

WEST VISAYAS STATE UNIVERSITY
COLLEGE OF EDUCATION
GRADUATE SCHOOL
Iloilo City

**PRINT AND TELEVISION ADVERTISEMENTS IN SCIENCE TEACHING AND
GRADE 10 LEARNERS' CONCEPTUAL UNDERSTANDING AND
CRITICAL THINKING SKILLS**

A Thesis Presented to the
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College of Education
West Visayas State University
La Paz, Iloilo City

In Partial Fulfilment
of the Requirements for the Degree
Master of Arts in Education
(Physical Science)

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Abstract

This quasi-experimental research focused on the effect of print and television advertisements in science teaching on Grade 10 learners' conceptual understanding and critical thinking skills. Eighty (80) Grade 10 learners from two intact classes with forty (40) learners each were chosen as subjects of the study. One class was exposed to traditional method (control group) and the other was exposed to instructional method using print and television advertisements (experimental group). The control and experimental groups were identified through a toss-coin method. This pretest-posttest method of research utilized researcher-made tests in conceptual understanding (50-item two-tier multiple choice test) and in critical thinking skills (60-item multiple choice test). The statistical tools used were mean and standard deviations for descriptive analysis, and t-test for independent samples and Pearson's product-moment correlation for inferential analysis. Inferential statistics was set at 0.05 alpha level of significance. The findings showed that learners' conceptual understanding and critical thinking skills in the traditional method and instructional method using print and television advertisements were both low before the intervention was made. After the intervention, the level of conceptual understanding of learners exposed to instructional method using print and television advertisements improved from low to high level while that of the learners exposed to the traditional method also improved slightly from low to average level.

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Moreover, the learners' critical thinking skills exposed to instructional method using print and television advertisements increased from low to high level while that of those exposed to the traditional method also improved a little from low to average. No significant differences existed in conceptual understanding and critical thinking skills of the Grade 10 learners before exposure to instructional method using print and television advertisements and traditional method. However, significant differences were noted in conceptual understanding and critical thinking skills of the Grade 10 learners after exposure to instructional method using print and television advertisements and traditional method. The instructional method using print and television advertisements was better than the traditional method of science teaching in improving the Grade 10 learners' conceptual understanding and critical thinking skills in science. Moreover, the study revealed significant differences in the mean gain scores in conceptual understanding and critical thinking skills of Grade 10 learners exposed to instructional method using print and television advertisements and traditional method. Science teaching using print and television advertisements is a good alternative to the traditional method in enhancing the Grade 10 learners' conceptual understanding and critical thinking skills. Finally, significant relationship existed between the conceptual understanding and critical thinking skills of grade 10 learners exposed to instructional method using print and television advertisements and traditional method. Learners with high conceptual understanding also had high critical thinking skills.

Administrators/principals of educational institutions may encourage classroom science

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teachers to use print and television advertisements to keep on improving learners' conceptual understanding and critical thinking skills in science. Science teachers may use teaching approaches suited to the learning styles of the 21st-century learners who are generally audio and visual learners such as instructional method using print and television advertisements to develop the learners' conceptual understanding and critical thinking skills.

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References

- Ajzen, I. & Fishbein, M., (2000). *Predicting and changing behavior: The reasoned action approach*. New York: Psychology Press.
- Akcay, H., H.O. Kapici & R. E. Yager. (2017). *Using Newspaper and Advertisement as a Focus for Science Teaching and Learning*.
- Alakali, T. (2013). *Impact of television advertisements on children: A case study of Makurdi Town*. Department of Mass Communications, University of Mkar, April, 2013.
- American Association for the Advancement of Science (AAAS). *Benchmark for Scientific Literacy: Project 2016 Report*. Oxford University Press, New York, 1993.
- Babette Moeller Technology Children for Center CCT reports issue No. 11 October 1996 & Learning from Television: A Research Review CCT reports/ No. 11 October 1996.
- Bader, R.G (1990). *How science news sections influence newspaper science coverage: A case study*. Journalism Quarterly 67(1): 88-96.
- Baker, F. W. (2014). *Close reading of advertising promotes critical thinking*.
- Bandura, A. (1977). *Social Learning Theory*. New York: General Learning Press.
- Barr, R.B., & J. Tagg. (1995). *From teaching to learning- a new paradigm for undergraduate education*. Change 27(6): 12-25.
- Bonwell, C.C., & J.A. Eison. (1991). *Active Learning: Creating Excitement in the Classroom*. Washington, D.C.: The George Washington University.

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Bransford J. D., & Donovan M. S. (2003). *How Students Learn: Science in the Classroom*. Washington DC: National Academies Press; 2005.n/papers/er-05-03.pdf

Callow, M., Schiffman, L. (2002). Implicit meaning in visual print advertisements: A cross-cultural examination of the contextual communication effect. *International Journal of Advertising*, 2002.

Celuch, K., Slama, M. *Teaching critical thinking skills for 21st century: An advertising principles case study. Journal of Education for Business*, vol. 74, no. 3, 1999.

Chang Rundgren, S.-N. & Rundgren, C.-J. (2014). SSI pedagogic discourse: embracing scientific media literacy and ESD to face the multimedia world. In *Science Education Research and Education for Sustainable Development*, ed. Eilks, I., Markic, S. and Ralle, B. pp. 157–168.

Childers, T. & Houston, M. (1984). Conditions for a picture-superiority effect on consumer memory. *Journal of Consumer Research*, vol. 11, issue 2, 643-654, September 1, 1984.

