Privacy Concerns and Purchase of Travel Product Online

Mark R. Brown,
Rose Muchira, and
Udo Gottlieb

UQ Business School
University of Queensland, Australia
m.brown@business.uq.edu.au

School of Marketing
Griffith University, Australia
cadmu@hotmail.com

UQ Business School
University of Queensland, Australia
u.gottlieb@business.uq.edu.au

Abstract

The travel and tourism industry has come to rely heavily on information and communication technologies to facilitate relations with consumers. Compiling consumer data profiles has become easier and it is widely thought that consumers place great importance on how that data is handled by firms. Lack of trust may cause consumers to have privacy concerns and may, in turn, have an adverse impact on consumers' willingness to purchase online. Three specific aspects of privacy that have received attention from researchers are unauthorized use of secondary data, invasion of privacy, and errors. A survey study was undertaken to examine the effects of these factors on both prior purchase of travel products via the Internet and future purchase probability. Surprisingly, no significant relationships were found to indicate that such privacy concerns affect online purchase behavior within the travel industry. Implications for managers are discussed.

Key Words: travel, Internet, privacy, trust, relationship marketing

1 Introduction

The purchase of travel products via the Internet has continued to escalate with research suggesting that half of all U.S. Internet users - around fifty-nine million individuals - have made a travel purchase online (Greenspan, 2002). Other figures indicate that 29% of American consumers made all their travel arrangements on the Web while 30% plan to increase their online travel purchases over the coming year

(Greenspan, 2003). In the European market, online travel sales reached EUR 11.7 billion in 2003 (Marcussen, 2004). Given the significant scale of retail travel services purchased in this way, research into factors that may influence the online purchase process is important.

It is often argued that one of the key strengths of the Internet lies in its ability to facilitate relationship building with consumers (Mohammed, Fisher, Jaworski, and Paddison, 2004). Relationship marketing is largely technology-driven (Gordon, 1998) and often dependent upon high-quality, reliable customer databases from which to draw data and configure information, depicting patterns of need within the customer and prospect population (Khalil and Harcar, 1999). Many marketers now focus on using technology, which is supposed to help them get closer to consumers and build ongoing relationships (Campbell, 1997). A critical success factor for customer relationship management is access to customer information. The better the information that is gathered, the better the company is able to meet its customers' needs (Nicovich and Cornwell, 1998).

Collecting data about consumers is helpful but perhaps even more important is using the data in a way that does not cause consumers to be concerned. It has been reported that 10% of Web users never provide information to Web sites that require registration, resulting in a loss of information collected by the marketer (Kehoe, Pitkow, and Morton, 1997). Such an apparent lack of trust may suggest that consumers have privacy concerns when it comes to online purchasing. This paper sets out to examine the impact of privacy concerns on consumers' willingness to purchase travel products via the Internet.

2 Privacy Online

Research has found that a substantial percentage of consumers are to some degree concerned about threats to privacy (Petrison and Wang, 1995), stemming from new digital technologies, free markets, and the virtually unlimited exchange of electronic information (Lester, 2001). Public opinion polls indicate that consumers are very concerned about what companies know about them, how companies obtain information, what companies do with the information they collect, and the accuracy of the information they use (Nowak and Phelps, 1995). Consumers appear to be particularly concerned about privacy online (Kehoe, Pitkow, and Morton, 1997).

2.1 What is Privacy?

Privacy means many things to many people and different things in different contexts. It can be the expectation of anonymity, the expectation of fairness and control over personal information, and the expectation of confidentiality (Berman and Mulligan, 1999). Stone and Stone (1990) characterized privacy as a state or condition in which an individual has the ability to (a) control the release or subsequent dissemination of information about him or herself, (b) regulate the amount and nature of social

interaction, and (c) exclude or isolate himself or herself from unwanted auditory or visual stimuli.

This research examines consumer privacy concerns within the framework of the model presented by Smith, Milberg, and Burke (1995). The authors suggest that consumer information privacy concerns can be divided into two sets of variables: 1) contextual issues relating to the type of information and the organization collecting the data and 2) issues stemming from individual differences between consumers. The focus of this study is on the privacy concerns individuals have with online companies or Web sites, therefore only contextual issues will be considered.

