

# Applying Grounded Theory to explore vehicle or portable navigation system consumer behavior

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## ABSTRACT

In recent years, location-based services(LBS) has in increased. Especially in the vehicle navigation system or portable navigation device. Although navigation system has been expected to increase rapidly, and consumer behavior is of central interest in the navigation system adoption, but it is an area that is under -researched in Taiwan. The main objective of this research is to investigate the critical factors that affect the consumer behavior of portable navigation system. This research adopts Grounded Theory, figures out consumer behavior of vehicle or portable navigation system and establishes consumers ' behavior model. By the analysis and coding process of the interview data that collected from nine interviewers in a theoretical sampling process, this research generalizes 536 concepts and 85 categories in open coding and 24 sub-categories in axial coding. In the selective coding process, this research explored five central categories of consumer behavior on navigation system and establishes a model of consumer behavior. Based on this research to provide appropriate management meaning for navigation system industry managers.

Keywords : Vehicle navigation system, User behavior, Global positioning system, Portable navigation device.

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## REFERENCES

- 1.王英裕(2001), 汽車衛星導航系統的普及將促進GPS 市場的成長 (工研院ITIS, No. e0804-B10-00000-88A5-0), 新竹:工業技術研究院。
- 2.王傳祥(2006), 利用紮根理論探索餐盒產業消費者滿意度因素之研究 - 以家禾便當為例, 大葉大學資訊管理所未出版之碩士論文。
- 3.台灣國際航電(2001), GARMIN 中文使用手冊, 台北:台灣國際 航電股份有限公司。
- 4.李芮慈(2006,Jun 1), 手持、車用市場兩相宜GPS 產業後勢看漲, 電工資訊, 第186 期。
- 5.吳芝儀, 廖梅花(2001), 質性研究入門:紮根理論研究法。台北市: 巨流出版。
- 6.吳政德(2005), 消費者選擇採用定位化行動商務之研究, 元智大學 資訊管理研究所未出版之碩士論文。
- 7.貝佩怡(2004), 探討電視購物行為之購買動機, 國立成功大學工業 與資訊管理研究所未出版之碩士論文。
- 8.侯鈞元(2004), Telematics 產業之探索 - 車用資通訊系統與服務, 台北:經濟部技術處。
- 9.林玉如(2004,Jul 21), 消費性GPS 成長幅度高:車用、休閒手持式 產品比重大(工研院ITIS, No. e00000804-B10-4-BD75-0), 新竹:工業技術研究院。
- 10.林本炫(2004), 質性研究方法及其超越, 嘉義縣:南華社會教育所。
- 12.林建煌(2002), 消費者行為, 台北市:智勝文化。
- 11.林靈宏(2003), 消費者行為學, 台北市:五南圖書。
- 13.周駿呈(2006), 可攜式車用導航市場快速興起, (工研院ITIS, No. 200608251102515B5D2-0), 新竹:工業技術研究院。
- 14.周駿呈(2006), 行動定位應用新商機探索, (工研院ITIS, No. 20061130), 新竹:工業技術研究院。
- 15.胡慧幼主編(1996), 質性研究:理論、方法及本土女性研究實例。台北市:巨流出版。
- 16.施欣怡(2003), 消費者採用行動資訊服務行為之研究, 國立台北大學企業管理學系未出版之碩士論文。
- 17.徐宗國(1997), 質性研究概論, 台北市:巨流出版。
- 18.黃培倫(2005,Sep 16), GPS 產業發展概況, 台北市:富邦投顧。
- 19.黃俊英(1992), 行銷研究-管理與技術, 台北市:華泰文化。
- 20.許士軍(1996), 定性研究在管理學上的重要性, 中原管理學報, 24(2)。
- 21.陳向明(2002), 社會科學-質的研究, 台北市:

五南圖書。22.陳昆民(2006), GPS 汽車衛星防盜保全系統消費者購買行為及顧客滿意度與顧客忠誠度關係之研究, 輔仁大學應用統計學研究所未出版之碩士論文。23.陳豫德, 林玉如(2004), 行動定位服務發展趨勢及我國設備業者機會分析, 台北市:經濟部技術處。24.陳麗芬(2006), 全球可攜式導航裝置市場規模。工研院ITIS, No. 200610160540175BB52-0, 新竹:工業技術研究院。25.曾幼蘭(2003), 影響行動電話使用者選擇行動上網服務相關因素之研究, 國立台灣科技大學管理研究所未出版之碩士論文。26.葉修帆(2004), 以品質機能展開法探討電視購物的服務品質 - 以東森購物為例, 朝陽科技大學企業管理研究所未出版之碩士論文。27.張紹勳(2004), 研究方法(3版)台中市:滄海書局。28.謝文雀(2001), 消費者行為, 台北市:華泰文化。29.楊志龍(2002), 手機服務便利性對消費者行動商務付費使用意願之影響研究, 輔仁大學資訊管理學系未出版之碩士論文。30.羅玳珊(2006, May 1), 看好第四C市場商機車用電子發展如火如荼, 可攜式電子產品設計雜誌。31.蕭瑞麟(2006), 不用數字的研究 鍛鍊深度思考力的質性研究, 台北市:培生。

