บรรณานุกรม

- กษมา วรวรรณ ณ อยุธยา. พระราชบัญญัติการศึกษาแห่งชาติ พ.ศ.2542. กรุงเทพฯ : โรงพิมพ์คุรุสภาลาคพร้าว, 2552.
- ชมพู แพงวงษ์. ผลการจัดการเรียนรู้วิชาวิทยาศาสตร์โดยใช้ภูมิปัญญาท้องถิ่นตามรูปแบบการ สอนตามแนวกิดวิทยาศาสตร์ เทคโนโลยีและสังคม (STS). วิทยานิพนธ์ปริญญา

ศษ.ม. ขอนแก่น : สาขาวิทยาศาสตร์ศึกษา บัณฑิตวิทยาลัย มหาวิทยาขอนแก่น, 2550.

- ทิศนา แขมมณี . รูปแบบการเรียนการสอน. กรุงเทพฯ : โรงพิมพ์จุฬาลงกรมหาวิทยาลัย, 2548.
- ทิศนา แขมมณี . รูปแบบการเรียนการสอน : ทางเลือกที่หลากหลาย. กรุงเทพฯ : โรงพิมพ์ จุฬาลงกรณ์มหาวิทยาลัย, 2552.
- เนาวรัตน์ พลายน้อยและศุภวัลย์ พลายน้อย. การติดตามประเมินผลและการสังเคราะห์
 ความรู้ : บทเรียนการพัฒนานักจัดการความรู้ท้องถิ่นในโครงการเสริมสร้างการ
 เรียนรู้เพื่อชุมชนเป็นสุข (สรส.) ภาคกลาง. กรุงเทพฯ : มหาวิทยาลัยมหิดล, 2549.
 บุญชม ศรีสะอาค. การศึกษาเบื้องต้น. พิมพ์ครั้งที่ 2. กรุงเทพฯ : สุวีริยาสาส์น, 2543.
 - _____. การศึกษาเบื้องต้น. พิมพ์ครั้งที่ 7. กรุงเทพฯ : สุวีริยาสาส์น, 2545.
 - _____. การศึกษาสำหรับครู. กรุงเทพฯ : สุวีริยาสาส์น, 2546.
- พิชิต พิทักษ์เทพสมบัติ.การสำรวจโดยการสุ่มตัวอย่าง : ทฤษฎีและปฏิบัติ. กรุงเทพมหานคร : สำนักพิมพ์เสมาธรรม, 2550.
- : สานกพมพเสมาธรรม, 2550. วิโรจน์ สารรัตนะ. วิธีวิทยาการวิจัยแบบผสม กระบวนทัศน์ใหม่สำหรับการวิจัยทางการ บริหารการศึกษา. ขอนแก่น : อักษราพิพัฒน์, 2545.
- ศึกษาธิการ, กระทรวง. พระราชบัญญัติการศึกษาแห่งชาติ พ.ศ. 2542. ฉบับแก้ใข เพิ่มเติม (ฉบับที่ 2) พุทธศักราช 2545. สำนักงานคณะกรรมการการศึกษาแห่งชาติ. 2544.
- ศิริรัตน์ วงศ์ศิริและรักซ้อน รัตน์วิจิตต์เวช. วิทยาศาสตร์ ป.4. พิมพ์ครั้งที่ 2. กรุงเทพฯ : อักษรเจริญทัศน์ อจท. จำกัด, 2553.
- ส่งเสริมการสอนวิทยาศาสตร์และเทคโนโลยี,สถาบัน,กระทรวงศึกษาชิการ. การจัดสาระ
- การเรียนรู้กลุ่มสาระวิทยาศาสตร์. กรุงเทพฯ :โรงพิมพ์กุรุสภาลาดพร้าว, 2546 ก. สุวิทย์-อรทัย มูลคำ. หลักสูตรการศึกษาขั้นพื้นฐาน. พิมพ์ครั้งที่ 2. กรุงเทพฯ : กรมวิชาการ กระทรวงศึกษาธิการ, 2546.

- กรแก้ว จันทภาษา. ระเบียบวิธีวิจัย. ค้นเมื่อ 11 กันยายน 2552: จาก http://home.kku.ac.th/korcha/int3.html, 2550.
- ทองสง่า ผ่องแผ้ว 1/07/2550 http://gotoknow.org/blog/eduresearch/107800
- Abate, R.J. "Software Development for a Microteaching Laboratory". Microteaching.

