

# 國中生選購瓶裝水所展現親環境行為之研究

游書豪<sup>1</sup>、蔡執仲<sup>2\*</sup>、鄭蕙玲<sup>3</sup>

<sup>1</sup> 國立高雄師範大學科學教育暨環境教育研究所研究生

<sup>2</sup> 國立高雄師範大學科學教育暨環境教育研究所助理教授

<sup>3</sup> 嘉南藥理大學環境資源管理系副教授

## 摘要

本研究以問卷瞭解國中生選購瓶裝水所呈現出的社會心理因素。研究對象為7至9年級的學生共710人。結果顯示國中生具有正面傾向的親環境行為，而影響的面向以「消費態度」向度的影響最高，而「行動技能與策略知識」向度最低。另一方面，學生對環境友善的行為會隨著年級越高而呈現逐漸下降的趨勢，女學生表現對環境的友善程度較男學生為高。由研究結果建議教師在教學時，對日常生活常見的特定議題應增加更多的實際體驗和具體行動的課程，進而培養學生對環境友善的消費態度與行為。

**關鍵字：**親環境行為、瓶裝水

---

投稿日期：2016年03月18日；接受日期：2016年07月09日

\* 通訊作者

時針對特定議題，讓學生提出自己的想法與解決辦法，培養產生對環境友善行動的企圖心。如 Dymont、Hill 與 Emery (2015)所指出環境教育的議題應該強調永續發展的方向，本研究關於礦泉水的相關消費議題所牽涉領域很廣，應以跨學科的方式進行教學，並可做為跨課程設計的情境。

研究所探討的親環境行為是針對特定的議題，因此所得到的結果也較為聚焦，建議未來研究可加入教師與學生的晤談，瞭解學生在面對礦泉水消費決定時的深入想法。此外所使用的問卷在解釋親環境行為變異量雖高達 47.73%，但仍有 52.27%變異量無法解釋，顯示尚有其他重要影響因素存在，未來可參考 Frohlich 等(2013)所提出持續關注環境議題的動機因素，將是之後可投入探討的方向。

## 陸、參考文獻

- 包裝飲用水及盛裝飲用水衛生標準(2013 年 8 月 20 日)。
- 吳明隆(2008)。SPSS 操作與運用。臺北市：五南圖書公司。
- 李茂能(2006)。結構方程模式軟體 Amos 之簡介及其在測驗編製上之應用。臺北市：心理。
- 邱皓政(2006)。量化研究與統計分析。臺北市：五南書局。
- 許世璋(2005)。影響環境行動者養成的重要生命經驗研究－著重於城鄉間與世代間之比較。科學教育學刊, 13(4), 441-463。doi: 10.6173/CJSE.2005.1304.04
- 陳文松(2000)。加味水消費者行為之研究--以台北市大學生為例。國立交通大學經營管理研究所碩士論文，未出版，新竹市。
- 游書豪、鄭蕙玲、蔡執仲(2013)。國中生選購瓶裝水其親環境行為之初探。論文發表於第 29 屆科學教育年會。國立彰化師範大學：彰化。
- 飲用水水質標準(2014 年 1 月 9 日)。
- 戴雅秀(譯)(2012)。瓶裝水的真相(原作者：Peter H. Gleick)。臺北：日月文化。(原著出版年：2011)
- Alp, E., Ertepinar, H., Tekkaya, C., & Yilmaz, A. (2008). A survey of Turkish

- elementary school students' environmental friendly behaviours and associated variables. *Environmental Education Research*, 14(2), 129-143. doi: 10.1080/13504620802051747
- Ardoin, N. M., Clark, C., & Kelsey, E. (2013). An exploration of future trends in environmental education research. *Environmental Education Research*, 19(4), 499- 520. doi: 10.1080/13504622.2012.709823
- Chen, J., & Cowie, B. (2013). Developing 'Butterfly Warriors': A case study of science for citizenship. *Research in Science Education*, 43(6), 2153-2177. doi: 10.1007/s11165-013-9349-y
- Chu, H.-E., Lee, E. A, Ko, H. R, Shin, D. H., Lee, M. N., Min, B. M., & Kang, K. H. (2007). Korean Year 3 children's environmental literacy: A prerequisite for a Korean environmental education curriculum. *International Journal of Science Education*, 29(6), 731-746. doi: 10.1080/09500690600823532
- Dyment, J. E., Hill, A., & Emery, S. (2015). Sustainability as a cross-curricular priority in the Australian curriculum: A Tasmanian investigation. *Environmental Education Research*, 21(8), 1105-1126. doi: 10.1080/13504622.2014.966657
- Feinstein, N. W., & Kirchgasser, K. L. (2015). Sustainability in science education? How the next generation science standards approach sustainability, and why it matters. *Science Education*, 99(1), 121-144. doi: 10.1002/sce.21137
- Fishbein, M., & Ajzen, I. (2010). *Predicting and changing behavior: The reasoned action approach*. New York: Psychology Press.
- Frohlich, G., Sellmann, D., & Bogner, F. X. (2013). The influence of situational emotions on the intention for sustainable consumer behavior in a student-centered intervention. *Environmental Education Research*, 19(6), 747-764. doi: 10.1080/13504622.2012.749977
- Hart, P., & Nolan, K. (1999). A critical analysis of research in environmental education. *Studies in Science Education*, 34(1), 1-69. doi: 10.1080/03057269908560148

