higher than 0.66 (Kivela et al. 2002).

The result of manipulation check indicated that our manipulations were correct. Data analysis was carried out with ANOVA to examine the effects of apology in both process failure and outcome failure situations. Table 1 summarises the effects of apology (vs. no apology) in process failure situation.

Dependent variables	Process Failure			Outcome Failure		
	Apology offered	Apology not offered	t-value	Apology offered	Apology not offered	t-value
ExUpdate	5.8036	5.8366	-.909 (p=.364)	5.7360	4.3998	42.863 (p<.000)
ComMotive	4.9175	5.0735	-3.324	5.2338	4.2468	32.895

			(p=.001)			(p<.000)
--	--	--	----------	--	--	----------

Table 1: T-test for the effect of apology (vs. no apology) on process failure

Under the process failure, the effect apology vs. no apology on expectation updates was insignificant (M=5.80 vs. M=5.83; t=-.909, p<.364). However, this effect was significant in outcome failure (M=5.73 vs. M=4.39; t=42.8, p<.000). On the other hand the difference in complaining intentions was significant in both process failure (M=4.91 vs. M=5.07; t=-3.32, p=.001) and outcome failure (M=5.23 vs. M=4.24; t=32.89, p<.000). However, this significant difference was not unidirectional (t=-3.32 vs. t=+32.8). This indicated that consumer intentions to complaint were higher when apology not offered in process failure while complaining intentions were lower in outcome failure situations (Table 1). Together, these results do not support H1.

Dependent variables	Process Failure			Outcome Failure		
	Apology offered	Apology not offered	t-value	Apology offered	Apology not offered	t-value
RepIntent	4.1944	3.4601	14.809 (p<.000)	3.7217	3.0297	22.180 (p<.000)
OvrSatis	4.6938	3.7408	18.024 (p<.000)	4.2390	3.4674	25.041 (p<.000)
EnhLoyalty	3.8425	3.3207	10.329 (p<.000)	3.4415	3.0039	14.535 (p<.000)
WoM	4.2781	3.3875	23.326 (p<.000)	4.1259	3.5625	20.712 (p<.000)
VaySwInt	4.0725	4.1833	-2.733 (p=.006)	3.7809	4.2503	-18.302 (p<.000)

Table 2: T-test for the effect of apology (vs. no apology) on outcome failure

In regards to H2, Table 2 shows the significant difference in repurchase intentions (M=4.19 vs. M=3.46; t=14.8, p<.000), overall satisfaction (M=4.69 vs. M=3.74; t=-18.04, p<.000), loyalty (M=3.34 vs. M=3.82; t=10.32, p<.000), word of mouth referrals (M=4.27 vs. M=3.38; t=23.32, p<.000) and varying switching intentions (M=4.07 vs. M=4.18; t=-2.733, p=.006). Four consumer future intentions; repurchase intentions, overall satisfaction, enhance loyalty and WoM referrals were significantly higher when apology was offered. However, switching intention was significantly lower when apology was not offered.

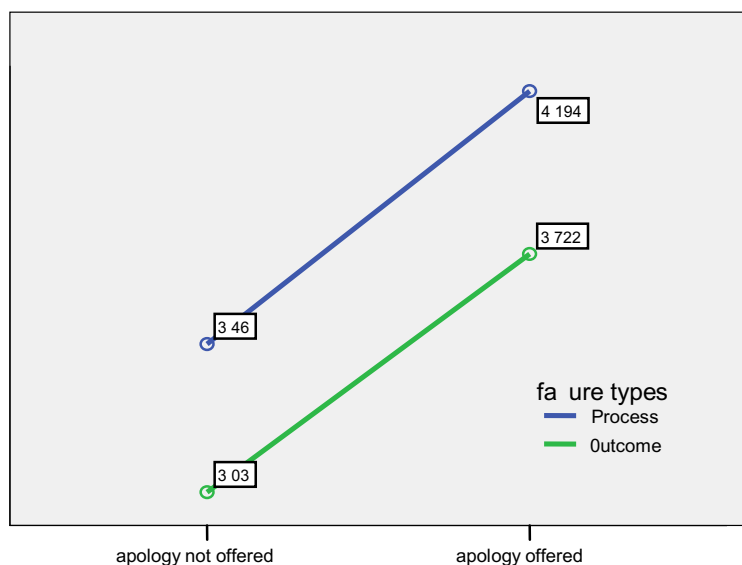


Figure 2: Effect of apology on repurchase intention in process and outcome failure

The results for outcome failure were also identical (Table 2). The significant effect includes; repurchase intentions ($M=3.72$ vs. $M=3.02$; $t=22.18$, $p<.000$), overall satisfaction ($M=4.23$ vs. $M=3.46$; $t=18.32$, $p<.000$), switching intentions ($M=3.78$ vs. $M=4.25$; $t=-18.36$, $p<.000$), loyalty ($M=3.44$ vs. $M=3.00$; $t=14.53$, $p<.000$), switching intentions ($M=3.78$ vs. $M=4.25$; $t=-18.30$, $p<.000$) and word of mouth referrals ($M=4.12$ vs. $M=3.56$; $t=20.71$, $p<.000$). These results supported H2. Some of the effect plots can be seen in figure 2 and 3.

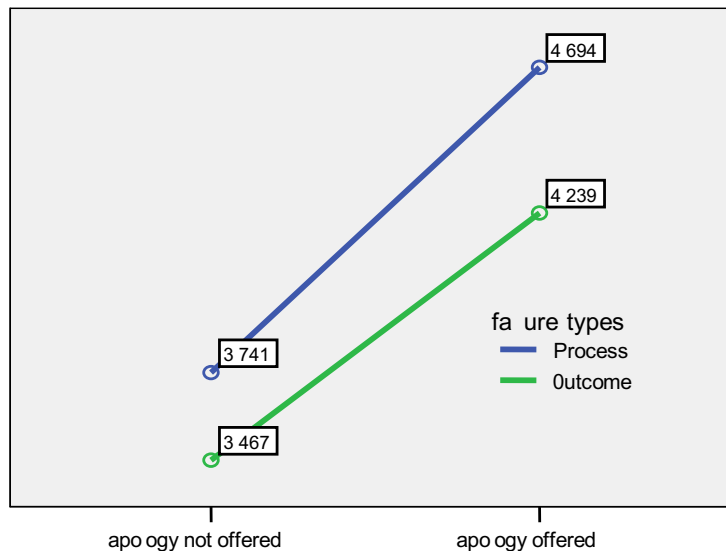


Figure 3: Effect of apology on overall satisfaction in process and outcome failure

Implications and Conclusions

This study highlights some important managerial implications by incorporating type of service failure and consumer future intentions. Firstly, the statistical evidence in regards to type of service failure indicated that effective service recovery strategy is important in both process and outcome failure situations. These results suggested that service organisations need to carefully consider whether service failure is perceived as process failure or outcome failure before designing service recovery processes.

Secondly, customer intentions appear to vary based on employee interaction justice. For example, while offering apology, the findings seem to suggest that consumers are more inclined to repurchase whereas switching intentions are higher when apology was not offered. However, offering apology seems ineffective in consumer future expectations from service provider and complaining intentions in process failure. On the other hand apology seems to have significant effect on them in outcome failure. This could possibly be because consumers tend to forget the negative service experience as long as the outcome failure is managed to their satisfaction. These findings put forward an important implication to the industry practitioners that they need to be aware of the role of offering apology while formulating service recovery strategy.

Although the results generally indicated an improvement in consumer outcomes with service recovery strategy, the variations of consumer future intention appear with complexity. Further, this study does not consider other salient issues such as consumer factors and the magnitude of failure. Therefore, organisations will need to consider the individual situation and consumer experiences. The implication of this is that organisations will be dependent on service staff for recovery actions. Staffs need to be provided with the appropriate training to be able to understand the impact of apology.

In addition to the important contributions to the service recovery literature as well as a range of implications to the service industry practitioners, this research also has some limitation. Firstly, the

dependence on scenario-based experimentation is a major limitation in the area of service recovery research (Shapiro and Gonder 2006). Although this study was complimented by rigorous research with real customers as proposed by Maxham (2001), Shapiro and Gonder (2006), and Wirtz and Mattila (2004), scenario based research still lacks the real service encounters with real customers (Duffy et al., 2006) and real employees (Shapiro and Gonder 2006). Secondly, sample size in scenario based studies is generally small and this research is not an exception. While these approaches are supported in literature, inclusion of only 20 respondents per scenario could potentially limit the statistical power of the tests. Like previous studies, this study can also be replicated in real world failure situations with sufficient sample size as well as different industry settings. Thirdly, this research does not incorporate the gap model which is widely referred to across literature for effective management of customer service function. It could be interesting for future research to investigate how the perception of customers and management differs in regards to the effect of apology as the interaction justice based service recovery. Fourthly, service recovery with apology might impact differently on consumer future intentions over time. As such, managers need to develop a follow up strategy to identify the impact of apology as it may not be reflected through consumer reaction immediately.

Further, this was the first study in which failures were varied based on their types. The findings of this study do not support the existing studies where service failures were not categorised into process and outcome types. This contradiction of research findings seems to complicate the design of recovery strategy. Finally, this study was conducted within hospitality service failure settings. Service processes vary across industries and they may not be identical in regards to consumer perception of service performance between hospitality and other service sectors. There is a need to replicate this study in other industry settings to determine if the results are generalisable.

References

- Andreassen, T. W. (2001). "From disgust to delight: Do customers hold a grudge?" *Journal of service research*, 4(1), 39-49.
- Bailey, D. (1994). "Recovery from customer sortfall. *Managing Service Quality*", 4(6), 25-37.
- Bamford, D., & Xystouri, T. (2005). "A case study of service failure and recovery within an international airline". *Managing Service Quality*, 15(3), 306-332.
- Barnes, M. L., & Eagles, P. (2004). "Examining the relationship between ecotourists and philanthropic behaviour". *Tourism Recreation Research*, 29(3), 35-38.
- Boshoff, C., & Leong, J. (1998). "Empowerment, attribution and apologising as dimensions of service recovery: An experimental study". *International Journal of Service Industry Management*, 9(1), 24-47.
- Boshoff, C., & Leong, J. (1998). "Empowerment, attribution and apologising as dimensions of service recovery: An experimental study". *International Journal of Service Industry Management*, 9(1), 24-47.
- Brown, S. W. (2000). "Practicing best-in-class service recovery. *Marketing Management*", 9(2), 8-9.
- Dabholkar, P. A., & Overby, J. W. (2005). "Linking process and outcome to service quality and customer satisfaction evaluations". *International Journal of Service Industry Management*. 16(1), 2005.pp. 10-27.
- Day, R. (1980). "Research perspectives on consumer complaining behavior", in *Theoretical Developments in Marketing*. Paper presented at the American Marketing Association, Chicago, IL.
- Duffy, J. A. M., Miller, J. M., & Bexley, J. B. (2006). "Banking customers' varied reactions to service recovery strategies". *International Journal of Bank Marketing*, 24(2), 112-132.
- Edvardsson, B., & Roos, I. (2003). "Customer Complaints and Switching Behavior- A study of relationship dynamics in a telecommunication company". *Journal of Relationship Marketing*, 2(1/2), 43-68.
- Grace, D., & O'Cass, A. (2001). "Attributions of service switching: a study of consumers' and providers' perceptions of child-care service delivery". *Journal of services marketing*, 15(4), 300 - 321.

- Griffin, J.-B., & Lowenstein, M. W. (2001). *Customer Winback: How to Recapture Lost Customers and Keep them Loyal*. San Francisco.
- Hart, C. W. L., Heskett, J., & Sasser, W. E. (1990). "The Profitable art of service recovery". *Harvard Business Review*, 68(4), 148-156.
- Heung, V. C. S., & Lam, T. (2003). "Customer complaint behaviour towards hotel restaurant services". *International Journal of Contemporary Hospitality Management*, 15(5), 283-289.
- Hocutt, M. A., Bowers, M. R., & Donavan, D. T. (2006). "The art of service recovery: fact or fiction?" *Journal of Services Marketing*, 20(3), 199-207.
- Johnston, R., & Fern, A. (1999). "Service recovery strategies for single and double deviation scenarios". *The Service Industries Journal*, 2, 69-82.
- Kanousi, A. (2005). "An empirical investigation of the role of culture on service recovery expectations". *International Journal of Service Industry Management*, 16(1), 10-27.
- Keaveney, S. M. (1995). "Customer switching behavior in service industries: An exploratory study". *Journal of Marketing*, 59(2), 71-82.
- Kelley, S. W., Hoffman, K. D., & Davis, M. A. (1993). "A typology of retail failures and recoveries". *Journal of Retailing*, 69(4), 429-451.
- Kim, C., Kim, S., Im, S., & Shin, C. (2003). "The effect of attitude and perception on consumer complaint intentions". *Journal of consumer Marketing*, 20(4), 352 - 371.
- Lee, C. C., & Hu, C. (2004). "Analyzing hotel customers' e-complaints from an internet complaint forum". *Journal of Travel & Tourism Marketing*, 17(2/3), 167-181.
- Lewis, B. R., & Spyropoulos, S. (2001). "Service failures and recovery in retail banking: the customers' perspective". *The International Journal of Bank Marketing*, 19(1), 37-47.
- Liu, B. S.-C., Sudharshan, D., & Hamer, L. O. (2000). "After-service response in service quality assessment: a real-time updating model". *Journal of Services Marketing*, 14(2/3), 160-176.
- Lovelock, C. H., Patterson, P. G., & Walker, R. H. (2001). *Services Marketing: An Asia-Pacific Perspective*. Sydney: Prentice-Hall/Pearson Education Australia.
- Mattila, A. S. (2001). "The effectiveness of service recovery in a multi-industry setting". *The Journal of Services Marketing*, 15(6/7), 583-596.
- Maxham III, J. G., & Netemeyer, R. G. (2003). "Firms reap what they sow: The effects of shared values and perceived organizational justice on customers' evaluations of complaint handling". *Journal of Marketing*, 67(1), 46-62.
- Ndubisi, N. O., & Ling, T. Y. (2005). "Complaint behaviour of Malaysian consumers". School of Business, Monash University Malaysia. *Management Research News*, 29(1/2), 65-76.
- Ojasalo, J. (2001). "Managing customer expectations in professional services". *Managing Service Quality*, 11(3), 200.
- Palmer, A., Beggs, R., & Keown-McMullan, C. (2000). "Equity and repurchase intention following service failure". *The Journal of Services Marketing*, 14(6), 513-528.
- Parasuraman, A., Berry, L. L., & Zeithaml, V. A. (1991). "Refinement and reassessment of the SERVQUAL scale". *Journal of Retailing*, 67(Winter), 420-450.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). "SERVQUAL: a multiple-item scale for measuring consumer perceptions of service quality". *Journal of Retailing*, 64(Spring), 12-40.
- Patterson, P. G., & Smith, T. (2001). "Modeling relationship strength across service types in an Eastern culture". *International Journal of Service Industry Management*, 12(2), 90-113.
- Poon, W.-C., & Low, K. L.-T. (2005). "Are travellers satisfied with Malaysian hotels"? *International Journal of Contemporary Hospitality Management*, 17(3), 217-227.
- Ranaweera, C., & Prabhu, J. (2003). "The influence of satisfaction, trust and switching barriers on customer retention in a continuous purchasing setting". *International Journal of Service Industry Management*, 14(4), 374-395.
- Reardon, J., & McCorkle, D. E. (2002). "A consumer model for channel switching behavior". *International Journal of Retail and Distribution Management*, 30(4), 179-185.
- Schoefer, K., & Ennew, C. (2004). "Customer evaluations of tour operators' responses to their complaints". *Journal of Travel & Tourism Marketing*, 17(1), 83-92.