Smith, Milberg, and Burke (1995) categorize contextual privacy issues into five major areas as follows:

- Collection: the perception that too much data are being collected.
- Unauthorized secondary use: personal data collected for one purpose are used for another without permission.
- Errors: personal data are accidentally or deliberately altered, corrupting the integrity of a database.
- Improper access: unauthorized individuals access personal data.
- Invasion: unsolicited and unwanted communications to consumers.

Of these five broad areas of concern, three have been frequently identified in the direct marketing literature as being of primary concern to consumers. They include unauthorized secondary use of data, invasion of privacy, and errors (Milne, Beckman, and Taubman, 1996; Nowak and Phelps, 1995; Petrison and Wang, 1995). Given the overt similarities of direct marketing and the marketing of products via the Internet, our study addresses those issues that have been previously demonstrated to concern the consumer the most.

2.2 Unauthorized Secondary Use of Data

Personal information has become a commodity to be bought, sold and traded. Profitability has become more important than privacy (Gillmor, 1998; Kakalik and Wright, 1996). Internet technology has made it very easy to collect vast amounts of individual information with digital networks now making it possible to link all this information (Prabhaker, 2000). Indeed, over 450 companies in the US generate most of their sales revenue by gathering and selling consumer information and data (Nowak and Phelps, 1995).

Researchers have argued that when presented with scenarios involving the provision of personal data to Web sites, respondents are much less willing to provide information when personally identifiable information is requested (Cranor, Reagle, and Ackerman, 1999). The most important factor in this decision is whether or not the information will be shared with other companies and organizations. One notable study

found that in order to protect their privacy, significant numbers of people falsify information online (Kehoe, Pitkow, and Morton, 1997). They do this because they seriously value their anonymity. The most common reason for not registering at a site was the lack of statements about how the information will be used. Consumers are not willing to take the risk of providing details to companies that may later on-sell the data. Additionally, the study showed that most users would rather not access a site than reveal personal information. There are numerous sites where a user must register in order to access the site and/or to make a purchase. It might be inferred that consumers who have doubts about a Web site's use of their personal information will prefer not to access that site rather than divulge their personal details. Furthermore, they may be less likely to purchase from these sites. Therefore:

H1: There will be a significant negative relationship between consumers' attitude toward unauthorized use of secondary data and a) their prior purchase of travel products via the Internet and b) the probability of their purchasing travel products online within the next twelve months.

2.3 Invasion of Privacy

There is growing anecdotal evidence that lack of privacy protection is a major barrier to consumer participation in electronic commerce (Berman and Mulligan, 1999; Sheehan and Hoy, 1999). Furthermore, it has been suggested that one of the strongest steps individuals can take as a result of privacy concerns is to restrict or withdraw purchase of goods and services through direct marketing channels (Campbell, 1997). A significant aspect of privacy concern is invasion (Attaran, 2000). It involves contacting consumers who have not requested such contact and is often done repeatedly. Non-transactional privacy concerns such as receiving junk e-mail and unsolicited messages have been identified as of concern to consumers (Korgaonkar and Wolin, 1999). We suggest that consumers who have experienced online invasion of privacy are less inclined to purchase travel products via the Internet. It is hypothesized that:

H2: There will be a significant negative relationship between consumers' experience of online invasion of privacy and a) their prior purchase of travel products via the Internet and b) the probability of their purchasing travel products online within the next twelve months.

2.4 Errors

Web sites collect considerable personal information both explicitly, through registration pages, survey forms, order forms and on-line contests, and by using software in ways that are less obvious to online consumers (Federal Trade Commission, 1999). Companies can also collate information submitted by users with data automatically transmitted by a user's Web browser and other software to provide a detailed picture of an individual (Foust, 2000).

Consumer data collected by online companies has proved extremely valuable because it not only enables merchants to market products and services that are increasingly tailored to their visitors' interests, but also permits companies to boost their revenues by selling advertising space on their Web sites (Federal Trade Commission, 1999). Companies such as Double-click use this detailed transactional information to provide targeted online advertising. Others, such as Adfinity, combine “mouse-droppings” or “click-stream data” with personal information collected from other sources into fully identifiable profiles of the individual's online and off-line behavior (Berman and Mulligan, 1999). In the process of combining these reports, it is likely that inaccurate details will be recorded. This is reflected when consumers receive unsolicited e-mail or advertising material with incorrect information about them or that is clearly irrelevant to their profile. It is therefore hypothesized that:

H3: There will be a significant negative relationship between consumers' experience of inaccuracy or manipulation of personal data and a) their prior purchase of travel products via the Internet and b) the probability of their purchasing travel products online within the next twelve months.