- Herremans, I. M., & Reid, R. E. (2002). Developing awareness of the sustainability concept. *The Journal of Environmental Education, 34*(1), 16-20. doi: 10.1080/00958960209603477
- Hines, J., Hungerford, H. R., & Tomera, A. N. (1987). Analysis and synthesis of research on responsible environmental behavior: A meta-analysis. *The Journal of Environmental Education, 18*(2), 1-8. doi: 10.1080/00958964.1987.9943482
- Hungerford, H. R., & Volk, T.L. (1990). Changing learner behavior through environmental education. *The Journal of Environmental Education, 21*(3), 8-21. doi: 10.1080/00958964.1990.10753743
- Kalamas, M., Cleveland, M., & Laroche, M. (2014). Pro-environmental behaviors for thee but not for me: Green giants, green Gods, and external environmental locus of control. *Journal of Business Research, 67*(2), 12-22. doi: 10.1016/j.jbusres.2013.03.007
- Kollmuss, A., & Agyeman, J. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research, 8*(3), 239-260. doi: 10.1080/13504620220145401
- Leemans, R., & Solecki, W. (2013). Redefining environmental sustainability. *Current Opinion in Environmental Sustainability, 5*, 1-6. doi: 10.1016/j.cosust.2013.07.006
- McKenzie-Mohr, D., & Smith, W. (1999). *Fostering sustainable behavior: An introduction to community-based social marketing*. Gabriola Island, Canada: New Society Publishers.
- McKenzie-Mohr, D. (2000). New ways to promote proenvironmental behavior: Promoting sustainable behavior: An introduction to community-based social marketing. *Journal of Social Issues, 56*(3), 543-554. doi: 10.1111/0022-4537.00183
- National Research Council. (2012). *A framework for K-12 science education: Practices, crosscutting concepts, and core ideas*. Washington, DC: National

Academic Press.

National Research Council. (2013). *Next generation science standards: For states, by states*. Washington, DC: National Academic Press

Raworth, K. (2012). A safe and just space for humanity: Can we live within the doughnut? *Oxfam Policy and Practice: Climate Change and Resilience*, 8(1), 1-26.

Rockström, J., Steffen, W., Noone, K., Persson, A., Chapin, F.S. III, ... Foley, J. (2009). A safe operating space for humanity. *Ecology and Society*, 14(2), 32.

Sivek, D. J., & Hungerford, H. (1990). Predictors of responsible behavior in members of three Wisconsin conservation organizations. *The Journal of Environmental Education*, 21(2), 35-40. doi: 10.1080/00958964.1990.9941929

Tikka, P. M., Kuitunen, M. T., & Tynys, S. M. (2000). Effects of educational background on students' attitudes, activity levels, and knowledge concerning the environment. *Journal of Environmental Education*, 31(3), 12-19. doi: 10.1080/00958960009598640

Urien, B., & Kilbourne, W. (2011). Generativity and self-enhancement values in eco-friendly behavioral intentions and environmentally responsible consumption behavior. *Psychology and Marketing*, 28(1), 69-90. doi: 10.1002/mar.20381

Zelezny, L. C. (1999). Educational interventions that improve environmental behaviors: A meta-analysis. *The Journal of Environmental Education*, 31(1), 5-14. doi: 10.1080/00958969909598627

## 柒、附錄

### 附錄 1 問卷內容

---

#### 一、來源知識

- 01.我認為瓶裝水的地下水源容易被污染
  - 02.我認為瓶裝水因為水源是來自於自然環境之中所以需要很多的檢驗
  - 03.我不認為瓶裝水比飲水機的水來的乾淨
  - 04.我不認為瓶裝水的水源比自來水的水源乾淨因此所需要的處理較少
  - 05.我不認為用塑膠瓶裝水，對人體的健康無害
  - 06.我不認為瓶裝水的水質優於一般自來水的水質
  - 07.我不認為瓶裝水的水沒有添加任何化學物質
- 

#### 二、內容知識

- 08.我充分瞭解瓶裝水的生產對環境所造成的影響
  - 09.我瞭解不同材質瓶子的回收標誌與方式
  - 10.我在購買瓶裝水時會詳細閱讀瓶身的產品說明的標籤
  - 11.我瞭解瓶子的回收流程
  - 12.我知道瓶裝水的包裝和運輸是會耗費許多能源的
- 

#### 三、環境責任感

- 13.我認為改善周遭的環境品質是自己的責任
  - 14.我會主動回收的瓶裝水容器並進行分類
  - 15.我認為只要少購買瓶裝水，就能改善環境問題
  - 16.我認為去加油送瓶裝水的方式是不具環保觀念的銷售手段
- 