- Shapiro, T., & Nieman-Gonder, J. (2006). "Effect of communication mode justice-based service recovery". *Managing Service Quality*, 14(2), 124-144.
- Snellman, K., & Vihtkar, T. (2003). "Customer complaining behavior in technology-based service encounters". *International Journal of Service Industry Management*, 14(2), 217-231.
- Snellman, K., & Vihtkar, T. (2003). "Customer complaining behavior in technology-based service encounters". *International Journal of Service Industry Management*, 14(2), 217-231.
- Sparks, B. A., & McColl-Kennedy, J. R. (2001). "Justice strategy options for increased customer satisfaction in a services recovery setting". *Journal of Business Research*, 54(3), 209-208.
- Stauss, B. (2002). "The dimensions of complaint satisfaction: process and outcome complaint satisfaction versus cold fact and warm act complaint satisfaction". *Managing Service Quality*, 12(3), 173-183.
- Swanson, S. R., & Kelley, S. W. (2001). "Attributions and outcomes of the service recovery process". *Journal of Marketing Theory and Practice*, 9(4), 50-65.
- Tax, S., Brown, S. W., & Chandrashekar, M. (1998). "Customer Evaluation of Service complaint experience: Implication for relationship marketing". *Journal of Marketing*, 62(2), 60-76.
- Thomas, J. S., Blattberg, R. C., & Fox, E. J. (2004). "Recapturing Lost Customers". *Journal of Marketing Research (JMR)*, 41(1), 31-45.
- Williams, R., & Visser, R. (2002). "Customer satisfaction: it is dead but it will not lie down". *Managing Service Quality*, 12(3), 194-200.
- Wirtz, J., & Mattila, A. S. (2004). "Consumer responses to compensation, speed of recovery and apology after a service failure". *International Journal of Service Industry Management*, 15(2), 150-166.
- Zekme, R., & Bell, C. (1990). "Service recovery: Doing it right the second time". *Training*, 27(6), 42-48.
- Zhu, Z., Shivkumar, K., & Parasuraman, A. (2004). "A Mathematical Model of Service Failure and Recovery Strategies". *Decision Sciences*, 35(3), 493-525.
- Zikmund, W. G. (2003). *Exploring Marketing Research*. Thomson Learning, USA.

Implementing ERP Systems Globally: Challenges and Lessons Learned for Asian Countries

Paul Hawking
Victoria University, Australia

Abstract

Improved communication technology has seen growth in a convergence of global corporate activities. In an effort to improve their global operations many companies are implementing global information systems in particular Enterprise Resource Planning (ERP) systems. Companies are faced with a number of complexities when implementing these systems in a single country and considerable research has been conducted on the critical success factors associated with ERP implementations. However very little research has been conducted on the issues associated with global implementations of ERP systems and in particular implementations within the Asian region. This research utilises industry presentations to identify challenges and best practice for global implementations from the Asian region. The challenges have been classified as either technological or cultural pertaining to particular countries. The identified factors provide a foundation for further investigation.

Keywords

Enterprise Resource Planning systems, global implementation, Asian region.

Introduction

There has been significant growth in international corporate operations. For most companies this has been to take advantage of new opportunities or to leverage existing operations. While there is no “golden rule” as to how these international operations should be implemented or managed, Michael Porter (1986) in his book “Competition in Global Industries” classifies the various global strategies adopted by different corporations along a continuum from multi-domestics through to multi-nationals. According to Porter (1986) multi-domestics refers to offshore operations operating independently and are based upon local business processes supported by a local infrastructure. At the other end of the continuum are multi-nationals; where operations are integrated globally, based on standardised business processes with the ability to account for local differences. Bartlett and Ghoshi (1998) also identified a continuum consisting of four strategies which could be employed to support global operations. These strategies are multinational, international, global and transnationals. The continuum reflects increasing levels of integration and control between the various global strategies. At one end of the continuum are multinationals which by definition are similar to Porter’s (1986) “multi-domestics”. The authors argue

Copyright © 2007 Victoria University. This document has been published as part of the *Journal of Business Systems, Governance and Ethics* in both online and print formats. Educational and non-profit institutions are granted a non-exclusive licence to utilise this document in whole or in part for personal or classroom use without fee, provided that correct attribution and citation are made and this copyright statement is reproduced. Any other usage is prohibited without the express permission of the

that this strategy provides flexibility to respond to domestic opportunities. While the international strategy allows subsidiaries a level of autonomy it also provides for the diffusion of the parent company’s knowledge and practices throughout the organisation. In a global strategy there is centralised coordination and control involving standardisation of all aspects of the value chain. Transnationals

are the final strategy in the continuum and support standardisation and a high level of integration across the organisation, while at the same time achieving the balance between flexibility and sensitivity to local needs.

Global Information Systems

Underpinning the level of integration and control in each of these strategies is the role of information systems (IS). This is supported by many authors who believe that a catalyst for global operations has been the improvement in the IS and technological infrastructure that supports the systems (Markus et al. 2001; Ives and Jarvenpaa, 1991; Konsynski and Karimi, 1993). Barlett and Ghoshai (1998) argue that companies operating in a global market will be at a strategic disadvantage if they are unable to control and coordinate their world wide operations.

The basic purpose of an information system is the provision of information to support decision making. Accordingly the improved flow of information provides companies with the ability to better coordinate and manage their operations while at the same time providing increased visibility to their global supply chain (Sheu et al., 2003). Traditionally this flow of information has been hindered due to a number of factors including: technological infrastructure, poor and disparate systems and lack of standardisation. Most international companies operated in a relatively autonomous nature from country to country and the supporting IS was managed and developed in a similar way. However a number of authors argue that it is critical for global operations to have a centrally managed and coordinated IT infrastructure (Freeman, 1985; Carlyle, 1990). Accordingly companies developing IT strategies to facilitate their global operations has resulted in the emergence of global information technology solutions.

Ives and Jarvenpaa (1991) define these types of applications as information systems that:

- Contribute to achieving a firm's global business strategy
- Utilise information technology platforms to store, transmit and manipulate data across cultural environments.

They went further and identified a number of drivers for global IT applications. These include:

- **Global consumer/customer**
Corporate customers have operations in numerous locations or due to consumers' mobility, access to centralised systems is required. This would be relevant in airline, credit card and accommodation related companies.
- **Global Product**
The IT infrastructure supports the sales of the same product in numerous locations, or the products and/or their components are produced via subsidiaries across the world.
- **Rationalised Operations**
Subsidiaries are located to take advantage of local opportunities, where increased coordination and control is required.
- **Flexible Operations**
Due to local opportunities, operations are moved from location to location. This is facilitated by standardised IT infrastructure.
- **Joint Resources**
Shared services enable subsidiaries to standardise business practices and gain efficiencies through shared resources such as personnel and facilities.
- **Duplicate Facilities**
Companies duplicate facilities in different locations including the IS infrastructure, to standardise practices and improve coordination and control by management.
- **Scarce Resources**
IT infrastructure can facilitate the sharing of scarce resources and expertise across international boundaries.

- **Risk Reduction**
Access to relevant information related to global operations in relation to supply chain management, currency conversion, global markets and business partners can alleviate possible risks.
- **Legal Requirements**
Legislated information requirements in one or more countries can be consolidated.
- **Economies of scale for systems**
Global IT infrastructure through the standardisation and consolidation of business processes can facilitate a reduction in IT systems and supporting personnel (Ives and Jarvenpaa, 1991).

Although the benefits of global expansion have been documented, researchers have identified a range of factors which impact on business in an international context and therefore should be strategically planned for. These include the impact of culture, language, customs, politics, management style, and legal requirements (Simchi-Levi et al., 2000; Hofstede, 1983). Accordingly if a global IT infrastructure is to be implemented, then these issues need to be understood in terms of their impact on this infrastructure. Cash (1988) identified a number of problems associated with global IS solutions such as, language, currency, culture, national infrastructure, availability of IT staff, data export control trade unions and IT vendors support.

Enterprise Resource Planning Systems

The predominant information system implemented to support the various business processes in large corporations is an Enterprise Resource Planning (ERP) system. ERP systems are information systems which are enterprise wide, modular, integrated and have broad business functionality (Hawking, 2005).

Due to the purported benefits of ERP systems, many companies consider them as essential information systems infrastructure to be competitive in today's business world and provide a foundation for future growth. A survey of 800 top US companies showed that ERP systems accounted for 43% of these company's application budgets (Somers & Nelson, 2001). The market penetration of ERP systems varies considerably from industry to industry. A report by Computer Economics Inc. stated that 76% of manufacturers, 35% of insurance and health care companies, and 24% of Federal Government agencies already have an ERP system or are in the process of installing one (Stedman, 1999). The ARC Advisory Group (2006) estimated that the worldwide market for ERP systems was \$16.67 billion in 2005 and is forecasted to surpass \$21 billion in 2010.

Researchers believe the growth in the uptake of ERP systems is due to several factors; the need to streamline and improve business processes, better manage information systems expenditure, competitive pressures to become a low cost producer, increased responsiveness to customers and their needs, integrate business processes, provide a common platform and better data visibility, and as a strategic tool for the move towards electronic business (Davenport et al., 2003; Hammer, 1999; Iggulden, 1999; Somers et al., 2001; Markus et al., 2001).

Increasingly due to the integrative nature of ERP systems and their ability to incorporate "*best business*" practice many large corporations are using these systems to underpin their international expansion. The systems can facilitate the control and coordination of various international operations in real time. This coordination and control can occur through the implementation of standardised business practices, independent of location, language, time and currency (Bingi et al., 1999; Madapusi and D'Souza, 2005). Texas instruments with 13,000 users worldwide, 45,000 products and 120,000 orders per month implemented an ERP system to support their operations. The system enabled the company to standardise business processes, leverage supply chain efficiencies and achieve a response time of less than 3 seconds (Sarkis and Sundarraj, 2003). In the Australasian region companies like BHP Billiton, Fonterra, Monash University, Carter Holt Harvey, Bluescope Steel and National Australia Bank are using ERP systems to support their global operations.

For many companies underestimating the impact the system would have on their organisation, caused them to initially struggle with their ERP implementation. For some the barriers associated with the lack of skilled resources and inexperience with projects of this scope became insurmountable (Calegero, 2000). Davenport (2000) believes that ERP systems by their very nature impact on a company's business strategy, organisation and culture. The move to become process rather than functionally focused and the resultant need for business process integration can result in a loss in competitive advantage in particular areas. However the potential benefits across the entire organisation often outweighs the losses in individual areas (Holland and Light, 2001). Many researchers have attempted to identify the critical success factors (CSF) which impact on the successful implementation of an ERP system (Table 1).

Critical Success Factor	Components	Researchers
Organisational fit	Failure to re-design business processes Failure to follow an enterprise-wide design which supports data integration Lack of data integration and lack of data standardisation	Holland and Light, 1999 Shanks et al., 2000 Sumner, 1999 Summer, 2000 Esteves, Casanovas, and Pastor, 2003
Skill mix	Insufficient training and re-skilling Insufficient internal expertise Lack of business analysts with business and technology knowledge Failure to effectively mix internal and external expertise Lack of ability to recruit and retain qualified ERP systems developers	Holland and Light, 1999 Sumner, 1999 Summer, 2000 Shanks et al., 2000 Esteves, Casanovas, and Pastor, 2003
Management structure and strategy	Lack of senior management support Lack of proper management control structure Lack of a champion Ineffective communications Lack of a change management strategy	Holland and Light, 1999 Sumner, 1999 Summer, 2000 Shanks et al., 2000 Allen and Kern, 2001 Esteves, Casanovas, and Pastor, 2003
Software systems design	Failure to adhere to standardised specifications which the software supports Failure to effectively integrate "add-on" modules Failure to recognise the importance of application-specific knowledge	Holland and Light, 1999 Summer, 2000 Allen, Kern and Havenhand, 2002 Esteves, Casanovas, and Pastor, 2003
User involvement and training	Insufficient training of end-users Ineffective communications Lack of full-time commitment of customers to project management and project activities Lack of sensitivity to user resistance Failure to emphasise reporting	Holland and Light, 1999 Shanks et al., 2000 Sumner, 1999 Summer, 2000 Allen and Kern, 2001 Allen, Kern and Havenhand, 2002 Esteves, Casanovas, and Pastor, 2003
Technology planning	Inability to avoid technological bottlenecks Lack of an integrated technology strategy to support client-server implementation Attempting to build bridges to legacy applications	Holland and Light, 1999 Summer, 2000 Esteves, Casanovas, and Pastor, 2003
Project management	Lack of disciplined, flexible project management	Holland and Light, 1999 Sumner, 1999

	Failure to recognise the risk of scope expansion (time, cost)	Shanks et al., 2000 Summer, 2000 Esteves, Casanovas, and Pastor, 2003
--	---	---

Table 1: Critical Success Factors for ERP implementations

Challenges in Global ERP Implementations

Although the potential benefits of global ERP systems implementation have been documented these types of implementations are faced with a number of issues. The critical success factors of ERP implementations identified previously in the paper are predominantly based on research on a particular ERP system in a particular country. Very little research discusses the relevance of these factors in global implementations and obviously there is a need to validate these. A number of authors rather than identifying CSFs in global implementations have identified what could be termed as “*challenges*” or “*lesson learnt*”. A major issue is the impact of national culture. ERP vendors encourage the use of global templates to facilitate the implementations. The global template incorporates standardised definitions of organisational structures, master data and business processes. However much of the literature argues against the extensive use of global templates due to the lack of flexibility at the local level to take advantages of regional opportunities and to account for cultural differences (Hanseth et al., 2001; Liang et al., 2004). But global templates are being increasingly adopted by large companies to improve the information flow due to the standardisation.