3 Method

3.1 Measures

The questionnaire used for data collection consisted of a combination of multivariate and univariate measurement instruments as well as measures of key demographic factors. The first dependent variable, prior purchase, was measured using a single-item measure indicating how many times a consumer had made a product purchase and full payment completely via the Internet. The second dependent variable, twelve-month purchase probability, was measured using Juster’s (1966) eleven-point purchase probability scale used to estimate purchase rates.

Unauthorized secondary use of data was assessed using Moorman, Deshpande, and Zaltman’s (1993) scale for measuring factors affecting confidentiality in market research. A slightly modified version was used to reflect confidentiality of personal information collected via the Internet. The authors reported a Cronbach's alpha of 0.89, which suggests a reliable scale for use in this study. Invasion of privacy was measured using a three-item scale developed by Korgaonkar and Wolin (1999). They used the scale to measure non-transactional privacy concerns of online users. Cronbach's alpha for the original study was 0.76, indicating the reliability of the measure. Consumers’ experience of errors in recorded data was measured using a nominal univariate item that asked whether they had experienced a situation where their details have been altered.

3.2 Sample and Analysis

Data were collected by survey questionnaire using a convenience sample of two hundred and ten undergraduate and postgraduate students at an Australian east coast

university. Though the sample is relatively homogenous in terms of demographics and lifestyles, thereby enhancing internal validity, it may also have reduced the external validity of the research. However, such a convenience sample was deemed appropriate because the purpose of the study was not to provide point and interval estimates of the variables but to test the relationships among them. They are therefore considered adequate for this purpose (Calder, Phillips, and Tybout, 1981). Furthermore, the relative youth of the sample is not inappropriate as Internet usage is prevalent among younger consumers, with as many as 40% of all Internet users falling within the 18-34 age category (CyberAtlas, 2001). Of the total number of questionnaires given out, one hundred and ninety six were received. Of this, one hundred and eighty six questionnaires were usable. This represented a response rate of 88.6%.

Hypotheses 1, 2, and 3 were tested using two three-way analyses of variance (ANOVA), one for each dependent variable. Independent variables were unauthorized use of secondary data, invasion of privacy, and errors. Prior purchase frequency and future purchase probability were treated as the dependent variables. Results of these analyses are discussed below and are shown at Tables I and II.

4 Results

No gender bias was apparent in the sample with ninety-one respondents being male and ninety-five female. The summated scales for attitudes toward unauthorized secondary use of data and invasion of privacy yielded Cronbach's alpha measures of 0.6, which is considered an acceptable level for social research (Malhotra, Hall, Shaw, and Crisp, 1996).

Hypothesis 1a proposed that there will be a significant negative relationship between consumers' attitude toward unauthorized use of secondary data and their prior purchase of travel products via the Internet. The summated mean for the scale was 3.54 (1=Strongly Disagree; 7=Strongly Agree). Analysis of variance was used to determine whether the relationship was significant, the results of which are displayed at Table 1. No significant relationship was found and Hypothesis 1a is therefore rejected (F=0.03; df 1,185; $p > .05$). Similarly, no relationship was found between unauthorized use of secondary data and online purchase probability (F=0.19; df 1,185; $p > .05$). H1b is also rejected.

Hypothesis 2 suggested that there will be a significant negative relationship between consumers' attitude toward online invasion of privacy and their prior purchasing of travel products via the Internet. The summated mean of the invasion of privacy scale was found to be 5.46 (on a seven-point scale). This suggests that consumers generally have some concern over being contacted by companies online without prior permission. However, the ANOVA results indicated no significant relationship between invasion of privacy and online purchase frequency (F=0.00; df 1,185; $p > .05$) or purchase probability (F=0.22; df 1,185; $p > .05$). H2a and H2b are not supported.

Hypothesis 3a claimed that Internet users who have had prior experience online, where personal data has been accidentally or deliberately altered are less prone to purchase travel products online. No significant relationship between altering personal details and prior online purchase was found (F=1.26; df 5,181; p > .05). Hypothesis 3a is also rejected. Furthermore, no support was found for H3b, which suggested a relationship between errors and future purchase probability (F=0373; df 5,181; p > .05). No significant interactions were found between the independent variables in either analysis.