 Available: http://www.coe.uh.edu/insite/elec_pub/html 1995/132.htm, December 29, 2000.
- Adams, P. E. and G. H. Krockover. "Beginning Science Teacher Cognition and Its Origins in the Preservice Secondary Science Teacher Program". Journal of Research in Science Teaching. 34(6): 633-653, 1997.
- Aikenhead, G. Teaching Science through a Science Technology Society –

 Environment Approach: An Instruction Guide. Regina, Saskatchewan:

 University of Regina, SIDRU, Faculty of Education. Cited in G. Aikenhead.

 1994. "Consequences to Learning Science Through STS: A Research". pp. 169-186. in J. Solomon and G. Aikenhead (eds.). STS Education: International Perspectives on Reform. New York: Teacher College Press, 1988.
- Aikenhead, G. "Consequences to Learning Science Through STS: A Research".

 pp. 169-186. in J. Solomon and G. Aikenhead (eds.). STS Education: International
 Perspectives on Reform. New York: Teacher College Press, 1994.

 . STS Education: A Rose by Any Other Name. Available: http://www.

 usask.ca/education/people/aikenhead/stsed/htm, April 24, 2003. Aikenhead, G. S.
 and A.G. Ryan. 1992. "The Development of New Instrument: " Views on Science
 Technology Society " (VOSTS)". Science Education. 76(5): 477-491, 2002.

 . "Evaluation of Views of High School Graduates on STS Topics". pp. 23-33.
 in R. E. Yager (ed.). What Research Says to the Science Teacher Volume Seven. The
 - in R. E. Yager (ed.). What Research Says to the Science Teacher Volume Seven. The Science, Technology, Society Movement. Washington, DC: The National Science Teacher Association, 1993.

- Aikenhead, G. S., A.G. Ryan and R. W. Fleming. Views on Science Technology Society.

 Department of Curriculum Studies College of Education University of

 Saskatchewan. Available: http://www.usask.ca/education/people/aikenhead/
 vosts.pdf, November 28, 2002.
- Aikenhead, G. S. and H. Otsuji. "Japanese and Canadian Science Teachers' Views on Science and Culture". **Journal of Science Teacher Education.** 11: 277-299.

 Available: http://www.usask.ca/education/people/ aikenhead/ aiktsuji.htm,

 November 28, 2002.
- Aikenhead, G. S., R.W. Fleming and A.G.Ryan. "High-School Graduates' Beliefs About Science Technology Society. I. Method and Issues in Monitoring Student Views". Science Education. 71(2): 145-161, 1987.
- Ajeyalemi, D. A. "Teacher Strategies Used by Exemplary STS Teachers". pp. 49-52. in R. E. Yager (ed.). What Research Says to the Science Teacher Volume Seven. The Science, Technology, Society Movement. Washington, DC: The National Science Teacher Association, 1993.
- Andersen, H. Standards for the Education of Teachers of Science: The Environment for Learning. Available: http://www.msu.edu/~dugganha/Learning Environment.htm, February 16, 2001
- Angelo, T.A. "Beginning the dialogue: Thoughts on promoting critical thinking:

 Classroom assessment for critical thinking". Teaching of Psychology. 22(1): 6-7.

 Cited in G.H. Walker. 1999. "Critical Thinking". Critical Thinking. Available:

 http://www.utc.edu/Teaching-Resource-Center/critical.html, December 18, 2002.
- Atwater, M. Standards for the Education of Science Teachers: The Social Context.

 Available: http://www.msu.edu/~dugganha/SocialContext.htm, February 16, 2001
- Baird, B. Performance Standards for Science Teachers: Status Report. Available: http://unr.edu/homepage/jcannon/ejse/baird.html, February 16, 2001.

- Banerjec, A.C. and R.E. Yager. Improvement in Student Perceptions of their Science

 Teachers, the Nature of Science, and Science Careers with Science Technology
- Society. pp.102-109. in R. E. Yager (ed.). The Status of STS: Reform Effort around the World. ICASE 1992 Yearbook. Knapp Hill, South Harting, Petersfield, UK: International Council of Associations for Science Education. Cited in G. Aikenhead. 1994. "Consequences to Learning Science Through STS: A Research". pp. 169-186. in J. Solomon and G. Aikenhead (eds.). STS Education: International Perspectives on Reform. New York: Teacher College Press, 1992.
- Berthelsen, B. "Students Naïve Conceptions in Life Science". MSTA Journal. 44(1): 13-19. Available: http://www.msta-mich.org, July 26, 2001.
- Beyer, B.K. Critical thinking. Bloomington, In: Phi Delta Kappa Educational Foundation.