Krumbholz et al. (2000) investigated cultural differences between a large pharmaceuticals company’s operations in the United Kingdom and Scandinavia. They found differences in how the ERP system should be implemented to take into account different legislative requirements in each country; they did not find any significant cultural differences. However other researchers (van Everingdon and Waarts, 2003) using Hofstede’s (1983) model of cultural differences studied the adoption of innovation, in particular ERP systems, across different European cultures. It was found that national culture does impact on the adoption of ERP systems and more specifically that there would be a negative impact in countries with higher levels of uncertainty avoidance, masculinity, and power distance.

Some authors argue that these cultural differences are further exacerbated when comparisons are made between eastern and western countries (Martinsons, 2004; Huang and Palvia, 2000). Liang et al. (2004) go further and addresses the applicability of western designed ERP systems to China. They argue that these systems are based on “rule based” mature economies rather than relation based governance systems like China. However the leading ERP system, developed by a German company (SAP), accounts for approximately 33% of the China ERP market (Martinsons, 2004) and has had a 95% increase in sales over a 12 month period (McBride, 2004). Sheu et al. (2003) noted there was confusion between western and eastern name formats. It was not the inability of the system to cope with the formats but rather a lack of understanding about the format itself. Wu and Wang (2002) compared the implementation of locally developed ERP systems to foreign developed ERP systems in Taiwan and the impact on user satisfaction. As would be expected, they found significantly higher satisfaction for the local system as it reflected the local user preferences. Davison (2002) supports this divide between east and west by arguing that the majority of ERP vendors are western and are therefore unlikely to support various aspects of eastern culture. By using simplistic examples he supports his argument; such as the automatic allocation of numbers by the system which may be offensive homonyms. Also, the majority of reports in ERP systems tend to be online while Asian workers prefer paper based reports.

Increasingly western based global companies have implemented their ERP system in the Americas and Europe and are now faced with rolling out their systems into the Asian region. A number of authors have discussed issues related to the implementation of ERP systems into an Asian country but limited research has identified issues associated with implementations as part of a global rollout. The issues identified thus far with conducting this type of research using traditional methods are numerous and include geographic, financial, language and cultural issues. This paper identifies the outcomes of research in the first phase of a four phased research approach into global ERP implementation issues. The purpose of this research was to identify global implementation issues in the Asian region.

Research Methodology

A phased approach was adopted for gathering data concerning global ERP implementation issues. The first phase of the research adopts a semiotic approach involving content analysis. Krippendorf (1980) defines content analysis as “a research technique for making replicable and valid references from data to their contexts”.

This data was collected from industry presentations, which focused on global implementations obtained from ERP user group conferences both locally and internationally. Some of the presentations include full transcripts or voice recordings of the presenter. In total there were approximately 2,000 presentations.

These presentations provide a detailed firsthand account of industry experiences associated with global implementations. The speakers who are invited to speak at these events are usually management level industry specialists and are generally knowledgeable on the topic presented.

A four-step process was used in the analysis of the content. This approach has been used previously by Yang and Seddon (2004) and more recently in Calvert & Seddon (2005) in the evaluation of content.

- Step 1: involves the recording of company demographics including solutions implemented and their scope.
- Step 2: involves the tabulation of key points as identified by each speaker in their presentation in terms of lessons learnt, critical success factors, and or challenges specifically related to Asian country implementations.
- Step 3: the speakers’ comments are interpreted and coded including the grouping of similar factors.
- Step 4: involves an independent researcher to independently interpret, code and group similar factors. The two groupings are then compared and refined.

Findings

Industry presentations were viewed and assessed from the American SAP User Group (AUSG) Conferences and Industry Forums (2003-2006) and the SAP Australian User Group (SAUG) events (2003-2006). These presentations were then reduced to those that were only concerned with global implementations and then to those that specifically mentioned their implementation into Asia or more specifically an Asian country. The table below (Table 2) provides an indication to the sample size.

Conference	Presentations	Global	Global Asia	Lessons/Challenges
ASUG	2543	213	23	5
SAUG	312	3	1	0

Table 2: Presentation sample size

SAP User Group conferences were selected in comparison to other ERP vendor conferences as SAP is the leading ERP vendor with approximately 56% of the world market including 75% of the Asian market (McBride, 2005). An analysis of the presentations revealed that the implementation issues could be categorised into either technical or cultural. It would be expected that the cultural issues would apply to all ERP vendors while the technical issues could be product specific. A summary of findings is included in the appendix.

Although many of the presentations commented on Asian countries in general, a number of presentations indicated that it is a mistake to consider Asia as a single entity as issues vary from country to country (Woof, 2005; Woof, 2006; Paluszek, 2006).

The major issues were identified as being language, culture and currency.

Language

For many of the implementations language was a major issue. This was identified from both a technical and cultural perspective. From a technical perspective, early SAP versions were not Unicode compliant. Unicode can be explained as a standard that allows each character of a language to be represented in a standard format. This facilitates the handling of different languages. Many of the companies attempted translations but this provided another level of complexity due to cultural issues which needed to be reflected in the system. For example Air Products (Paluszek, 2006) in their implementation of human resources functionality found that naming conventions varied from country to country. It was necessary to distinguish between a person's legal name and their "known as" name. In Indonesia employees tended to have only one name while in Korea titles were very important.

Culture

From a cultural perspective language and meaning were identified in a number of presentations as an issue (Paluszek, 2006; Woof, 2006, Hubert, 2005). This was in regard to understanding requirements and the unwillingness to seek clarification. This was reflected in staff saying 'Yes' without really understanding or agreeing positively. It was suggested that project managers need to reaffirm meaning and check employee progress more often.

In terms of written English one presenter indicated that emails should be short and concise as longer emails tend to be deleted before they are read. Additionally there is not the same willingness as western culture to respond to an email (Paluszek, 2006).

Currency

In terms of the different currencies, a common theme from the presentations was the representation of financial amounts within the system. SAP uses the ISO standard format which includes decimal places while many of the Asian currencies do not utilise this format. Additionally the currencies often involve very large numbers. For example annual salaries in different Asian countries might be:

- Korea: 300,000,000 Won
- Indonesia: 175,000,000 Rupiah
- Japan: 250,000,000 Yen

All presentations indicated that there were some localisation issues including tax requirements, document handling and master data storage but none indicated that the project could not be implemented due these factors.

SAP in an attempt to facilitate the global implementation of their products and thus increase licence revenue have adopted a number of strategies. From a solution perspective the products are continually refined to take into account local requirements. This is especially the case in relation to human resource/payroll functionality. As changes occur in local requirements development requests are submitted to SAP by key customers as to the required solution changes. These changes usually occur in the next version release unless it impacts on all customers in the location.

To assist in the implementation SAP has included in its standard implementation methodology (ASAP) a component specifically designed for global roll outs. It would be interesting to evaluate this methodology in regards to the specific recommendations for different Asian countries. Additionally SAP has established a globalisation web site which includes country specific advice and a knowledge base.

It is interesting to note that all the presentations dealt with implementation issues rather than use issues. Maybe this is a reflection of the immaturity of the implementations in the Asian region with the emphasis on getting it working rather than enhancing the solutions operation.

Limitations of the Research

This research is limited by the size of the sample. However based on the significant number of presentations which mentioned global implementations (216) only 11% mentioned the Asian region. This may indicate that there is going to be an increased number of implementations in the region or that other companies did not consider Asian implementations an issue. Other limitations are associated with the presentations themselves. Firstly presenters supply an abstract to conference organisers for acceptance. It is unlikely that a company will want to talk about significant failures to their peers in terms of protecting corporate reputations. However from the other end of the spectrum, companies with innovative solutions could be reluctant to present in case of divulging a competitive advantage. The sample taken from SAP based conferences is also a challenging limitation. However it is argued that SAP is a major player in the ERP software arena and as such it could be argued that using SAP as a base is valid.

Conclusion

ERP systems have become an essential infrastructure for many of the world's leading companies. The systems provide an increased level of integration to support core business processes. The provision of real time data facilities improved decision making. The improved integration and standardisation have made the systems attractive to companies to support their global operations. However the implementation and use of ERP systems face a number of issues due to their complexity and the impact they have on companies. These issues are further exacerbated in global environments where national cultures and local requirements come into play. Companies often have to achieve a balance between the level of standardisation and local requirements. Very little research has been undertaken which investigates the impact of different cultures on ERP systems implementation especially within the Asian region. This paper has collated industry presentations to identify possible issues in this region related to ERP systems. The issues have been classified as technological or cultural.

This research is far from comprehensive however it provides a starting point in an area of research which was virtually non-existent. It provides future researchers with a foundation to expand upon.

References

- Allen, D. and T. Kern, (2001); *Enterprise Resource Planning Implementation: Stories of Power, Politics, and Resistance*. IFIP Working Group: Realigning Research and Practice in Information Systems Development: The Social and Organizational Perspective, Idaho.
- Allen, D., Kern, T., Havenhand, M., (2002) "ERP Critical Success Factors: An Exploration of the Contextual Factors in Public Sector Institutions" proceedings of the HICSS conference, Hawaii.
- ARC Advisory Group (2006), "ERP Market to Exceed \$21 Billion, Says ARC Advisory" located at <http://www.tekrati.com/research/News.asp?id=6828>, accessed October 2006.
- Bagwe, P. (2006), "Leveraging Global Delivery model for global roll-outs" proceedings of the 2006 ASUG Conference, Orlando.
- Bartlett, C. A., Ghoshai, S., 1998; *Managing Across Borders: The Transnational Solution*, Harvard Business School Press, Boston.
- Bingi, P., Sharma, M., Godla, J., 1999, "Critical Issues Affecting an ERP Implementation", Information Systems Management, Summer.
- Broadbent, M. and P. Weill, 1993; "Improving Business and Information Strategy Alignment: Learning from the Banking Industry", IBM Systems Journal, Vol. 32, No.1, pp. 162-179.
- Carlino, J., 1999; "AMR Research Unveils Report on Enterprise Application Spending and Penetration,". Located at www.amrresearch.com/press/files/99823.asp Accessed July 2001
- Carlyle, R. E., 1990; "The Tomorrow Organisation", Datamation, February.
- Carton, F., Adam F., (2003) "Analysing the Impact of Enterprise Resource Planning Systems Roll-outs in Multi-National Companies" - Electronic Journal of Information Systems Evaluation Vol. 6, Iss. 2.

- Cash, J. L., McFarlan, F.W., and McKenny, J. L.,1988; *Corporate Information Systems Management: The Issues Facing Senior Executives*, Irwin, Homewood, IL,
- Clemmons, S., Simon, S. J.,2001, "Control and Coordination in Global ERP Configuration", *Business Process Management Journal*, Vol. 7, No. 3.
- Davenport, T., Harris, J. and Cantrell, S.,2003; "Enterprise Systems Revisited: The Director's Cut" Accenture
- Deloitte. 1998; "ERPs second wave", Deloitte Consulting.
- Esteves, J., Casanovas, J.,Pastor, J.,2003; "Modelling with Partial Least Squares Critical Success Factors Interrelationships in ERP Implementations", Ninth Americas Conference on Information Systems.
- Freeman, D. H.,1985; "Managing Information Systems at the Multinational", *Infosystems*, Vol. 32, No. 1, January
- Fonterra A. 2004, About Fonterra, located at www.fonterra.com accessed October 2004
- Fonterra B. 2004, *JEDI Programme: Key Message Guidelines*, Fonterra
- Ghosh, S. 2002; "Challenges on a Global Implementation of ERP Software", *Proceedings of Engineering Management Conference, IEMC '02. IEEE International*,
- Ghosh, S., Ghosh, S., 2003; "Global Implementation of ERP Software – Critical Factors on Upgrading Technical Infrastructure", *proceedings of Engineering Management Conference, 2003. IEMC '03 IEEE International*.
- Hammer, M.,1999. "How Process Enterprises Really Work", *Harvard Business Review*, Nov./Dec. 1999.
- Hanseth, O., Ciborra, C. U., Braa, K.,2001; "The Control Devolution: ERP and the side effects of globalisation", *ACM Press*, Vol. 32, No. 4.
- He, X. 2004, "The ERP Challenge in China: A Resource Based Perspective", *Information Systems Journal*, Vol. 14.
- Hegde, P., Hornaday, S.,Van Bellinghen, F., (2006), "Hospira: Internationalization of Payroll, Local Solutions for a Global Company" *proceedings of the 2006 ASUG Conference, Orlando*
- Hofstede, G., 1983, "The cultural relativity of organisational practices and theories", *Journal of International Business Studies*, Fall.
- Holland, C., Light, B., (2001), "A stage maturity model for enterprise resource planning systems use", *ACM SIGMIS Database*, Vol. 32, Iss. 2
- Holland, C. P., Light, B., & Gibson, N.,1999; "A critical success factors model for enterprise resource planning implementation", *Proceedings of the 7th European Conference on Information Systems, 1*, 273–297.
- Huang, Z., Palvia, P., 2001; "ERP implementation issues in advanced and developing countries", *Business Process Management Journal*, Vol. 7, No. 3.
- Hubert, D. (2006) "Pass The Duck Tongues – 10 Years and 20 Countries in a Global Implementation", *proceedings of the 2006 ASUG Conference, Orlando*.
- Iggulden, T. Editor, 1999. "Looking for Payback", *MIS*, June 1999
- Ives, B., Jarvenpaa, S., (1991), "Applications of global information technology: key issues for management", *MIS Quarterly*, Vol. 15, Iss. 1
- Kay, E. 1998, "Going Global with ERP", *EarthWeb*, available at <http://itmanagement.earthweb.com/erp/article.php/603341> accessed June 2004.
- Klaus, Helmut, Rosemann, Michael, and Gable, Guy G. 2000; "What is ERP, Information Systems Frontiers", Vol. 2, No. 2, 141-162.
- Koch, C. 2001; "Enterprise Resource Planning: Information Technology as a Steamroller for Management Politics", *Journal of Organisational Change Management*, Vol. 14, No. 1.
- Konysynski, B. R., and Karimi, J. 1993, *On the Design of Global Information Systems, Globalisation Technology and Competition*, eds. Bradley, S. P., Hausman, J. A., Nolan, R. I., Harvard Business School Press, Boston.
- Krippendorff, K. 1980 *Content analysis : An introduction to its methodology*. Sage Publications, Beverly Hills.