#### 四、消費態度

- 17.我不認為瓶裝水的產品標籤能夠呈現完整的訊息
  - 18.我不認為瓶裝水公司會誠實的標示水源的出產地
  - 19.我不認為瓶裝水所標示之水源出處與品牌名稱是相符合的
  - 20.我不認為瓶裝水所標示的保存期內容令人安心
  - 21.我不認為瓶裝水的檢驗結果會定期公布並值得信賴
  - 22.我不認為政府對瓶裝水會有很好的管理措施
  - 23.我不認為瓶裝水所標示的營養成分是有益健康的
-

#### 五、環境敏感度

- 24.我認為瓶裝水的儲存方式對水質會造成影響
  - 25.我認為瓶裝水的生產過程對環境與生態有危害
  - 26.我認為對於一般人而言，減少使用瓶裝水對環境改善有幫助
  - 27.我認為購買瓶裝水對環境造成壞的影響
  - 28.我認為製造瓶裝水需消耗過多的水資源
  - 29.我認為購買瓶裝水會使環境惡化
- 

#### 六、行動技能與策略知識

- 30.我願意主動攜帶瓶裝容器來裝水以替代瓶裝水
  - 31.我會因為環保的理由，拒絕購買瓶裝水
  - 32.如果瓶裝水的製造會影響生態環境我會立即停止購買
  - 33.我願意喝完瓶裝水後將瓶子加以回收
- 

#### 七、環境行為意圖

- 34.我會勸阻別人購買瓶裝水
  - 35.看到別人購買瓶裝水，我會宣導瓶裝水對環境造成的影響
  - 36.我會主動要求開會或活動場合，不能提供瓶裝水
  - 37.看到別人沒確實回收瓶裝水容器，我會進行勸導
-

**作者簡介：**

游書豪 國立高雄師範大學科學教育暨環境教育研究所研究生

電話：07-717-2930 Ext. 7011

電子郵件：matsuzacaa@gmail.com

通訊處：824 高雄市燕巢區深中路 62 號

蔡執仲 國立高雄師範大學科學教育暨環境教育研究所助理教授

電話：07-717-2930 Ext. 7026

電子郵件：cctsai.se@gmail.com

通訊處：824 高雄市燕巢區深中路 62 號

鄭蕙玲 嘉南藥理大學環境資源管理系副教授

電話：06-2664911 Ext. 6409

電子郵件：lynn62359@mail.cnu.edu.tw

通訊處：717 台南市仁德區二仁路一段 60 號



**Yu, Shu-Hao**

Graduate student, Graduate Institute of Science Education and environmental education, National Kaohsiung Normal University

Tel: 07-717-2930 Ext. 7077

E-mail: matsuzacaa@gmail.com

Address: No.62, Shenzhong Rd., Yanchao Dist., Kaohsiung City 824, Taiwan (R.O.C.)

**Tsai, Chih-Chung**

Assistant Professor, Graduate Institute of Science Education and environmental education, National Kaohsiung Normal University

Tel: 07-717-2930 Ext. 7026

E-mail: cct sai.se@gmail.com

Address: No.62, Shenzhong Rd., Yanchao Dist., Kaohsiung City 824, Taiwan (R.O.C.)

**Cheng, Hui-Ling**

Associate Professor, Department of Environmental Resources Management, Chia Nan University of Pharmacy and Science

Tel: 06-2664911 Ext. 6409

E-mail: lynn62359@mail.cnu.edu.tw

Address: No.60, Sec. 1, Erren Rd., Rende Dist., Tainan City 717, Taiwan (R.O.C.)

## **The Study of Pro-environmental Behavior of Junior High School Students Buying Bottled Water**

**Shu-Hao Yu<sup>1</sup>, Chih-Chung Tsai<sup>2\*</sup>, Hui-Ling Cheng<sup>3</sup>**

*<sup>1.</sup> Graduate student, Graduate Institute of Science Education and Environmental Education,  
National Kaohsiung Normal University*

*<sup>2.</sup> Assistant professor, Graduate Institute of Science Education and Environmental Education,  
National Kaohsiung Normal University*

*<sup>3.</sup> Associate professor, Department of Environmental Resources Management,  
Chia Nan University of Pharmacy and Science*

### **Abstract**

This study conducts a questionnaire survey to probe into the pro-environmental behaviors of junior high school students buying bottled water and analyze the socio-psychological factors involved in their decision-making. The participants of the survey include 710 Taiwanese students from Grade 7-9. The results of factor analysis consist of seven subscales. Among which the students scored the highest on “Consumption Attitude” and lowest on “Action Skills and Knowledge of Action Strategies.” It can be observed that students’ pro-environmental behaviors are inversely proportional to the level of their Grade; in addition, female students have showed more pro-environmental behaviors than male students. The conclusions suggest that teachers should incorporate more practical experience or courses that require concrete actions on tackling commonly seen daily issues into the curriculum so as to cultivate students’ consumption attitude and behaviors.

**Keywords:** pro-environmental behavior, bottled water