Table 1. Three-Way Analysis of Variance to Examine Main Effects of Invasion of Privacy, Unauthorized Use of Secondary Data, and Errors on Online Prior Purchase of Travel Product.

Effect	**Type III Sum of Squares**	***df***	**Mean Square**	***F***	**p**
Main Effect					
1. Unauthorized Use of Data	0.22	1,185	0.22	0.03	0.87
2. Invasion of Privacy	0.03	1,185	0.03	0.00	0.95
3. Errors	82.34	5,181	16.47	1.26	0.1
Interactions					
1 x 2	11.35	1,185	11.35	1.31	0.25
1 x 3	3.73	3,183	1.24	0.14	0.93
2 x 3	10.76	3,183	3.59	0.41	0.74
1 x 2 x 3	42.95	3,183	14.32	1.65	0.18
Corrected Model	185.31	17	10.90	1.26	0.23

n=186; R Squared = .126 (Adjusted R Squared = .026)

Table 2. Three-Way Analysis of Variance to Examine Main Effects of Invasion of Privacy, Unauthorized Use of Secondary Data, and Errors on Twelve Month Purchase Probability.

Effect	**Type III Sum of Squares**	***df***	**Mean Square**	***F***	**p**
Main Effect					
1. Unauthorized Use of Data	1.62	1,185	1.62	0.19	0.67
2. Invasion of Privacy	1.88	1,185	1.88	0.22	0.64
3. Errors	16.02	5,181	3.20	0.37	0.87
Interactions					
1 x 2	6.22	1,185	6.22	0.72	0.40
1 x 3	3.36	3,183	1.12	0.13	0.94
2 x 3	10.37	3,183	3.46	0.40	0.75
1 x 2 x 3	16.75	3,183	5.58	0.64	0.59
Corrected Model	72.92	17	4.29	0.49	0.95

n=186; R Squared = .06 (Adjusted R Squared = -.06)

5 Discussion and Managerial Implications

Researchers have examined unauthorized secondary use of data in direct marketing studies but few, if any, have empirically analyzed it in the context of the Internet. The literature suggests that confidentiality is one of the privacy concerns consumers regard highly. In this study, however, unauthorized secondary use of data was found to not have a significant impact on individuals' actual or intended online purchase behavior within the travel product category. Clearly, many consumers are concerned by this aspect of Internet usage, although it appears that the concern is not so great as to deter people from actually making a purchase via the channel. One explanation for this outcome might be the age of the sample. Various studies (e.g. Campbell, 1997; Milne et al., 1996) have found that age is an important factor in analyzing privacy concerns since younger age groups tend to have lower privacy concerns than older age groups. Another explanation might be that consumers are already used to this phenomenon to some extent in traditional marketing channels, including direct mail. Mailing lists are frequently made available to third parties without consumers being aware of precisely who has their details. It may be just an accepted (although perhaps disagreeable) way of doing business.

The implication for online travel providers is that guarantees of confidentiality (i.e. not passing on customers' details) may not have any influence on consumers' purchase decisions. Furthermore, it may be that additional revenue streams could be unlocked by the sale of such data to interested parties, without any negative effect on conventional sales. Certainly, caution must be applied in interpreting these results as different customer segments may respond differently to unauthorized secondary use of data. For example, it is claimed that young people are less concerned about these types of privacy issues (Campbell, 1997; Milne et al., 1996). Further research should be conducted in this area to identify which consumers and/or specific travel product categories are most sensitive to the resale of customers'' personal data.

Invasion of privacy is an important issue in direct marketing and has been shown to affect consumers' purchase behavior. When confronted with invasion of privacy concerns, consumers have been shown to restrict their purchase of goods through direct marketing channels (Berman and Mulligan, 1999; Campbell, 1997; Mand, 1998). The findings of the current study are, however, inconsistent with others from the direct marketing literature. It appears that consumers who receive unwanted and unsolicited communications from companies via the Internet are no less likely to purchase travel products online than others. This should not be interpreted as an invitation to make unsolicited contact with customers, which may in any case be illegal. Numerous countries have introduced anti-spam legislation to this effect. The responses from participants do indicate a high level of concern with this issue. It is likely that damage can be done to a brand, a firm's corporate image, and sales if such a contact strategy is pursued. Rather, one might interpret the results to mean that people are not deterred in general from purchasing online, despite their negative attitude toward invasion of privacy. Other research has also shown that a sizeable

proportion of those who receive spam appear to actually value it, with 20% of U.S. residents having bought products from spammers and more than 30% have responded to spam. (InternetWeek, 2004).