- Krumbholz, M Galliers, J Coulianos, N., (2000) "Implementing enterprise resource planning packages in different corporate and national cultures", *Journal of Information Technology*, Vol. 15, No. 4.
- Liang, H., Xue, Y., Boulton, W., Byrd, T, (2004) "Why Western Vendors Don't Dominate China's ERP Market", *Communications of the ACM*, Vol. 47, No. 7.
- Light, B. 1999, "Realising the potential of ERP systems: The strategic implications of implementing and ERP strategy: The case of Global petroleum", *Electronic Markets*, Vol. 9, No. 45.
- Madapusi, A. and D. D'Souza, (2005). "Aligning ERP systems with international strategies." *Information Systems Management*, Vol 22, No. 1: 7 -17.
- Markus, L., Petrie, D., Axline, S. (2001), "Bucking The Trends, What the Future May Hold For ERP Packages", in Shanks, Seddon and Willcocks, Eds.; *Enterprise Systems: ERP, Implementation and Effectiveness*, Cambridge University Press
- Martinsons, M., (2004) "ERP in China: One package, two profiles", *Communications of the. ACM*, Vol. 47, No. 7.
- McBride, G. 2004, "The Year in Review", SAP Partner Kick Off, Sydney.
- Pagell M., Sheu C. 2001, "Buyer Behaviour and the Performance of the Supply Chain: An International Exploration". *International Journal of Production Research*, Vol. 39, No. 13.
- Paluszek, B. (2006) "Into Asia – A Cultural and Technological Adventure", proceedings of the 2006 ASUG Conference, Orlando.
- Porter, M. E. 1986; *Competition in Global Industries*, Harvard Business School Press, Boston, MA
- Reimers, K. 2003. "Implementing ERP systems in China." *Communications of the Association for Information Systems* 11.
- Sahay, S. 2003, "Global Software Alliances: The Challenges of Standardisation", *Scandinavian Journal of Information Systems*, Vol. 15.
- Sarkis, J., Sundarraj, R. P. 2003, "Managing large scale global Enterprise Resource Planning Systems: A Case Study at Texas Instruments", *International Journal of Information Management*, Vol. 23, No.5.
- Scott Morton, M.S.,1991; *The Corporation of the 1990s: Information Technology and Organizational Transformation* Oxford University Press, New York, 1991.
- Seltsikas, P. 1999, "Developing information systems strategy for international process oriented holistic enterprises: A case study at Xerox Ltd.", *Electronic Markets*, Vol. 9, No. 45.
- Shanks, G., Parr, A., Hu, B., Corbitt, B., Thanasankit, T., & Seddon, P. 2000. "Differences in critical success factors in ERP systems implementation in Australia and China: A cultural analysis, *Proceedings of the 8th European Conference on Information Systems*, Vienna, Austria,
- Sheu, C., Chae, B., Yang, C.-L. (2004) "National difference and ERP implementation: issues and Challenges," *The International Journal of Management Science* (32),
- Simchi-Levi, D., Kaminsky, P., Simchi-Levi, E. 2000, *Designing and Managing the Supply Chain: Concepts, Strategies and Case Studies*, Irwin/McGraw Hill, Boston MA.
- Soh, C., Kien, S., Tay-Yap, J. 2000; "Enterprise resource planning: cultural fits and misfits: is ERP a universal solution?" *Communications of the ACM*, Vol. 43, No 4,: 47-51.
- Somer, T. and K. Nelson, 2001, "The impact of Critical Success Factors across the Stages of Enterprise Resource Planning Systems Implementations", proceedings of the 34th Hawaii International Conference on System Sciences, 2001, HICSS
- Stedman, C.,1999. "What's next for ERP?" *Computerworld*, 33(33; August 16
- Sumner, M. 2000. "Risk factors in enterprise-wide/ERP projects." *Journal of Information Technology*, Vol. 15, No.4: 317 - 327.
- Sumner, M. 1999. "Critical success factors in enterprise wide information management systems Projects", *Proceedings of the Americas Conference on Information Systems, Milwaukee, WI*,
- Teo, T. & King, W.,1997, "Integration between business planning and information systems planning: an evolutionary contingency perspective", *Journal of Management Information Systems* No. 14,
- Van Everdingen, Y., Waarts E., (2003), "A Multi-country Study of the Adoption of ERP Systems: The Effect of National Culture" located at <http://ideas.repec.org/p/dgr/eureri/2003290.html#provider> accessed May 2005.

- Warren, M. 2002, "Global Implementation at BHP Billiton" presentation at the 18th Plenary of the Australian SAP User Group, Sydney.
- Wood, T. and Caldas, M. (2000) Stripping the "Big Brother": Unveiling the Backstage of the ERP Fad, located at http://www.gv.br/prof_alunos/thomaz/ingles/paper5.htm accessed May 2005
- Woof, R., (2006), "Managing a Global Template with local Requirements" proceedings of the 2006 ASUG Conference, Anaheim
- Woof, R., (2006), "Implementing an SAP Global Template in Asia" proceedings of the 2006 ASUG Conference, Orlando
- Yang, S. and P. Seddon (2004). "Benefits and Key Project Success Factors from Enterprise Systems Implementations: Lessons from Sapphire 2003". In the proceedings of ACIS 2004, Hobart, UTAS.
- Zhang, L., M. Lee, et al., 2003. "Critical Success Factors of Enterprise Resource Planning Systems Implementation Success in China", proceedings 36th Hawaii International Conference on System Sciences.

Appendix

Company	Scope of Implementation	Country	Issue	Category
Hospira (13,000 employees) (Hedge et al., 2006)	Human Resources, Payroll	Japan	Require to present in person applications to the government for new employees	Technical Cultural
		Philippines	Distribution of sack of rice as part of wages	Technical Cultural
		Hong Kong	Avoid number 4	Technical Cultural
Wabco (7,000 employees) (Bagwe, 2006)	Majority of modules (v. 4.7)	China	Golden tax interface	Technical
			Exchange rate interface with Bank of China	Technical
			Chinese characters in forms	Technical
			Customer master data descriptions	Technical
		Korea	Chinese characters in forms	Technical
			Customer master data descriptions	Technical
Molex (28,000 employees)	Majority of ERP modules (v. 4.7) CRM, APO, BW, SRM	Japan	Japans and Kanji data	Technical
			Special EDI requirements	Technical
			Unique shipping documents	Technical
		India	Sudden and last minute government requirements	Technical
BOC (53,000 employees) (Woof, 2005; Woof, 2006)	All ERP modules (v4.7), CRM, APO, BW, SRM	Singapore	Persistent, detailed analytics	Cultural
		Hong Kong	Both local and Chinese currency requirements	Technical
		Japan	Japanese and Kanji data issues	Technical
			Unique EDI and shipping document requirements	Technical

		China	Language translation issues	Technical
			Golden Tax System	Technical
			Long Bank account numbers	Technical
			Less English of staff but better quality of English where existed	Cultural
			High staff turnover as staff move to higher wages due to demand for SAP skills	Cultural
		Korea	No decimal places in currency	Technical
			More resistance to change	Cultural
			Business transactions tend to be without paperwork	Cultural
		Thailand	Inter-company sales illegal	Technical
			Staff continually changed roles in company which became a major issue in training	Cultural
			More English speakers but speaking and understanding a poorer quality	Cultural
			Eager to please but often “Yes” does not mean “Yes”	Cultural
		Philippines	“Eager to say ‘Yes’ – quick to say a task had been done but required constant checks to see it had actually been done”	Cultural
Air Products (20,000 employees) (Paluszek, 2006)	HR, Manager Self Service	China	Unable to handle employment contracts where a person is employed by the government but on loan to the company	Technical
		Taiwan	Addresses can only be entered in Chinese	Technical

CRM (Customer relationship Management), APO (Advanced Planner Optimiser), BW (Business Information Warehouse), SRM (supplier Relationship Management).

Issues and Guidance in Research Ethics

Ronald Francis and Anona Armstrong
Victoria University, Australia

Abstract

This paper addresses the principles that govern the outlook and decisions of research ethics committees. The purpose of the paper is to outline such underlying principles in order to aid understanding for researchers into aspects of social and commercial behaviour. Prior to conducting research in any corporate area there is an obligation toward any human participants. That obligation is set out most clearly in the information and forms put out by the various ethics committees charged with examining the proposal, and with giving formal ethical approval. The principles that invest the understanding of ethics committees are those of protecting the vulnerable, and of protecting justifiably good reputations. Ethics committees should be seen as enabling and protecting rather than as a barrier to research. Peer reviews should be seen to include ethics matters in research, and are thus a natural extension of the common scientific endeavour. To this end the article outlines and discusses the issues commonly addressed by research ethics committees. By highlighting these principles, this paper aims to give insights and suggestions that should make the ethics application task easier.

Keywords

University research, research ethics, ethics committees.

Introduction

Prior to conducting research in any corporate area there is an obligation to any human participants. That obligation is set out most clearly in the information and forms put out by the various ethics committees charged with examining the proposal, and of giving formal ethical approval.

A few researchers see having to seek ethical clearance as a burden. The persuasive arguments against such a view are: that clearance protects the vulnerable; helps preserve reputations; provides evidence of care and thus is a legal protection against unjust accusations, and may provide useful feedback from the committee on matters not of direct ethical import. This article provides an expert perspective on the issues that confront research ethics committees.

A formal statement of the principles that should underlie the notion of protecting the vulnerable arose from the Nuremburg War Trials, and is thus called the *Nuremburg Code* (see website reference list). It is not surprising that the principles should have emanated from that source as that War Crimes court dealt with such atrocities as the unsanctioned medical experiments on the unwilling. No matter what the

Copyright © 2007 Victoria University. This document has been published as part of the *Journal of Business Systems, Governance and Ethics* in both online and print formats. Educational and non-profit institutions are granted a non-exclusive licence to utilise this document in whole or in part for personal or classroom use without fee, provided that correct attribution and citation are made and this copyright statement is reproduced. Any other usage is prohibited without the express permission of the

overall benefit might be, the principle that individuals have their own rights which the interests of the masses should not overturn: those principles are now enshrined in the *Nuremburg Code*.

The subtitle of the *Nuremburg Code* is *Directives for Human Experimentation*. That Code has found more recent expression in the *National Health and Medical Research Council (NH&MRC)*

Code in Australia. This latter Code was, originally, one that dealt mainly with biological and medical research. As it developed over time it has now extended to encompass areas far beyond medical research, and is likely to become the new Australian national standard. (see website reference list).

The principles that invest the understanding of ethics committees are those of thus protecting the vulnerable; we might also add the protection of reputations. Where such protection is justified, it is an important secondary principle.

Ethics Research Committees

Approval to conduct research is given by several kinds of institutions. One kind is that of one's employing institution; a second kind is the institution which is the target of, or involved in, the research project. For example, one might work for a research institute, and thus need their clearance: the subject of the research might be governance in hospitals, and thus one would also need clearance from the relevant hospital ethics committee. The point here is to consider whether or not one needs more than one clearance.

A fairly rare but illustrative case is one where a researcher from a university might be interested in working on surgical operations on prisoners. In such a case clearance would be needed from the university committee, the relevant hospital research ethics committee, and the relevant Department of Justice. Again, the point being that a single clearance might not suffice. Although a project may require multiple clearances the question remains as to which clearance takes precedence. In practice none do. The only fairly clear principle is that no ethics committee should be in breach of the general principles of the NH&MRC Code.

Each research ethics committee has a set *Terms of Reference*. This is both an enabling and a limiting document. It states the powers of the Committee and the limits within which it operates. One would hope that the website or document is a model of clarity of both purpose and of process. To this end most committees use a standard form that is constantly reviewed.

Most research ethics committees are comprised of a carefully chosen number of people. One for business would, for example, have a lawyer, a layperson, a Minister or Aboriginal Elder, an experienced researcher, and someone with formal business qualifications, a lay person with no connection to the business, and whoever else they deem appropriate. It is interesting to note that most committees are comprised of more than five and fewer than 10 members. This may have to do with the dynamics of committees. Too small a group deprives the discussion of needed expertise, and allows strong characters too dominant a role: too many members prevents the prospect of closer collegial discussion, and the development of general collegiality. It may be that the ideal size of group has more to do with the psychology of group relations than anything else – and that is no bad thing.

Some committees have a policy on payment or non-payment of participants. It is interesting to note that too small a sum in payment actually inhibits participation. Too large a sum produces participants who are money rather than science oriented, and might thus skew the results. Another option is not to allow payment to participants, but to take considerable trouble to explain how their participation is a benefit to us all, and that they will receive feedback at the end of the project. What is less controversial is the idea that they be reimbursed out of pocket expenses – such as travel.

There are a number of studies that address this issue. For example, Fry et al. (2005) reported an empirical study of practices of payment, and concluded that ethics committees do spend quite some time on deciding whether or not it is appropriate to pay: to that end a policy on payment is a real committee time saver. Out of pocket expenses are not commonly seen as controversial, nor should they be. Payment for time spent is more controversial.

One may pay participants, but the effects of payment are problematical, as Brown et al. (2006) have argued. Further, one may pay in kind (PinK – payment in kind). That issue was addressed by Schonfeld et al. (2003), who concluded that PinK is a restriction of choice. Cash is universal, and may be used by

all to maximise value: the use of PinK is a compromise of autonomy. We do conclude that ethics committees do need clear policies with respect to payment.

Principles of Ethics Committees

It is a useful, and largely accurate, assumption that ethics committees are there to protect the vulnerable and, in so doing, act as enabling bodies. It is not uncommon in that enabling frame of mind to find that committees might recommend some changes in the research design in order to make it more effective. In such cases they are really acting as a bonus advisory body which fosters good research. The main brief to protect the vulnerable is supplemented by the need to protect reputations.

The breach most commonly committed here is that of having a research design that will not answer the posed questions, or has such a committed political view as to render the research a waste of participants' time. The writers have seen research designs that do not permit conclusions based on evidence; that clearly have a committed political agenda; and which are not framed in a form that makes a hypothesis potentially falsifiable.