二、英文部份

1.Adler, P. S. (1993). Time-and-motion regained. *Harvard Business Review*, 71 (1), 97-108. 2.Agarwal, R., & Prasad, J. (1997). The Role of Innovation Characteristics and Percieved Voluntariness in the Acceptance of Information Technologies. *Decision Sciences*, 28(3), 557-582. 3.Benjamin, C., & Miller, W. (1999). *Doing Qualitative Research* (2nd ed.). London: Sage. 4.Cheverst, K., Davies, N., Mitchell, K., Friday, A., & Efstratiou, C. (2000). Developing a context-aware electronic tourist guide: some issues and experiences. *New York: ACM*, 17-24. 5.Chen, G., & Kotz, D. (2000). A Survey of Context-Aware Mobile Computing Research. *Dartmouth Computer Science Technical Report*. 6.Chincholle, D., Goldstein, M., Nyberg, M., & Erikson, M. (2002). Lost or found? a usability evaluation of a mobile navigation and location-based service. *Proceedings of the Mobile HCI 2002* (pp.211-224), Italy: Pisa. 7.Demby, E. (1973). *Psychographics and From Where It Comes. Lifestyle and Psychographics*, Chicago:William. 8.Denzin, K. (1978). *The Research Act: A Theoretical Introduction to Sociological Methods*. New York: McGraw-Hill. 9.Dianne, C., Milena H., & Alex, I. (2006). Design aesthetics leading to m-loyalty in mobile commerce. *Information and Management*, 43(8), 950-963. 10.Drucker, P. (1973). *Management:Tasks,Responsibilites,Practices*. New Yorker:Harper and Row. 11.Engel, J. F., Kollat, R. D., & Blackwell, D. J. (1973). *Consumer Behavior*. HoltRinehart and Winston- Inc. 12.Engel, J. F., Kollat, R. D., & Blackwell, D. J. (1993). *Consumer Behavior*. New York: Dryden Press. 13.Engel, J. F., Miniard, P. W., & Blackwell, D. J. (1995). *Consumer Behavior*. (8th ed). New York: Dryden Press. 14.Glaser, B. G., & Strauss A. L. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. New York: Aldine. 15.Glock, C. Y., & Nicosia, F. (1963). Sociology and the study of consumers, *Journal of Advertising Research*. 16.Golden-Biddle, K., & Locke, K. (1993). Appealing Work: an Investigation of How Ethnographic Texts Convince. *Organization Science*, 4(4), 595-616. 17.Hammersley, M. (1989). *The dilemma of qualitative method: Herbert Blumer and the Chicago tradition*. New York: Routledge. 18.Hennig, T., & Klee, A. (1997). The Impact of Customer Satisfaction and Relationship Quality on Customer Retention: A Critical Reassessment and Model Development. *Psychology and Marketing*, 14(8), 737-764. 19.Hofmann, W. B., Lichtenegger, H., & Collins, J. (1992). *GPS Theory and Pratices*. New York: Springer-Verlag Wein. 20.Houston, F. (1986). The Marketing Concept: What It Is and What Is Not. *Journal of Marketing*, 50(2), 81-87. 21.Hoyer, W. D., & Mukherjee, A. (2001). The effect of novel attributes on product evaluation. *Consumer Research*, 28(3), 462-472. 22.Kaasinen, E. (2005). User acceptance of location-aware mobile guides based on seven field studies. *Behaviour and Information Technology*, 24(1), 37-49. 23.Keaveney, S. M. (1995). Customer Switching Behavior in Service Industries: An Exploratory Article. *Journal of Marketing*, 59(2), 71-82. 24.Kim, H., Hoyoung, J., Jinwoo, L., Yeonsoo, L., Minhee, C., & Youngwan, C. (2002). An Empirical Study of theUse Contexts and Usability Problems in Mobile Internet, Paper presented at the 35th Hawaii International Conferenceon System Sciences, Hawaii. 25.Kim, W. G., Lee, C., & Hiemstra, S. J. (2004). Effects of an online virtual community on customer loyalty and travel product purchases. *Tourism Management*,25(2), 343-55. 26.Kirk, J., Marc, L., & Miller, J. (1986). *Reliability and Validity in Qualitative Research, Qualitative Research Methods Series*. 1(1), Canada: Newbury Park. 27.Kishi, H., & Sugiura, S. (1993). *Human factors considerations for voice route guidance*. Pennsylvania: Society of Automobile Engineers. 28.Kjeldskov, J., Graham, C., Pedel, L. S., Vetere, F., Howard, S., Balbo et al. (2005). Evaluating the usability of a mobile guide: the influence of location, participants and resources. *Behaviour and Information Technology*, 24(1), 51-65. 29.Kolari, K., & Virtanen, T. (2003). In the zone: views through a contextaware mobile portal. Paper presented at the *Mobile HCI 2003Workshop HCI in Mobile*, Italy. 30.Kotler, P. (1996). *Marketing Management*.(8th ed.),203-237. Kotler, P. (1999). *Marketing Management Analysis. Planning, Implementation, and Contral*. United States: Prentice-Hall, Inc. 31.Krakiwsky, E. J. (1994). *Digital Road Data: Putting GPS on the MAP*, United States: GPS WORLD, 43-46. 32.Kulju, M., & Kaasinen, E. (2002). Route guidance using a 3D city model on a mobile device. Paper presented at the *Mobile HCI 2002Workshop on Mobile Tourism Support Systems*, Pisa. 33.Kuroso, M., & Kashimura. K. (1995). Apparent usability vs. inherentusability. Paper presented at the *Conference on Human Factors in Computing Systems*, Denver, Colorado, 292 – 293. 34.Kuzel, A. J. (1986). Naturalistic inquiry: an appropriate model for family medicine. *Family medicine*, 18(6), 369-374. 35.Leuthesser, L. (1997). Supplier Relation Behavior: An Empirical Assessment. *Industrial Marketing Management*, 26(3), 245-254. 36.Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Canada: Sage. 37.Lincoln, Y. S. (1985). Emerging criteria for quality in qualitative and interpretive research. *Qualitative Inquiry*, 1(1), 275-289. 38.McCarthy, E. Jerome. (1975). *Basic Marketing*. Illinois: Richard D. Irwin. 39.McMillan, D. W. & Chavis, D. M. (1986). Sense of community: A definition and theory. *Journal of Community Psychology*, 14. 40.Moore, G. C., & Benbasat, I. (1991). Development of an Instrument to Measure the Perception of Adoption an Information Technology Innovation. *Information Systems Research*, 2(3), 192-222. 41.Nivala, A.M., Sarjakoski, L. T., Jakobsson, A., & Kaasinen, E. (2003). Usability of topographic maps on mobile devices. *Proceedings of the 21st International Cartographic Conference*, South Africa: Durban. 42.Pagani, M. (2004). Determinants of adoption ofthird generation mobile multimedia services. *Journal of Interactive Marketing*, 18(3), 46-59. 43.Rogers, E. M.(2003). *Diffusion of innovations*. New York: The Free Press. 44.Strauss, A., & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Canada: Sage. 45.Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Techniques and*