 Cited in G.H. Walker. 1999. "Critical Thinking". Critical Thinking. Available:

 http://www.utc. edu/Teaching-Resource-Center/critical.html, December 18, 2002.
- Bilton, J. "What is Technology?". Technology. Available: http://atschool. eduweb co.uk/trinity/watistec.html, January 17, 2003.
- Binadja, A. Development of Science Process Skills when Science is taught with a Focus on Science Technology Society. pp. 97-101. in R. E. Yager (ed.). The Status of STS: Reform Effort around the World. ICASE 1992 Yearbook. Knapp Hill, South Harting, Petersfield, UK: International Council of Associations for Science Education. Cited in G. Aikenhead. 1994. "Consequences to Learning Science Through STS: A Research". pp. 169-186. in J. Solomon and G. Aikenhead (eds.). STS Education: International Perspectives on Reform. New York: Teacher College Press, 1992.
 - Bogden, R. C. and S. K. Biklen. Qualitative Research for Education: An Introduction to Theory and Methods. 3 rd ed. Boston: Allyn and Bacon, 1998.
 - Botton, C. and C. Brown. The Reliability of Some VOSTS Items When Used with

 Preservice Secondary Science Teacher in England. Journal of Research in Science

 Teaching. 35(1): 53-74, 1998.

- Brooks, J. G. and M. G. Brooks. In Search of Understanding: The Case for Constructivist Classroom. Verginia: The Association for Supervision and Curriculum Development, 1993.
- Bradford, C. A., P. A. Rubba and W. L. Harkness. "Views about Science-Technology-Society Interactions Held by College Students in General Education Physics and STS Courses". Science Education. 74(4): 355-373, 1995.
- Bybee, R.W. "The Sisyphean Question in Science Education: What should the Scientifically and Technologically Literate Person Know, Value and do as a Citizen?". pp. 79 93. in R.W. Bybee. (ed.). Science Technology Society. 1985 NSTA Yearbook. Washington, DC: National Science Teacher Association. Cited in G. Aikenhead. 1994. "Consequences to Learning Science Through STS: A Research". pp. 169-186. in J. Solomon and G. Aikenhead(eds.). STS Education: International Perspectives on Reform. New York: Teacher College Press, 1985.
 - Carin, A.A. Teaching Modern Science. 7th. Ed. New Jersey: Prentice-Hall, Inc., 1997.
 - Carroll, T. M. "Developing Partnerships: Teacher Beliefs and Practices and the STS

 Classroom". **The Electronic Journal of Science Education.** Available: http:

 //www.ed.psu.edu/CI/Journals/1999AETS/Carroll.rtf, June 5, 2002.
 - Center for Critical Thinking. The role of questions in thinking, teaching, and learning.

 Available: http://www.criticalthinking.org/University/univlibrary/library.nclk.

 Cited in G.H. Walker. 1999. "Critical Thinking". Critical Thinking. Available:

 http://www.utc.edu/Teaching-Resource-Center/critical.html, December 18, 2002.
 - Center for Instructional Development and Research. "Assessment of Teaching".

 Microteaching. Available: http://depts.washington.edu/cidrweb/Video.html

 #Microteaching, December 29, 2000.
 - Chiang-Soong, B. "STS in Most Frequently Used Textbooks in U.S. Secondary School".

 pp. 43-47. in R. E. Yager (ed.). What Research Says to the Science Teacher Volume
 Seven. The Science, Technology, Society Movement. Washington, DC: The
 National Science Teacher Association, 1993.

- Clark, R. C. Developing Technical Training: A Structured Approach for Developing

 Classroom and Computer-based Instructional Materials. (2nd ed.) International

 Society for Performance Improvement; and Joyce, Bruce R. et al.(2000). Models of

 Teaching. 6th edition. Allyn & Bacon. Available: http://www.cuaa.edu/~kalmesm/

 422f02/files/howtoteachconcepts.rtf, December 12, 2003.
- Clough, M.P. A Formative Evaluation of Biology in the Community (BIOCOM). A thesis submitted in partial fulfillment of the requirements for the Doctor of Philosophy degree in Science Education in the Graduate College of The University of Iowa, 1994.
- Cooper, J. L. "Cooperative learning and critical thinking". Teaching of Psychology.

 22(1): 7-8. Cited in G.H. Walker. 1999. "Critical Thinking". Critical Thinking.

 Available: http://www.utc. edu/Teaching-Resource-Center/critical.html, December 18, 2002.
- Darling Hammond, L. "Changing Conceptions of Teaching Development". Teacher

 Education. 22(4): 9-26. Cited in G. Haban. 1997. "Learning about Learning in the

 Context of a Science Methods Course". pp. 133-149. in J.Loughran and T. Russell.