In addition to the already mentioned principles, committees are also mindful of the need to protect the researchers themselves. For example, one might be interested in (say) a governance project which involves some research in courts. As courts are under the jurisdiction of the Department of Justice, one would thus seek their clearance. Additionally, however, it would be essential to seek the permission of the chief judge of the relevant court. Without such permission researchers could well find themselves in a position of having to defend themselves against an accusation of interfering with the judicial process. Thus it is essential that expert legal advice be sought.

One of the lesser functions of ethics committees is to have a mind which groups, categories, or institutions might be over-researched. Too much research attention could not only have an adverse impact on the functioning of the institution but could also make the respondents within it atypical by being the focus of excessive attention. Further, the intrusions into staff time and into routine procedures may produce a low level of co-operation.

What is Research?

It is difficult to define what is research: one working definition might be 'Creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of humanity, culture and society. Research is not just about finding facts but, rather, of using hard core data to evaluate certain conceptual explanations. This stock of conceptual insights is then used to devise improved versions, and to make new connections' This definition is one that is a composite of several others already in the public domain.

In order to do research involving humans or animals it is necessary to have ethics clearance. Sometimes research masquerades as something else - such as ongoing monitoring, teaching research techniques, or routine data collection. In the words of the Department of Education, Science, and Training (DEST) 'Research and experimental development is characterised by originality; it should have investigation as a primary objective and should have the potential to produce results that are sufficiently general for humanity's stock of knowledge (theoretical and/or practical) to be recognisably increased'.

Research is an activity designed to gain new insights into phenomena, but using that highly general rubric is not a lot of help. Some research may be theory driven; some may use a grounded theory approach; and some may be simply heuristic. Project management, program evaluation, training, and monitoring are not commonly seen as research although, given a particular twist, they become so. What may be more helpful would be to say what it is not. Some of the things that may look like research, but are not, include:

- Preparation for teaching (e.g. the collection of information about which kind of students responded best to a mentoring program)

- Routine data collection (e.g. public domain statistics on certain events, such as how often it rained on Melbourne Cup Day – handy if you want to estimate the risks of writing pluvius insurance)
- Routine computer programming (such as how much use is made of particular websites, and if any employee has accessed a pornographic site)
- Standardised testing (such as essential routine medical testing for employees)
- Business tracking (such as whether or not board meetings are more productive if they have a concise, or an extended, agenda).

It will be seen that the question ‘What is research’ is represented by answers that show it to be a broad church. A general guide to what research is, may be found on the DEST website.

What is Data?

It is important to define what data is, because committees have a duty about the retention of data for a given period of years as a means of checking authenticity. Data is the information collected, and that is raw (untreated) data. As a special case one can imagine a situation in which verbal responses are recorded. Some participants may be happy to have their responses used for analysis, but unwilling to have the voice recordings remain, as the timbre of voice is an identifier.

In such circumstances the responses may be transcribed word-for-word, and have that written verbatim data treated as (primary) raw data. The undertaking of anonymity is the reason for transcribing. In principle it is recommended that data in its most raw form be retained, and only in special circumstances, such as the above, be treated in any way. The guiding principle is that the further one gets from the basic form of data the more likelihood there is of error.

Conflict of Interest

A conflict of interest may be defined as ‘... where a person is in a position such that a fact, a belief, a power, or a perception, exists that might compromise their objectivity’. In ethics committees, where a member of the committee has a beneficial interest in the outcome then he or she will absent himself not only for the vote but also for the deliberations which precede the vote. We recognise that the mere presence in the committee room may be an inhibitor to open discussion. In this way fairness is not only done but also seen to be done.

Deception

A significant issue here is that of deception. In one study Epley & Huff (1998) assessed reactions to debriefing after a deception experiment. The general finding of that study was that although a large effect of deception was not found it did show that negative feedback had a detrimental effect. The cautionary conclusion here is that negative stimuli and suspicion are factors to be avoided.

In marketing research it is not uncommon for researchers to deceive respondents, and do so in order to have an ‘uncontaminated’ response. Such market researchers may, on some occasions, avoid debriefings because they are thought to be unnecessary or that they may get a negative reaction. One empirical study set out to determine whether or not mild deceptions had an adverse effect. Toy et al. (1989) found that participants most commonly reacted well whether or not they received a thorough or a minimal debriefing. This finding is an interesting one but, it must be borne in mind, that it applies to market research, and it applies to non-threatening participation. Despite those qualification it is a worthy result to note.

The clear guiding principle here is to assume that deception may be harmful, and is to be avoided. In those very rare cases where it is deemed to be necessary a strong justification for its use needs to be

made: that justification should also include the reasons why some other creative means has not been sought to obviate the need for deceit.

Rather than using direct deception one could tell those who volunteered that some of them would receive a dummy treatment (say, a training program) but the reason for not telling them to which group they belonged was to ensure that expectations did not influence the result. In any case they need to be informed at the end which group they belonged to, and in the event that a treatment was effective, be provided with the benefits as a bonus for being participants.

The provision of benefits to a control group also occurs in double blind studies. In such studies there is a real prospect that the experimental intervention (a training program, say) could turn out to have significant advantages. In that sense depriving the control group of that benefit is a negative point. If it turns out that the experimental intervention is beneficial, as before, redress could be effected by offering the control group members the benefit of the session experienced by the experimental group. This would be seen to be a balanced and rewarding response to those kind enough to give their time and input.

Consent

Out of the Nuremberg trials one clear principle that did emerge was that of consent. This may take various forms from tacit to explicit. What it does mean in practice is that potential participants must be assured, and be confident, in the belief that there is no duress on them to participate. Declining to participate should never carry negative consequences.

To ensure that participation is voluntary there must be a written explanatory note. It will say, for example, who the researchers are; what issue they are addressing; what sort of participant they are seeking; how long it will take to be a participant; and whether or not expense reimbursement is provided. That information sheet will also assure potential participants that there will be no negative consequences for declining. Although it is not universal, there will be a form that participants sign, saying that they have read the information sheet. It is commonplace to require that where a consent form is signed it is witnessed by an independent person, and that a means of locating that witness is recorded (an email address or a telephone number, at least). In the experience of the writers some explanatory sheets are so poorly expressed that they do not communicate. The common form of difficulty is that of not matching the prose level to the level of the prospective reader. For example, language appropriate to those with higher degrees is not a language appropriate to those who farm in remote communities. In cases of doubt, use the simpler form.

Consent to use the research data is usually implied as being for that purpose. What does concern some committees is that the data may be used for another purpose, and at a time far removed from the present. The guiding principle here is openness and honesty. If the data might be used later, and for another purpose, the potential participant must be told, and give consent.

Consent to participate might, in some circumstances, bring dangers unforeseen by a participant. Someone conducting a lengthy and personal interview might, for example, receive a revelation of a criminal offence that has not been adjudicated. If it is a serious offence or potential offence then the recipient of that confidence might have a legal obligation to report it to the police. To do so would destroy confidence in promise of anonymity: not to report is in breach of a legal obligation. Here the principle is that of warning. The wording would be something like 'Do not tell me anything about any offence that you have committed that has not been dealt with by a court. If you do I will have to report it'.

A final issue here is that of the use of special groups in research. Among such special groups are minors, certain ethnic minorities, prisoners, and the intellectually underprivileged. Most research ethics committees ask special questions about the use of such groups, and set special requirements before agreeing to their use.

Feedback

The notion of feedback is an essential component of research. It is commonplace to hear participants complain that they gave their time and never really knew of the outcome. To this end it would be a common courtesy to ensure that, at the end of the project, all participants receive a thank-you note, and a one page summary reiterating the point of the project, and the general findings. In some cases the promise of anonymity, or the wish not to be contacted, may over-ride that consideration. It is recommended that summary feedback be the norm, and exceptions made only for cases such as those just above.

Debriefing Counselling

In some studies the interventions or questioning have the potential to be confusing or detrimental to the participant. In such cases a counselling debriefing session may be of help. One of the difficulties here is that the person chosen to alleviate the concerns raised by participation may be an interested party (the researcher is the most common one here). Such a person may lack both the skills and independence to perform effectively. To this end it is a valuable policy to have a qualified independent professional available in case of need – a registered psychologist for example. A counselling session would be appropriate where, say, a participant became very emotional and upset because the questions asked by the researcher triggered a traumatic memory.

One of the signal advantages of debriefing, apart from offsetting possible harmful effects on the participant, is that of researcher benefit. Frohlich et al. (1999) have argued that much may be learned from participants about their experiences in the study. That also assists the researchers to have a better understanding of external validity.

What is important here is to distinguish between debriefing and essential counselling. At its simplest, a debriefing would be an explanation of what the research was about. If it was not appropriate to give the participants a full explanation at the beginning in case it influenced their expectation, and thus their responses, then an explanation at the end is essential.

Conclusions

This article aimed to alert researchers to some of the issues that might impede progress of an application through an ethics research committee. It is noted that ethics committees most commonly have a guiding and enabling brief, rather than one which impedes. Such committees should be seen in that constructive light.

In completing an ethics application form it is essential to address the 'Advice to applicants' that invariably accompanies a written application. Applicants could profitably bear in mind the way that committee members might approach an application. They are unlikely to know as much about the research as does the applicant, and so the researchers' assumptions waste the committee's time. A simple instance is the prolific use of specialist acronyms that the committee is unlikely to understand. The target reader is an ethics expert – not an expert in any specific research project.

In brief outline given here the advice is: bear in mind the target reader; follow the advice given with the application; do not write an extensive essay, but be concise and to the point; in an information sheet use language that is appropriate to the potential participant. It is a good idea to have an experienced colleague check any application before filing. The principles outlined in this article are intended to provide an insight into how research ethics applications are viewed. By attention to the outline given above an application may be expedited. With such attention to the principles and practices of research ethics committees the experience should be both more pleasurable and more efficient.

References

- Brown J S, Schonfeld T L, and Gordon B G (2006). You may have already won ...: an examination of the use of lottery payments in research. *Ethics and human research*. 28 (1) 12-16
- DEST definition of research. <http://www.canberra.edu.au/research/funding/dest-definition> (viewed 13th March 2007).
- Epley N & Huff C (1998). Suspicion, affective response, and educational benefit as a result of deception in psychology research. *Personality and social psychology bulletin*. 24 (7) 759-768
- Frohlich N & Oppenheimer J (1999). What we learned when we stopped and listened. *Simulation and gaming*. 30 (4) 494-497
- Fry C L, Ritter A, Baldwin S, Bowen K J, Gardiner P, Holt T, Jenkinson R, and Johnston J. (2005). Paying research participants: a study of current practices in Australia. *Journal of medical ethics*. 31 (9) 542-547
- National Health and Medical Research Council. *National Ethics Application Form (NEAF)*. <https://www.neaf.gov.au/Default.aspx>
- Nuremberg Code: <http://ohsr.od.nih.gov/guidelines/nuremberg.html>. Viewed 27th Feb. 2007
- Schonfeld T L, Brown J S, Weniger M, and Gordon B (2003). Research involving the homeless: arguments against payment in kind (PinK). *Ethics and human research*. 25 (5) 17-20
- Toy D, Olsen J & Wright L (1989). Effects of debriefing in marketing research involving 'mild' deceptions. *Psychology and marketing*. 6 (1) 69-85

Lies, Damned Lies and ‘Problem Gambling’ Prevalence Rates: The Example of Victoria, Australia

James Doughney
Victoria University, Australia

Abstract

This paper takes up the challenge to consider whether it is possible reasonably to overcome a number of sobering methodological deficiencies in published prevalence-rate estimates of ‘problem gambling’. The prompt to do so was the 2006 claim by the Victorian Government to have halved ‘problem gambling’ in the State. The paper shows the claim to be unscientific. It reinforces this view by demonstrating, using evidence and argument from the Productivity Commission, the Australian Bureau of Statistics and statistical/epidemiological sources, that extant sample survey techniques used to estimate prevalence rates are seriously flawed.

Keywords

Problem gambling, prevalence, EGM, epidemiology

Introduction

The Government of the State of Victoria in Australia made a remarkable claim in its 2006 gambling policy document, *Taking action on problem gambling: A strategy for combating problem gambling in Victoria* (Department of Justice (DoJ) 2006). The claim was that:

Since coming to office in 1999, the Government has reduced the size of Victoria’s gambling problem. In 2006 the growth rate of gaming machine expenditure has fallen to 3.3 per cent. The rate of problem gambling is now estimated by independent research to have halved to 1.1 per cent of the Victorian adult population or 43,957 individuals ...

Research shows that the prevalence of problem gambling in the Victorian population has declined from 2.14 per cent in 1999 to 1.12 per cent in 2003. (DoJ 2006, pp. 6, 33; citing the 2003 Victorian longitudinal community attitudes survey, Centre for Gambling Research, Australian National University)³

Copyright © 2007 Victoria University. This document has been published as part of the *Journal of Business Systems, Governance and Ethics* in both online and print formats. Educational and non-profit institutions are granted a non-exclusive licence to utilise this document in whole or in part for personal or classroom use without fee, provided that correct attribution and citation are made and this copyright statement is reproduced. Any other usage is prohibited without the express permission of the

On its face the claim seemed preposterous. It was, after all, an election year. Gambling harm was an election issue, and PR firms, party apparatchiks and politically appointed senior bureaucrats receive handsome compensation to concoct ostensibly credible spin. More tellingly, losses in the state’s electronic gaming machines (EGMs) – the main cause of ‘problem gambling’ – had pushed further towards the \$2.5 billion

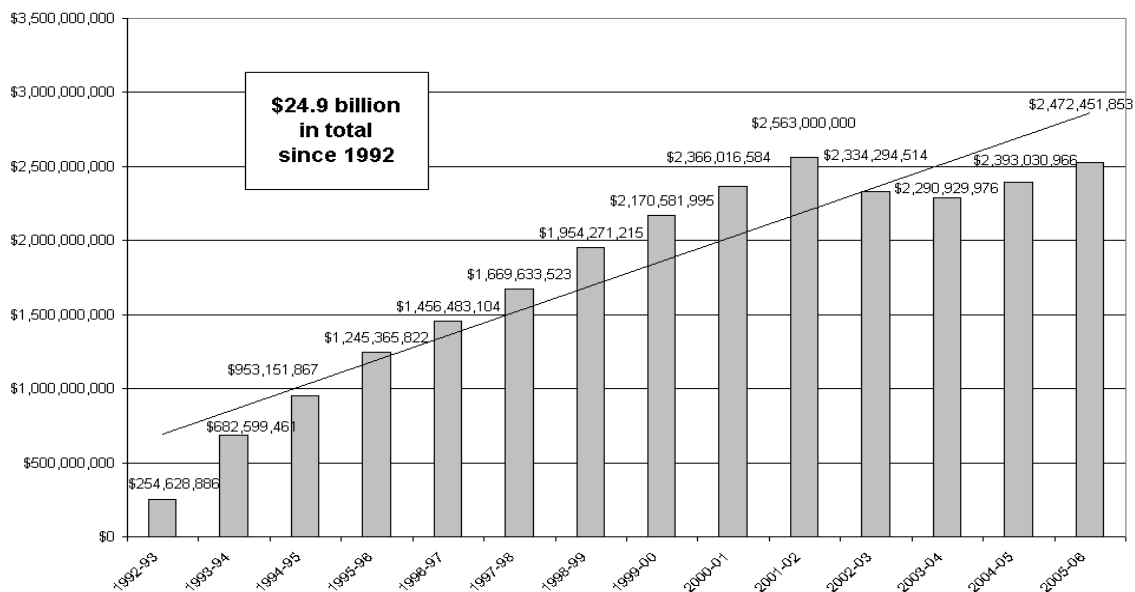
² Victoria University, Melbourne, Australia. Thank you to the two anonymous reviewers, whose wise suggestions I have heeded. Of course, full responsibility for the content of the paper is mine alone.