Hypothesis 3 proposed that Internet users who have had prior experience online, where personal data was accidentally or deliberately altered demonstrate less inclination to purchase travel via the Internet. The hypothesis was rejected and suggests that consumers' purchase preferences in the travel product category are not affected by these experiences. Again, this is in contrast to previous research suggesting that consumers are concerned about what companies do with the information they collect and the accuracy of the information they use (Nowak and Phelps, 1995). It would appear however, that experience of such errors does not deter people from purchasing travel products via the Internet. An example of a transgression that might be thought to offend consumers is a simple e-mail sent out to a prospect or customer with the wrong name on it. This study does not support the view that purchase will be less likely to occur as a result.

Despite their stated concern for individual privacy, online consumers are in many cases very quick to provide significant amounts of personal information, if given an incentive. A free T-shirt or entry into a promotional contest is often all it takes to get many Web users to part with personal details (Tweney, 1998). Customers may be willing to furnish such information if they feel the reward justifies that loss of privacy. For example, E-Trade was effective in gaining customer information by offering 500 free air miles in exchange. After receiving the information, the customer received a certificate good for the first $50 investment (McKim, 1999).

Even the way in which personal data is handled does not appear to be as critical as one might be lead to believe. Although consumers do not seem to approve of being contacted without permission or having their details passed on to third parties, it doesn't seem to stop them from purchasing online, at least in the domain of travel products. A likely explanation for the results of this study may be found at the brand level. Clearly it is important for companies or Web sites to treat consumer privacy concerns seriously. It may be that firms who transgress privacy guidelines may damage their chances of selling to existing customers, who may still be quite happy to purchase elsewhere. It would seem that before consumers become more accepting of the erosion of their privacy they will have to be convinced that the result provides some real benefit to them (Petrison and Wang, 1995).

5.1 Limitations and Future Research

One limitation of the study lies in the use of a student sample. Given that young people have been shown to have lesser privacy concerns than older people (Campbell, 1997; Milne et al., 1996), it would be useful to apply similar research to the wider population. However, the age group studied constitutes a substantial proportion of Internet users and represents the next generation of adult consumers. Furthermore, as an exploratory study, the major purpose was to establish if there were any significant

relationships between the privacy constructs and online purchase behavior with regard to travel products.

Another limitation lies in the measurement of attitudes toward online privacy in general. Consumers may behave differently when making purchase decisions concerning specific travel Web sites or brands. Future research may focus on how consumers respond to a specific Web site in the light of privacy concerns. However, this study adopted the view that research that is too specific may suffer from the inapplicability of results to a wider range of circumstances.

References

Attaran, M. (2000). Managing Legal Liability of the Net: a Ten Step Guide for IT Managers. *Information Management and Computer Security* 8(2): 98-100.

Berman, J. & Mulligan, D. (1999). Privacy in the Digital Age: Work in Progress. *Nova Law Review* 23(2).

Calder, B.J., Phillips, L.W. and Tybout, A.M. (1981). Designing Research for Application. *Journal of Consumer Research* 8(2): 197-207.

Campbell, A. (1997). Relationship Marketing in Consumer Markets: A Comparison of Managerial and Consumer Attitudes About Information Privacy. *Journal of Direct Marketing* 11(8): 44-57.

Cranor, L.F., Reagle, J., and Ackerman, M.S. (1999). Beyond Concern: Understanding Net Users' Attitudes About Online Privacy. *AT&T Labs-Research Technical Report TR 99.4.3*, April 14, http://www.research.att.com/resources/trs/TRs/99/99.4/99.4.3/report.htm.

CyberAtlas (2001). *Demographics: Asians Among Most Wired Americans*, December 18, http://cyberatlas.internet.com/big_picture/demographics/article/0,,5901_942621,00.html

Federal Trade Commission (1999). Privacy Policies On-line: Improving for Consumers. *Consumers Research Magazine* 82(10): 26-30.