procedures for developing grounded theory (2nd ed). Canada: Sage. 46.Schiffman, L. G., & Kanuk, L. L. (1991). Consumer Behavior (4th ed). New Jersey: Prentice Hall. 47.Schiffman, L. G., & Kanuk, L. L.(2000), Consumer behavior. (7th ed). New York: Prentice Hall. 48.Schmidt-belz, B., Laamanen, H., Poslad, S., & Zipf, A. (2003) .Location-based mobile tourist services – first user experiences. Information and Communication Technologies in Tourism, 115-123. 49.Schumpeter, J. A. (1961). The Theory of Economic Development. New York: Oxford University. 50.Selnes, F. (1993). An Examination of the Effect of Product Performance on Brand Reputation, Satisfaction and Loyalty. European Journal of Marketing, 27(9), 19-35. 51.Sheth, J. N. (1991). Consumption Values and Market Choices: Theory and Applications. Unite State: South-western. 52.Taylor, S. J., & Bogdan, R. (1984). Introduction to Qualitative Research Methods. New York: AWiley-Interscience. 53.Teschm, R. (1989). Computer software and qualitative analysis: a re assessment New technology in sociology. Practical applications in research and work, 141-154. 54.Van der Heijden , H. (2003). Factors influencing the usage of websites: the case of a generic portal in The Netherlands. Information and Managemen, 40(6), 541 – 549. 55.Williams, T. G. (1982). Consumer Behavior Fundamental and Strategies. Paul Minn:West Publishing. 56.Wilkie, W. L. (1994). Consumer Behavior. New York: John Wiley and Sons. 57.Wu, J. H., & Wang, S. C. (2005), What drives mobile commerce? An empirical evaluation of the revised technology acceptance model. Information and Management, 42(5), 719-726. 58.Zaltman, G. (2000). Consumer Researchers: Take a Hake. Journal of Consumer Research, 26, 423-428. 三、網站部份: 1.SPTI(2006) , Garmin 與TomTom 仍是美國市場前兩大 <http://cdnet.stpi.org.tw/techroom/market/ee/ee075.htm> 2.宇達電通(2006) , Mio 宇達電通站上全球PDA 第三大 , 持續領先歐洲PND 市場為第三大。 <http://www.mio-tech.com.tw/press-releases-163.htm> 3.陳世耀(2005, Aug) , 衛星定位導航 神達衝上世界第四。 <http://www.techvantage.com.tw/content/0056064.asp>.