³ I reference the 2003 Victorian longitudinal community attitudes survey as McMillen and Marshall (2004).

mark, as shown in chart 1 below. If losses were up, or even if they were not down significantly, it was hard to think otherwise than that the claim were deceptive nonsense.

Notwithstanding such a natural, even visceral, reaction to political spin, there are good reasons to analyse the claim seriously and criticise it thoroughly. In the first place the claim will be repeated often, especially during the upcoming Government-sponsored Responsible Gambling Awareness Week (May 2007). Secondly, the claim will continue to inform Government actions and resource allocations. It will reinforce the Government’s Reno-model approach, which sits behind and shapes the various dimensions of its gambling policy. The Reno model maintains that the EGM (or poker-machine) product⁴ is per se harmless. Some people, however, are susceptible to use it wrongly (irresponsibly and harmfully), in much the same way as chroming (inhaling) is irresponsible (wrongful and harmful) use of aerosol cans of spray-paint. These are a very small minority of users, and we may categorise them clinically as ‘problem’, ‘pathological’ or ‘at-risk’ gamblers.

The third reason for unravelling the political spin about halved ‘problem gambling’ is to expose its premise to scrutiny. This premise is that it is possible to measure accurately the prevalence of ‘problem gambling’ in the community by surveying a sample of the adult population. The prevalence rate, the percentage of adults in the population identified by their answers to a survey ‘screen’ of gambling-related questions to have gambling problems, will therefore be the focus of this paper.



VCGR (2007)

Chart 1. Total poker machine (EGM) user losses 1992-3 to 2005-06 Victoria

Our consideration of the issues below will endeavour to demonstrate that sample-survey prevalence rates for ‘problem gambling’ are untrustworthy at best. I will argue also that their pretension to scientific status is just a veneer. On the one hand, the source data are unsound. On the other, the statistical precision possible is weak. For these reasons sample-survey prevalence rates can be dangerously misleading: an inherently unsafe product liable to be abused by problem politicians, policy-makers and bureaucrats.

Inappropriate Use of Research Findings by the Victorian Government

One of the first principles of product safety is to read the makers’ warnings before using the product. This applies just as much to products of research – especially survey-based research – as it does to

⁴ I use the word ‘product’ for all of its various aspects: manufacture, technology, distribution, provision, industry structure, licences and modes of consumption.

kitchen appliances. What then did the authors of the 2003 Victorian longitudinal community attitudes survey (McMillen & Marshall 2004) actually say?

The fact is that McMillen and Marshall provided blunt warnings about the prevalence rates that they reported. Their caveats amount almost to denying that we can rely on sample-survey methods to estimate the actual prevalence of ‘problem gambling’ in any meaningful way. Rather than put words in their mouths, it is better to let the authors speak for themselves. The SOGS⁵ scores to which they refer derive from survey questions designed to ‘screen’ or test for the identification of gambling problems.

As measured by SOGS 5+ the overall figures (assuming problem gambling prevalence rate of 1 per cent, a severe problem gambling rate of 0.3 per cent and an adult Victorian population of 3,475,197) suggest that in 2003 approximately 34,751 adults in the Victorian population could have gambling problems, with 10,425 of them experiencing severe problems (SOGS 10+).

In the US it is suggested that people scoring SOGS 3–4 are also at risk of gambling problems. In this Victorian survey this would account for 33,015 being at-risk of gambling problems. However this lower threshold would likely generate an unacceptable number of false positives amongst the problem gambling population.

We emphasise, however, that the application of such screens in population surveys can only provide a broad tentative indication of the prevalence of gambling problems in the community. As noted by the Chairman of the Productivity Commission: ‘all survey gambling screens are likely to underestimate the extent of problem gambling — however they may choose to define it — simply because people have a natural reluctance to reveal the facts about such matters’.

It is likely that the inherent downward bias of survey data is particularly marked with ‘problem gamblers’. In the Commission’s 1999 survey of self-confessed problem gamblers in counselling, ‘only 29 per cent said they would have responded to a survey honestly; one-third said they would have concealed their problems, and some 24 per cent said they would have refused to answer the survey!’

If that response pattern has been replicated in this 2003 survey, the problem gambling prevalence data presented here is merely symptomatic of a much larger problem in the Victorian community. (McMillen & Marshall, pp. 87-8; citing Banks 2002)

These are strong words, careful words. In addition to indicating grounds for argument about where to draw the cut-off line for the SOGS categories, they stress that ‘the application of such screens in population surveys can only provide a broad tentative indication of the prevalence of gambling problems in the community’. They cite the Chair of the Productivity Commission as evidence that fewer than one-third of ‘problem gamblers’ would be likely to answer survey questions honestly. They conclude that ‘the problem gambling prevalence data presented here is merely symptomatic of a much larger problem in the Victorian community’.

Did those who wrote the Government’s policy document read these caveats? It would be surprising if they did not. Are they aware of problems with sample prevalence surveys? Again, we would be surprised if they were not. Did they heed McMillen and Marshall’s warnings? Obviously not. Were they under an obligation to repeat the warning when they marketed the prevalence-rate product to an unsuspecting public? Were the Premier and the Minister for Gaming obliged to exercise equivalent caution when they signed off on the policy and their introductions to it, which also trumpeted to us – the public – the claim that the Government had halved the number of problem gamblers (DoJ, pp. 2, 3)? If it is reasonable to hope that ministers of the Crown and purportedly independent public servants are honest in discharging their official duties the answer to both questions must be yes. Otherwise we would

⁵ South Oaks Gambling Screen.

have to accept that it is reasonable for ministers and ‘our’ servants to participate wilfully in misleading conduct in their engagement with us as citizens.

Table 1 contains, to the best of our knowledge, some of the relevant data from all contemporary ‘problem-gambling’ prevalence surveys in Victoria. Readers will note that the Victorian Government might have picked four alternative prevalence rates with which to compare the *2003 Victorian longitudinal community attitudes survey* rate of 1.12 per cent. All had larger effective sample sizes than the Productivity Commission’s Victorian sample, upon which they chose to focus. All alternatives administered the SOGS to more people. Yet the Government chose for comparison the largest rate (2.14 per cent), the smallest effective sample (725) and the lowest number of people to whom callers administered the SOGS (254): again a highly questionable use of research findings.⁶

Publication	<i>4th and 5th Survey of community gambling patterns and perceptions (1997)**</i>	<i>6th Survey of community gambling patterns and perceptions (1999)**</i>	<i>7th Survey of community gambling patterns and perceptions (2000)**</i>	<i>Australia’s gambling industries (1999) Australia</i>	<i>Australia’s gambling industries (1999) Victoria</i>	<i>Report of the 1999 Longitudinal Community Impact Study September (2000)**</i>	<i>2003 Victorian longitudinal community attitudes survey (2004)</i>
Organisation	Market Solutions (1996)/ Roy Morgan (1997)	Roy Morgan	Roy Morgan	PC (survey by Roy Morgan)	PC (survey by Roy Morgan)	KPMG Consulting	The Centre for Gambling Research Australian National University
Date of survey	1997	1998	1999	1998	1998	1999	2003
Total starting sample size	1,712	1,737	1,760	10,609	≈ 2,200	1,000	8,479
Criteria for selecting those to whom SOGS administered	All (including Lotto, scratch tickets)	All (including Lotto, scratch tickets)	All (including Lotto, scratch tickets)	Gambled 52 or more times per year <i>plus</i> heavy losers (\$4,000+ p.a.) (excluding Lotto, scratch tickets)	Gambled 52 or more times per year <i>plus</i> heavy losers (\$4,000+ p.a.) (excluding Lotto, scratch tickets)	Gambled last six months (including Lotto, scratch tickets)	Gambled more than once per week (excluding Lotto, scratch tickets)
Total effective sample size	1,712	1,737	1,760	3,498	≈ 725	1,000	2,396
Total sample to whom SOGS administered	1,712	1,737	1,760	1,225	≈ 254	≈ 500	143
Per cent problem gamblers’ (SOGS 5+) = Prevalence rate	0.70*	1.50 1.30*	0.70 0.80*	2.07*	2.14*	2.00	1.12*

* Weighted ** VCGR (1997-2000)

Table 1. ‘Problem-gambling’ prevalence surveys in Victoria 1996-2003

Juxtaposing what the authors of the *2003 Victorian longitudinal community attitudes survey* actually said about prevalence rates with the use made of these rates by the Government shows the latter to have been misleading. Understanding more about why sample-survey prevalence-rate data are suspect will reinforce this point. I will turn to this question in the next section.

⁶ It might waste resources to administer SOGS questions to infrequent gamblers (Productivity Commission 1999, appendix F), but this acknowledgement is immaterial to the discussion. See below why *all* sets of surveys in table 1 differ in method.

Inherent Problems with ‘Problem-Gambling’ Sample Surveys: ‘False Negatives’

Advocates of sample surveys to measure the prevalence of ‘problem gambling’ might offer the defence that their methods are indistinguishable from standard epidemiological survey research. Insofar as epidemiologists use sample surveys, this might be true. However, we should accept three very important qualifications. The first is that epidemiologists would urge greater caution in using survey data, as would statisticians (see e.g. Rothman 2002). The second I will discuss in a subsequent section. It is that, when dealing with small proportions or numbers, researchers should use different and more sensitive statistical techniques (Rothman 2002, pp. 130-4). The third is that measuring ‘problem gambling’ by ‘self-reporting’ is very different from measuring other health problems for precisely the reason indicated in the previous section: under- and false-reporting.

To make the third point more forcefully – for it is the fundamental problem with prevalence surveys – I will discuss in detail the Productivity Commission’s warnings. In 1998 the Productivity Commission engaged Roy Morgan Research⁷ to survey by telephone an initial random sample (n = 10,609) of Australian adults, of whom about 2,200 were in Victoria. Some did not want to participate, and others turned out to be unsuitable. In any event the effective sample size turned out to be 3,498 adults, of whom about 725 were in Victoria. Some were not gamblers, and others gambled infrequently. Callers eventually administered the SOGS to 1,225 adults nationally who had gambled 52 or more times in the past year or who had been heavy losers (\$4,000+ p.a.). The Productivity Commission survey did not administer the SOGS to those who merely participated in lotto draws or bought scratch tickets. In Victoria the number who were asked SOGS questions was 254. The Productivity Commission weighted the sample to make it more representative of the Australian population. Its guide was the approach of the Australian Bureau of Statistics *Household expenditure survey* of about 8,500 adults every five years (Productivity Commission 1999, Summary p. 24).

The Productivity Commission survey suggested that Australia-wide the problem-gambling prevalence rate was 2.07 per cent. In Victoria the rate was 2.14 per cent. This figure the Victorian Government says that it has halved.

Now, despite the effort to which the Productivity Commission went to administer its ‘National Gambling Survey’, it evidently had deep misgivings about its prevalence-rate findings. Chapter 6 and appendix F of the Commission’s report discussed them succinctly. Its concerns were that sample surveys (both telephone and face to face) would encounter:

1. Problems in contacting some gamblers, who may be out at venues or have their telephones disconnected because of financial hardship.
2. Problems of representation, in particular that ‘People in certain cultural groups may be more uncomfortable about openly divulging personal issues, like problem gambling’. (1999, p. 6.35)
3. Problems of non-response and refusal, namely that ‘problem gamblers are more likely to refuse to participate because they are unwilling to answer potentially embarrassing questions’. (1999, p. F2)
4. Problems of denial, which is to say that, ‘even where problem gamblers agree to participate in a survey, they are more likely to be reluctant to provide truthful responses and to minimise the problems their gambling has created for themselves or others’. (1999, p. F2; see also 6.34-6.35)

Moreover, ‘precise tests of problem gambling are impossible, because ... the phenomenon itself lies on a continuum of differing degrees of severity’ (Productivity Commission 1999, p. 6.18). This raises:

5. Problems of cut-off scores or thresholds in problem-gambling screens such as the SOGS. ‘Therefore, constructing a threshold depends on judgements about what levels of severity are policy relevant.’ (1999, p. 6.18; see also Dickerson et al. 1996 re the ‘at-risk’ category).

⁷ Roy Morgan Research had administered the SOGS in surveys of Victorian adults in 1997 and 1998, and they would administer another later in 1999 (see table 1).

6. Problems of appropriate application, such as whether the SOGS, a clinical tool, is appropriate in population-screening, in which it might yield an unacceptable level of false-positive counts of problem gamblers (1999, pp. 6.19-6.23).

Of the six problems with prevalence surveys above, numbers three and four worried the Productivity Commission the most. False negatives will overwhelm any false positives. The following long quotation makes this clear unequivocally, as does table 2 below (the 'Table 6.9' to which the quotation refers):

... most particularly, people may provide dishonest or distorted answers to questions, especially if they feel that they are engaging in stigmatised behaviour. The Commission has been told by problem gamblers that, prior to seeking help from a counsellor, they would not have honestly disclosed their problem. Of those problem gamblers who would participate in a survey prior to seeking help, only 38 per cent believed they would answer honestly. Some 45 per cent said that they would hide their problem to some degree, and 17 per cent did not know what they would have done (table 6.9). Only 0.3 per cent said they would have exaggerated their problems. Yet the original validation exercise for the SOGS did not take into account the likely strategic behaviour by problem gamblers when answering questionnaires of this type (because it took a group of self-confessed problem gamblers in a clinical setting, rather than problem gamblers outside this setting).