Foust, J. (2000). Protecting Your Privacy Online. *Technology Review* 103(2): 30-31.

Gillmor, D. (1998). Violating Privacy is Bad Business. *Computerworld* 32(12): 38-9.

Gordon, I. (1998). *Relationship Marketing: New Strategies, Techniques and Technologies to Win the Customers You Want and Keep Them Forever* Toronto: John Wiley and Sons.

Greenspan, R. 2002, *Travel Industry Helped by Web, Frequency* December 24, http://www.clickz.com/stats/markets/travel/article.php/1560861.

Greenspan, R. (2003). *Traveler's First Trip is Often the Internet* May 27, http://www.clickz.com/stats/markets/travel/article.php/2211341.

InternetWeek (2004). *Some People Like Spam According To Poll* July 27, http://www.internetweek.com/breakingNews/showArticle.jhtml?articleID=26100190.

Juster, F. T. (1966). *Consumer buying intentions and purchase probability* New York: Columbia University Press.

Kakalik, J. and Wright, M. (1996). Responding to Privacy Concerns of Consumers. *Review of Business* 18(1): 15-18.

Kehoe, C., Pitkow, J. and Morton, K. (1997). *Eighth WWW User Survey*, http://www.cc.ptech.edu/gvu/user_surveys/survey-1997-10.

Khalil, O. M. and Harcar, T. D. (1999). Relationship Marketing and Data Quality Management. *SAM Advanced Management Journal* 64(2): 26-33.

Korgaonkar, P and Wolin, L. (1999). A Multivariate Analysis of Web Usage. *Journal of* A*dvertising Research* 39(2): 53-70.

Lester, T. (2001). The Reinvention of Privacy. *The Atlantic Monthly* March: 27-39.

Malhotra, N. K., Hall, J., Shaw, M. and Crisp, M. (1996). *Marketing Research: An Applied Approac*h Sydney: Prentice- Hall.

Mand, A. (1998). Portals Plug Privacy Push. *Mediaweek* 8(38): 58.

Marcussen, C.H. (2004). *Trends in European Internet Distribution of Travel and Tourism Services* May 27, http://www.crt.dk/uk/staff/chm/trends.htm.

McKim, R. (1999). Information: the Newest Currency. *Target Marketing* 22(7): 36-7.

Milne, G. R., Beckman, J. and Taubman, M. L. (1996). Consumer Attitudes Towards Privacy and Direct Marketing in Argentina. *Journal of Direct Marketin* 10(1): 22-29.

Mohammed, R.A., Fisher, R.J., Jaworski, B.J. and Paddison, G..J. (2004). *Internet Marketing* 2nd Edition, New York: McGraw Hill /Irwin.

Moorman, C., Deshpande, R. and Zaltman, G. (1993). Factors Affecting Trust in Market Research Relationships. *Journal of Marketing* 57(1): 81-101.

Nicovich, S. and Cornwell, T. B. (1998). An Internet Culture?: Implications for Marketing. *Journal of Interactive Marketing* 12(4): 22-33.

Nowak, G. and Phelps, J. (1992). Understanding Privacy Concerns: An Assessment of Consumer Information -Related Knowledge and Beliefs. *Journal of Direct Marketing*, 6(4): 28-39.

Petrison, L.A. and Wang, P. (1993). Exploring the Dimensions of Consumer Privacy: An Analysis of Coverage in British and American Media. *Journal of Direct Marketing*, 9(4): 19-37.

Prabhaker, P. R. (2000). Who Owns the Online Consumer? *Journal of Consumer Marketing*, 25(4): 329-346.

Sheehan, K.B. and Hoy, M.G (1999). Flaming, Complaining, Abstaining: How Online Users Respond to Privacy Concerns. *Journal of Advertising* 28(3): 37-61.

Smith J., Milberg, S. and Burke, S. (1995). Information Privacy and Marketing Practices: The Role of Consumer Concerns. Unpublished working paper.

Stone, E. F. and Stone, D. L. (1990). Privacy in Organizations: Theoretical Issues, Research Findings and Protection Mechanisms. *Research in Personnel and Human Resources Management* 8: 349-411.

Tweney, D. (1998). The Consumer Battle over Online Information Privacy Has Just Begun. *InfoWorld* 20(25): 66.