Chukwuyenum, A. N. (2013). *Impact of Critical thinking on Performance in Mathematics among Senior Secondary School Students in Lagos State*. Dept of Educational Foundations, University of Lagos,- Lagos State, Nigeria. *IOSR Journal of Research & Method in Education (IOSR-JRME)* e-ISSN: 2320–7388, p-ISSN: 2320–737X Volume 3, Issue 5 (Nov. –Dec. 2013), pp 18-25
www.iosrjournals.org

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- Curammeng, G. (1993) Development and Evaluation of a laboratory manual in College Physics I for engineering students using standard and improved apparatus, *Unpublished master's thesis*, De La Salle University, Manila
- Dale, Edgar. *Audio-Visual Methods in Teaching*, 3rd ed., Holt, Rinehart & Winston, New York, 1969, p. 108.
- Donohue, T., Henke, L., & Meyer, T. (2009). *Learning about television commercials: The impact of instructional units on children's perceptions of motive and intent*. *Journal of Broadcasting*, vol. 27, no. 3, 251-261, 2009.
- Edell, J. & Staelin, R. (1983). The information processing of pictures in print advertisements. *Journal of Consumer Research*, vol. 10, issue 1, 45-61, June 1983.
- Feuerstein, M. (199). *Media literacy in support of critical thinking*. Oranim College-Academic College of Education. March 1999.
- Gardner, P.L. & Weinburgh M. (1995). Attitudes Towards Science: A Review of the Literature in Science Education. *A Journal of Science Education*. Retrieved July 14, 2016 from <http://www.tandf.co.uk/journals>.
- Glaser, R. (1984). *Education and thinking: The role of knowledge*. American Psychologist. psycnet.apa.org
- Internet and Mobile Marketing Association of the Philippines (IMMAP). *The most popular ads in the Philippines; Filipino cultural values reflected in top ten Youtube ads*. February 5, 2015.

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Janiszewski, C. (1990). *The influence of print advertisement organization on affect toward a brand name*. Journal of Consumer Research , vol.17,no. 1, pp. 53-65, June, 1990.

Jones, S. & McSharry, G. (2002). *Television programming and advertisements: Help or hindrance to effective science education?* International Journal of Science Education, vol. 24, no. 5, 487-497, 2002.

Kapici, H. O., & Ilhan, G. O. (2016). *Pre-service teachers' attitudes towards socio-scientific issues and their views about nuclear power plants*. Journal of Baltic Science Education, vol. 15, no. 5, 642-652, 2016.

K to 12 Curriculum Guide Science (2013). Retrieved from <http://odea.sdb.ph/ODEA/downloads/Kto12Science-CG-as-of-October-28-2016-pdf>.

Krugman, H. E. (2001). *The impact of television advertising: Learning without involvement*. Public Opinion Quarterly, vol. 29, issue 3, 2001.

Lai, E. R. (2011). *Critical Thinking: A Literature Review*.
<http://www.pearsonassessments.com/research>.

Marquez, F. (2011). *The relationship of advertising and culture in the Philippines*. Journalism Quarterly Journals.

McCarthy , J. P. & Anderson, L. (2000). *Active Learning Techniques Versus Traditional Teaching Styles: Two Experiments from History and Political Science*. Innovative Higher Education, Volume 24, No. 4, Summer 2000.

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McDermott, L.C. (1991). What we teach and what is learned-closing the gap, *American Journal of Physics*, 59(4), 301-315. doi.org/10.1119/1.16539.

National Research Council (NRC) (1996). National Science Education Standards. Washington, D.C.: National Academy Press.

Newspaper Association of America Foundation, (2007). *Newspaper Maintain the Brain. A Teacher's Guide for Using the Newspaper to Enhance Basic Skills, 5-11*. Vienna, VA: Newspaper Association of America Foundation.

O' Dwyer, L., Wang, Y., & Shield, K (2015). *Teaching for conceptual understanding: A cross national comparison of the relationship between teachers' instructional practices and student achievement in science*. December 2015

Prieler, M., Centeno, D. (2013). *Gender representation in Philippine television advertisements*. July 13, 2013.

Rodriguez, K. P (2008). *Apparel brand endorsers and their effects on purchase intentions: A study of Philippine consumers*. Philippine Management Review, Quezon City, Philippines (2008).

Secker, V.C (2002). Effects of Inquiry- based Teacher Practice on Science Excellence and Equity. *The Journal of Educational Research Volume 95*, Number 3, February 2002

Schwaiger, M. (2003). *Cross media, print and Advertising: Impact of medium on recall, brand attitude, and purchase intention*, April, 2003.



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- Shuying, A. (2013). *Schema Theory in Reading*. Changchun University of Science and Technology, Changsun, China, January, 2013.
- Smith, M. (2015). *What is teaching? A definition and discussions*. *The Encyclopaedia of Informal Education*. Retrieved: February 25, 2016
- Sukaesih, S. & Sutrisno (2017). *The effects of conceptual understanding procedures (CUPs) towards critical thinking skills of senior high school students*. J. Phys.: Conf. Ser. 824012070
- UNESCO, (2006) *Media Education: A Kit for Teachers, Students, Parents and Professionals (CI/ COM/2006PI/H/3)*.
- Unnava, R. & Burnkrant, R. (1991). An imagery-processing view of the role of pictures in print advertisements. *Journal Marketing Research*, vol. 28, no. 2, 226-231, May 1991.
- Webster, M. (2011). *The Merriam-Webster Dictionary*. International Edition. Meriam Webster Incorporated Springfield Massachusetts.
- Worsnop, C. M. (2000). *Media literacy through critical thinking*. NW Center of Excellence in Media Literacy.
- Yager, R. E., & Penick, J. E. (1987). *The popular press as a source of information for science instruction*. *The Hoosier Science Teacher*, vol. 12, no. 4, 1987.