Given these findings, it is possible that many people who actually experience severe problems with gambling may fail to disclose this in surveys intended to measure prevalence rates ...

The Commission estimates suggest that if the true prevalence rate of people with severe problems was around 0.7 per cent, it is easily possible that surveys would suggest a prevalence rate of such severe problems at around 0.3 per cent. The implication is that the Commission's National Gambling Survey could have seriously understated the prevalence of the most severe (SOGS 10+) cases. (1999, p. 6.35-6.36; our emphasis)

<i>Answer</i>	<i>Share of respondents who said that they would have ...</i>
	%
Answered honestly	28.9
Refused to answer the survey	23.7
Somewhat concealed any problems	13.7
Mostly concealed any problems	9.7
Completely concealed any problems	9.2
Exaggerated any problems	0.2
Told them you did not know	1.7
Don't know what they would have said then	12.7
<i>Total</i>	<i>100.0</i>

¹Based on responses of 401 clients of counselling agencies. The survey asked problem gamblers seeking help from specialist gambling agencies whether they would have participated in a survey prior to seeking help, and whether they would have revealed the true nature of their problems. Source: PC Survey of Clients of Counselling Agencies.' (Productivity Commission 1999, p. 6.36)

Table 2. Productivity Commission table 6.9 'Do genuine problem gamblers reveal they have a problem?'

Note that the quotation from the Productivity Commission above possibly underestimates the likely error. Table 2, the Commission's table 6.9, shows why. In saying that 38 per cent said that they would have answered honestly, the Commission excluded the 23.7 per cent who said that they would have refused to answer the survey. In other words, the Commission's survey violated the assumption of randomness that underpins using survey methods to estimate prevalence. This is so because we cannot say whether those with gambling problems will refuse to participate in gambling surveys in the same proportion as would the general population. For all the reasons I have discussed it is likely that more 'problem gamblers' would bail out. Table 2 has it that 28.9 per cent of 'problem gamblers' in counselling said that they would have answered honestly, while 0.2 per cent said that they would have

exaggerated. Perhaps, then, it is fair to say that the Commission's data suggest that between 30.1 per cent and 38.0 would *not* have concealed that they had gambling problems. At the lower end of the range, if only 0.3 per cent were the SOGS10+ group (severe problem gamblers) then the actual rate would be 1.0 per cent not 0.7 percent (as in the quotation). Were we to apply the same factors to the various prevalence rates from Victorian studies in table 1, the actual prevalence rates would be as shown in table 3 below.

Publication	4 th and 5 th Survey of community gambling patterns and perceptions (1997)**	6 th Survey of community gambling patterns and perceptions (1999)**	7 th Survey of community gambling patterns and perceptions (2000)**	Australia's gambling industries (1999) Australia	Australia's gambling industries (1999) Victoria	Report of the 1999 Longitudinal Community Impact Study September (2000)**	2003 Victorian longitudinal community attitudes survey (2004)
Reported per cent problem gamblers' (SOGS 5+)	0.70	1.30	0.80	2.07	2.14	2.00	1.12
Adjusted per cent problem gamblers' (SOGS 5+) with 38.0% honest (62.0% concealment)	1.8	3.4	2.1	5.4	5.6	5.3	2.9
Adjusted per cent problem gamblers' (SOGS 5+) with 30.1% honest (69.9% concealment)	2.3	4.3	2.7	6.9	7.1	6.6	3.7

* Weighted data used ** VCGR (1997-2000)

Table 3. Problem-gambling prevalence rates in Victoria 1996-2003 adjusted for dishonesty and distortion*

Understanding just how much users of poker machines falsely and under-report their losses will further reinforce this point. Reported Victorian poker-machine losses in the ABS *Household expenditure survey* (HES) comprise a laughably small fraction of total losses, as table 4 shows. Indeed the ABS's submission to the Productivity Commission inquiry was explicit about causes of the differences between the HES losses and known industry data:

These include reporting issues (eg householders may have difficulty in recalling and isolating gambling expenditure separately from other forms of expenditure such as food, drink and entertainment and/or may more readily recall winnings as opposed to losses) and conceptual differences (eg HES excludes expenditure by overseas visitors to Australia whereas they are included in industry estimates). However, the ... [differences] indicate a very significant degree of under reporting in the HES which is unlikely to be explained by the reporting errors mentioned above. This clearly indicates that respondents are deliberately failing to report the full extent of their gambling activities. This may be due to a concern that they have that other members of the household and ABS staff will see the diary of expenditures and may judge their gambling activities as excessive and/or anti social. These difficulties are demonstrated ... to the extent that the HES estimates show households in NSW, SA, WA and NT all with negative expenditure (or all winnings) on the 'TAB, on course betting etc' for 1993-94. (ABS 1998, pp. 4-5; our emphasis)

The ABS submission warned that ‘HES data on gambling is significantly under-reported and hence any analysis based on, for example income distribution, may be questionable’ (1998a, p. 10). We know that heavy losers contribute more than half of total losses in Victoria, with one estimate being that six per cent of Victorians lose 60 per cent of the total: a staggering \$1.5 billion per annum, on current estimates (Doughney 2007; 2006). Yet precisely these heavy users will be least likely to be honest about the true extent of their gambling. Often the extent of the problem is not revealed until well into counselling, and it is hidden from loved ones and friends to avoid embarrassment and shame. Unwillingness to speak about gambling can be especially acute for some cultures (see, e.g. Australian Vietnamese Women’s Welfare Association 1998, pp. 2, 3; Brown & Coventry 1997, pp. 10-11; Brown, Johnson, Jackson, & Wynn 1999, pp. 12-13, section 3; Wesley Gambling Counselling Service 1998, pp. 30-31).

None of the criticisms in the preceding paragraphs should be read as criticisms of the Productivity Commission or of the ABS. The Commission was candid about its findings and their limitations; the ABS likewise. The criticisms are of using sample surveys of self-reported data to estimate population prevalence *in the particular area of gambling*. We simply cannot express any confidence that the reported prevalence rates accurately reflect the actual prevalence of gambling problems in the population. This is what tables 3 and 4 are saying. Moreover the problems with the method seem to be inherent and insurmountable.

	1 <i>HES average weekly reported losses \$</i>	2 <i>Number of house- holds</i>	3 <i>Annual household poker machine losses reported in the HES (= 1x2x52.14)</i>	4 <i>Actual annual poker machine losses \$</i>	5 <i>Per cent of actual losses reported (= (4-5)/5)</i>	6 <i>Per cent of actual losses not reported (= (5-4)/5)</i>
1993-4	0.77	1,648,200	66,171,604	682,599,461	9.69	-90.31
1998-9	1.21	1,739,600	109,756,334	1,954,271,215	5.61	-94.39
2003-4	0.64	1,906,000	63,605,943	2,290,929,976	2.78	-97.22

ABS (Cat. No. 6535.0); VCGR (2007)

Table 4. Under-reporting in the *Household expenditure survey* of Victorian poker-machine losses

Population Prevalence Rates for ‘Problem Gambling’ are Imprecise Statistically

Our consideration of the issues above has exposed the main reason that sample surveys of self-reported data to estimate prevalence of ‘problem gambling’ are scientific on the surface only. This is that the source data are unsound because most will go unreported. In this section I will outline another deficiency, namely that the level of statistical precision possible is weak even with the reported data.

The first motive for us to call claims to statistical precision into question is that the reported data are unstable. Three reasons exist: 1. the data are sensitive to sampling choices; 2. different sampling choices mean that it may be difficult to compare surveys; and 3. small prevalence rates mean that estimates can deviate widely by chance, which also makes it difficult to compare different surveys. Our second motive for challenging the statistical soundness of the reported prevalence rates also has to do with their small size. I will suggest that the various studies do not measure confidence intervals well.

The first reason seems rather more prosaic than are the other two, but its effect can be significant. Refer again to the table 1 row ‘Criteria for selecting those to whom SOGS administered’. The information in this row designates who, from the original sample, will be tested for ‘problem-gambling’ behaviours. That is, it delimits who might possibly be called a ‘problem gambler’. Note the differences in criteria. The fourth to the seventh community surveys administered the SOGS to all, and they included Lotto and scratch-ticket buyers in the sample. The Productivity Commission excluded the latter, and it selectively administered SOGS to 52-times per year gamblers and those who lost (on self-report) more than \$4,000 per year. This inclusion helped to compensate for excluding binge gamblers, who might gamble less

frequently than 52 times per year but still lose heavily. In contrast KPMG administered SOGS to those who had gambled in the last six months, including Lotto and scratch-tickets buyers. Finally the *2003 Victorian longitudinal community attitudes survey* excluded Lotto and scratch-tickets buyers and used a once-per-week cut-off criterion without provision for binge gamblers. A once-per-week criterion also may be interpreted more strictly than a 52-times per year criterion. Exclusion of possible binge gamblers is a serious omission, in our opinion, but it was honestly acknowledged in the Foreword to the report by then Chair of the Gambling Research Panel Linda Hancock but not subsequently by the Government:

... the application of gambling prevalence screens only to regular gamblers (defined as those who gambled at least weekly or 52 times per year, in gambling activities other than lottery games or instant scratch tickets) may have excluded others who gamble less frequently but for whom gambling is nevertheless problematic. (Hancock, in McMillen & Marshall 2004, p. 3)

The second reason that the reported prevalence data are unstable follows directly from the first. If surveyors make different sampling choices, it becomes unsafe to compare surveys. Part of the deviation in prevalence rates illustrated in tables 1 and 3 is likely to be due to such choices. Hence, on this ground alone, it was unwise to compare, without apparent qualification, the Productivity Commission's 1999 survey with the *2003 Victorian longitudinal community attitudes survey*. They were 'measuring' different things. The former was more sensitive to binge-gambling; the latter not. For the authors of the Government policy to have ignored this basic rule is slipshod.

The third reason for instability in prevalence rates is that, because the numbers of identified 'problem gamblers' are small, estimates of prevalence can deviate widely by chance. Notwithstanding the preceding paragraph, note how small the numbers are in table 5 below and how much the prevalence data go up and down, even in contemporaneous surveys. Notice also the relatively large standard errors and relative standard errors of the prevalence rate, wide confidence intervals at the 95 per cent level and high percentage confidence intervals. With such small weighted numbers of adults scoring SOGS5+ – the largest being 72 for Australia and 27 for Victoria – something intuitively tells us to be careful with the results. Again Hancock gave the correct warning in her Foreword: 'In reading the problem gambling prevalence rates in this study, the standard errors of estimate suggest caution' (Hancock, in McMillen & Marshall 2004, p. 3).

Our intuition, however, might amount to little. We need to explore the numbers more rigorously. Again the Productivity Commission, echoing Dickerson et al. (1996), had suggested an appropriate route by sounding a signal warning about small prevalence rates. Footnote 34 on pages 6.47-6.48 of *Australia's gambling industries* explains where we can go wrong in such cases:

*If something is rare among a population then different samples of that population will tend to provide estimates of prevalence which deviate considerably. For example, suppose that the true prevalence rate was 0.5 per cent and a random sample of 1000 adults was taken ... The likelihood of discovering just 5 problem gamblers (the expected number of problem gamblers) in the sample is only 17.6 per cent. There is a 12.4 per cent chance of finding 2 or less problem gamblers, and a 13.3 per cent chance of finding 8 or more problem gamblers. As Dickerson et al. [1996a] note, **small prevalence rates stretch the accuracy of the survey method to its limits. Indeed, apart from the early national study, with sample surveys ranging in size from around 1200 up to 2000 participants, the number of problem gamblers identified across the various state studies ranges from only 2 to 9, a variation which could arise purely from chance. This is evidenced by the fact that the 95 per cent confidence intervals for the SOGS 10+ prevalence rates overlap for all states. (1999, pp. 6.47-6.48; our emphasis)***

The formula the Productivity Commission used to calculate the probabilities in footnote 34 I will also use.⁸ The symbol Pr(s) in equation (1) below stands for the probability of success in identifying the ‘correct’ number of ‘problem gamblers’ (SOGS5+) from a sample of trials (telephone calls in this instance) numbering t. The symbol p stands for the actual proportion of ‘problem gamblers’ in the population, and this tells us what the ‘correct’ value of s should be in a sample of size t. The expression in brackets represents the possible number of combinations of s within t. The formula is:

$$\text{Pr}(s) = \binom{t}{s} p^s (1-p)^{t-s} \quad (1)$$

Publication	4 th and 5 th Survey of community gambling patterns and perceptions (1997)**	6 th Survey of community gambling patterns and perceptions (1999)**	7 th Survey of community gambling patterns and perceptions (2000)**	Australia’s gambling industries (2000)	Australia’s gambling industries (2000)	Report of the 1999 Longitudinal Community Impact Study September (2000)**	2003 Victorian longitudinal community attitudes survey (2004)
Date of survey	1997	1998	1999	Australia 1998	Victoria 1998	1999	2003
Total effective sample size	1,712	1,737	1,760	3,498	≈ 725	500 with SOGS	2,396
Total sample to whom SOGS administered	1,712	1,737	1,760	1,225	≈ 254	≈ 500	143
Number of problem gamblers’ (SOGS 5+)	15	26	12	n.a.	n.a.	≈ 10	22
Weighted number of problem gamblers’ (SOGS 5+)	12	23	14	72	≈ 15 or 16	n.a.	27
Per cent problem gamblers’ (SOGS 5+) = Prevalence rate	0.70*	1.50 1.30*	0.70 0.80*	2.07*	2.14*	2.00	1.12*
Standard error (SE) of prevalence rate	0.20	0.27	0.21	0.24	0.54	0.44	0.21
Relative standard error (RSE) of prevalence rate (%)	28.79	20.91	26.54	11.63	25.11	22.14	19.19
Confidence interval (CI) of prevalence rate with 95% level of confidence	0.39	0.53	0.41	0.47	1.06	0.86	0.41
CI limits with 95% level of confidence***	0.31 – 1.09	0.77 – 1.83	0.39 – 1.21	1.60 – 2.54	1.08 – 3.20	1.14 – 2.86	0.71 – 1.53
Per cent interval at 95% level	±56.0	±40.7	±51.5	±22.7	±49.5	±43.1	±36.8
Adult (18+) population ≈	3,469,000	3,520,000	3,525,000	14,142,000	3,550,000	3,525,000	3,475,197
Problem gamblers’ (SOGS 5+) ≈	24,283	45,760	28,200	292,739	75,970	70,500	38,922

* Weighted ** VCGR (1997-2000) *** See table 6 below

Table 5. Deviation between problem-gambling prevalence surveys in Victoria 1996-2003

The inverse of the probability of getting it right or actually identifying s ‘problem gamblers’ from t telephone calls – assuming improbably that we have conquered *all* the problems generating false responses discussed in previous sections – is the odds against getting it right. The third and fourth rows of data in table 6 give the results for each of the Victorian prevalence surveys. None of the probabilities of getting it right are auspicious, and the odds against are high (if we have pretensions to accuracy and are not merely after a ‘good thing’ to punt on).

Note that probabilities fall the larger are the sample sizes. This is because s increases in number. However, the probability of being quite wide of the mark is much higher with smaller values of s. This can be seen in chart 2, which plots the probabilities of identifying values of s, assuming a population

⁸ Sampling without replacement normally requires that we calculate probabilities (likelihoods) with the hypergeometric distribution. However with relatively small sample percentages of populations the binomial formula is easier and is as accurate.

prevalence of 1 per cent, for samples sizes of $t = 500$ ($s = 5$), $t = 2,000$ ($s = 20$) and $t = 4,000$ ($s = 40$). Let us say that the values of s we estimate by survey are ± 20 per cent wide of the actual mark (the peak of each curve). Note how the probabilities of being 20 per cent out, as shown roughly by the grey shaded areas, drop by greater proportions in the larger samples, which is to say that the likelihood of having a relatively larger error is greater in smaller samples. Note also, however, that in all cases with small prevalence rates the odds of getting it right or near-right are small. Consequently the prevalence rates estimated are unstable within any survey, which is to say that they could almost as easily be one figure or another, and from survey to survey This is another reason that it was illicit for the Government to have made such a direct, unguarded comparison with prevalence rates arising from earlier studies.

Publication	4 th and 5 th Survey of community gambling patterns and perceptions (1997)**	6 th Survey of community gambling patterns and perceptions (1999)**	7 th Survey of community gambling patterns and perceptions (2000)**	Australia's gambling industries (2000) Australia	Australia's gambling industries (2000) Victoria	Report of the 1999 Longitudinal Community Impact Study September (2000)**	2003 Victorian longitudinal community attitudes survey (2004)
Total effective sample size (t)	1,712	1,737	1,760	3,498	≈725	500 (with SOGS)	2,396
Weighted number of problem gamblers' (SOGS 5+) (s)	12	23	14	72	≈ 16	10	27
Pr(s) = probability of identifying s from a sample of size t	11.5%	8.3%	10.6%	4.7%	≈ 10.0%	12.6%	7.7%
(1/Pr(s)) = odds against identifying s from a sample of size t (rounded)	9/1	12/1	9/1	21/1	10/1	8/1	13/1

** VCGR (1997 2000)

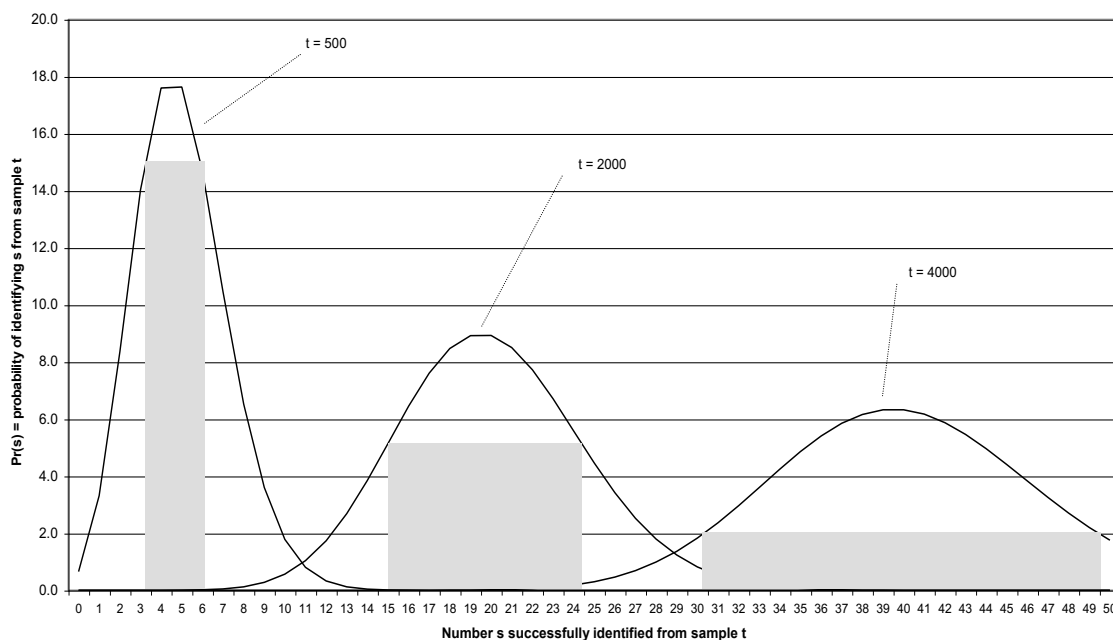


Chart 2. Probabilities of identifying 's' given different sample sizes 't' with $p = 0.01$

Unfortunately too little attention was paid to the Productivity Commission’s warnings, and much more weight was given to the numbers than they could reasonably be expected to carry. Therefore, even if we ignore completely that only 30-40 per cent of ‘problem gamblers’ might respond truthfully to relevant survey questions, we cannot put faith in the numbers because of the low probability problem. Yet this is not the only reason to doubt the statistical efficacy of the reported results. Our second motive for challenging the statistical soundness of the reported prevalence rates – also to do with their small size – is that the various studies do not measure confidence intervals as accurately as they could do.

The usual formula for calculating the 95 per cent confidence interval is given in equation (2) below. The symbol SE(P) is the standard error of the prevalence rate, t is the sample size or number of trials (as above) and P is the percentage prevalence rate that we have estimated. The symbol p, again, is the prevalence rate in percentage form. The confidence limits and intervals in table 5 derive from this formula:

$$p_{\text{limits}} = SE(P) \pm 1.96 \sqrt{\frac{P(100 - P)}{t}} \quad (2)$$

However, while applying this ‘formula to risk [or prevalence] data to obtain confidence limits is straightforward, ... the approach is useful only as a large number approximation’ (Rothman 2002, p. 132). In particular, for prevalence rates ‘that are considerably less than (or greater than 50%), the confidence limits are apt to be inaccurate’. Instead we should use the formula for Wilson’s confidence limits for a binomial, which ‘comes close to exact limits for a binomial distribution’ (2002, p. 132). Using the same symbols as above, the somewhat forbidding formula is:

$$p_{\text{limits}} = \frac{t}{t + 1.96^2} \left(\frac{s}{t} + \frac{1.96^2}{2t} \pm 1.96 \sqrt{\frac{s(t - s)}{t^3} + \frac{1.96^2}{4t^2}} \right) \quad (3)$$

As would an exact binomial distribution, Wilson’s formula produces an asymmetrical distribution of confidence limits for small prevalence rates. The reason is that the number on the lower end of the interval squeezes up against zero. Table 7 offers confidence limits and intervals calculated using formula (3) with which to compare the limits and intervals reported in the seven Victorian prevalence surveys (calculated with the usual formula (2)). Each of the lower limits increases, as does each of the upper limits. In other words more accurate methods calculate higher prevalence rates.

Publication	4 th and 5 th Survey of community gambling patterns and perceptions (1997)**	6 th Survey of community gambling patterns and perceptions (1999)**	7 th Survey of community gambling patterns and perceptions (2000)**	Australia’s gambling industries (2000)	Australia’s gambling industries (2000)	Report of the 1999 Longitudinal Community Impact Study September (2000)**	2003 Victorian longitudinal community attitudes survey (2004)
Total effective sample size (t)	1,712	1,737	1,760	3,498	≈725	500 (with SOGS)	2,396
Weighted number of problem gamblers’ (SOGS 5+) (s)	12	23	14	72	≈ 16	10	27
CI limits with 95% level of confidence using Wilson’s (more accurate) formula	0.40 – 1.22	0.88 – 1.98	0.47 – 1.33	1.64 – 2.58	1.36 – 3.55	1.09 – 3.64	0.78 – 1.63
CI limits with 95% level of confidence using usual (less accurate) formula	0.31 – 1.09	0.77 – 1.83	0.39 – 1.21	1.60 – 2.54	1.08 – 3.20	1.14 – 2.86	0.71 – 1.53

** VCGR (1997-2000)

Table 7. Comparison of reported data using Wilson’s confidence limits (intervals) for a binomial

Now, I do not want to flog a dead horse, as it were, but it bears repeating that even the ‘more accurate’ results in table 7 are thoroughly inaccurate. If we can rely in any way on the Productivity Commission’s reported responses from 401 clients of gambling counselling agencies (1999, p. 6.36), the data here underestimate prevalence by a factor of between 2.5 and 3.3 to one. That is, ‘true’ prevalence is more likely to be in the 2.5 to 7 per cent range.

Conclusion

It is perhaps not so odd that we can arrive at similar results as the 2.5 to 7 per cent range by alternative routes. For instance, if we use solid industry data on losses, including evidence from Tattersall’s and Tabcorp that 15-20 per cent of EGM users provide them with 60-80 per cent of revenues, we can work backwards and calculate that about 6 per cent of Victorian lose about \$1.5 billion per year. This is an average of about \$7,500 per year, which equates to about one-quarter of individualised household disposable income. By almost any reckoning this is too much. It will most likely cause some level of gambling-related harm, however defined (Doughney 2007; 2006).

Perhaps this alternative route is more secure than is a tendentious set of arguments and calculations using unstable and improbable prevalence data. Perhaps not. We might be convinced by experience, evidence and argument that better methods by which to calculate prevalence are possible. We shall see. At this point I do not argue that researchers should scrap prevalence studies altogether, though I do doubt whether it is possible to surmount their deficiencies in a reasonable fashion.

What I do argue, however, is that, whenever anyone uses prevalence estimates for ‘problem gambling’, such estimates *must* be used transparently and with the caveat that they are likely to underestimate the true level of the problem massively. Nothing less will do. Certainly such sloppily estimated data – for that is precisely what they are – must never be used to make absurd claims such as that the Victorian Government has halved ‘problem gambling’.

This paper has shown that the Victorian Government has been misleading to have made this preposterous claim. In addition, the paper has used evidence and argument from the Productivity Commission, the Australian Bureau of Statistics and statistical/epidemiological sources to conclude that extant sample survey techniques used to estimate prevalence rates are flawed because:

1. Those whose ‘prevalence’ in a population we seek to measure, ‘problem gamblers’, are the most likely not to respond to surveys or to give dishonest and distorted answers to the most relevant questions.
2. The instruments such as SOGS that are used to measure ‘problem gambling’ can be uncertain about what it is that they are measuring and use contestable cut-off scores that do not accord with the more reasonable notion that the problem itself exists as a continuum.
3. Different researchers have used different and debatable sampling strategies, such as the 2003 *Victorian longitudinal community attitudes survey* being insensitive to possible binge-gambling.
4. Relatively small prevalence rates, in conjunction with relatively unsophisticated estimation formulae, cause high levels of deviation in prevalence rates, reflected in high standard errors, relative standard errors, confidence limits and confidence intervals.
5. Because of points three and four it was methodologically wrong for the Government’s policy document to have compared the prevalence rates from the Productivity Commission’s Victorian data and the 2003 *Victorian longitudinal community attitudes survey*, let alone to have concluded that it had halved ‘problem gambling’.

Truly, faults such as these stretch prevalence survey methods to – and beyond – their limits.

References

- Australian Bureau of Statistics (ABS) (various years), *Household expenditure survey, Australia, detailed expenditure items*, Cat. No. 6535.0, Canberra, ABS.
- ____ 1998, 'Submission', *Productivity Commission inquiry into Australia's gambling industries*, Canberra, Productivity Commission.
- Australian Vietnamese Women's Welfare Association 1998, 'Submission', *Productivity Commission inquiry into Australia's gambling industries*, Canberra, Productivity Commission.
- Banks, G 2002, 'The Productivity Commission's gambling inquiry: 3 years on', paper presented to the *12th annual conference of the National Association for Gambling Studies (NAGS)*, Melbourne.
- Brown, S, Johnson, K, Jackson, AC, & Wynn, J 1999, *Who picks up the tab? Issues and dilemmas for services providing mainstream support to women affected by gambling in Melbourne's Western Metropolitan Region*, Melbourne, Women's Health West.
- Brown, S & Coventry, L 1997, *Queen of hearts: The needs of women with gambling problems*, Melbourne, Financial and Consumer Rights Council.
- Department of Justice, Victoria (DoJ) 2006, *Taking action on problem gambling: A strategy for combating problem gambling in Victoria*, State of Victoria, Melbourne.
- Dickerson M, Baron E, Hong S-M, Cottrell D 1996, 'Estimating the extent and degree of gambling related problems in the Australian population: A national survey', *Journal of gambling studies*, vol. 12(2), pp. 161–178.
- Doughney, J 2007, 'Ethical blindness, EGMs and public policy: A tentative essay comparing the EGM and tobacco industries', *International journal of mental health and addiction*, forthcoming.
- ____ 2006, 'The Poker-machine state in Australia: A consideration of ethical and policy issues', *International journal of mental health and addiction*, vol. 4, pp. 351–368.
- McMillen, J & Marshall, D 2004, *2003 Victorian longitudinal community attitudes survey*, Gambling Research Panel Report No. 6, Melbourne, State of Victoria.
- Productivity Commission 1999, *Australia's gambling industries*, Canberra, Productivity Commission, retrieved 3 April 2006, from <http://www.pc.gov.au/inquiry/gambling/finalreport/index.html>.
- Rothman, KJ 2002, *Epidemiology: An introduction*, Oxford, Oxford University Press.
- Victorian Commission for Gaming Regulation (VCGR) 2007, 'Research and statistics', retrieved 28 March 2007, from <http://www.vcgr.vic.gov.au/CA256F800017E8D4/Statistics/FD7EA8DF7FD68F8ECA257067001AB256?Open>
- ____ 1997-2000, 'Projects', retrieved 28 March 2007, from <http://www.vcgr.vic.gov.au/CA256F800017E8D4/Statistics/36AB81950861EF0BCA25701C004F69C?Open>
- Wesley Gambling Counselling Service (NSW) 1998, 'Submission', *Productivity Commission inquiry into Australia's gambling industries*, Canberra, Productivity Commission.