 1997. Teaching about Teaching: Purpose, Passion and Pedagogy in Teacher

 Education. Washington DC.: The Falmer Press, 1995.
- Dass, P. M. AN STS Approach to Organizing a Secondary Science Methods Course:

 Preliminary Finding. Available: http://www.ed.psu.edu/CI/Journals/
 1999AETS/Dass.rtf, June 5, 2002.
- Duggan-Haas, D. A Proposed Introduction to the NSTA Standards for Science Teacher

 Preparation. Available: http://www.msu.edu/~dugganha/intro.htm, February 16,
 2001.
- Duldt, B.W. "Coaching Winners: How to Teach Critical Thinking". Critical

 Thinking. Available: http://www.kcmetro.cc.mo.us/longview/ctac/winners.htm,

 December 18, 2002.

- Eijkelhof, H.M.C. Radiation and Risk in Physics Education. Utrecht, the Netherlands:

 Utrecht University, Centre for Science and Mathematics Education. Cited in G.

 Aikenhead. 1994. "Consequences to Learning Science Through STS: A Research".

 pp. 169-186. in J. Solomon and G. Aikenhead (eds.). STS Education: International Perspectives on Reform. New York: Teacher College Press, 1990.
- Ellis, J. Standards for the Education of Science Teachers: The Context of Science.

 Available: http://www.msu.edu/~dugganha/Contextofscience.htm, February 16, 2001
- Fisher, K, M. "About Alternative Ideas". Biology misconception. Available: http://www.biologylessons.sdsu.edu/about/E.html, July 26, 2001.
- Fisher, K, M. "Instructional Philosophy Alternative Conception". Biology misconception.

 Available: http://www.biologylessons.sdsu.edu/philosophy /alternative.html, July 26, 2001.
- . "Cells". Biology misconception. Available: http://www.biologylessons.

 sdsu.edu/classes/lab7/altern.html, July 26, 2001.

 . "Chaparral Community". Biology misconception. Available:

 http://naturalsciences.sdsu.edu/classes/lab2.3/altern.html, July 26, 2001.

 . "How Do Organisms Reproduce?". Biology misconception. Available:

 http://naturalsciences.sdsu.edu/classes/lab2.5/altern.html, July 26, 2001.

 . "Mitosis". Biology misconception. Available: http://www.

 biologylessons.sdsu.edu/classes/lab8/altern.html, July 26, 2001.
 - Flick, L. Standards for the Education of Teachers in Science: Inquiry. Available: http://www.msu.edu/~dugganha/Inquiry.htm, February 16, 2001
 - Fosnot, C.T. "Teachers Construct Constructivism: The Center for Constructivist

 Teaching/Teacher Preparation Project". pp. 205-216. in C. T. Fosnot (ed.).

 Constructivism: Theory, Perspectives, and Practice. New York: Teacher College Press, 1996.
 - Gilbert, S. Standards for the Education of Teachers of Science: Content. Available: http://www.msu.edu/~dugganha/content.htm, February 16, 2001

- Gronlund, N. E. and R. L. Linn. Measurement and Evaluation in Teaching. 6th ed. New York: Macmillan Company, 1990.
- Haban, G. "Learning about Learning in the Context of a Science Methods Course". pp. 133-149. in J. Loughran and T. Russell (eds.). Teaching about Teaching: Purpose, Passion and Pedagogy in Teacher Education. Washington, DC: The Falmer Press, 1997.
- Haidar, A. H. and N. M. Balfakih. "United Arab Emirates Science Students' Views about the Epistemology of Science". VOSTS. Available: http://www.narst.org/narst/99conference/haidarbalfakih/haidarbalfakih.html, June 22, 2000.
- Hansen, K.-H. and J. Olson. "How Teacher Construce Curricalum Integration: The Science, Technology, Society (STS) Movement as Bildung". Carriculum Studies. 28(6): 669-682, 1996.
- Hart, E.P. "The Science-Technology-Society Movement in Science Education: A Critique of the Reform Process". Journal of Research in Science Teaching. 27(6): 575-588, 1990.
- Hassard, J. Science, Technology and Society in the Science Classroom. Available: http://scied.gsu.edu/Hassard/mos/chapter6menu.htm, June 13, 2002.
- Johnson, G. "Using Science, Technology and Society Issue to Achieve Scientific Literacy". Hortscience. 28(2): 93-954, 1993.
- Jones, E.A. and G. Ratcliff. Critical thinking skills for college students. National Center on Postsecondary Teaching, Learning, and Assessment. University Park, PA. (Eric Document Reproduction Services No. ED 358 772). Cited in G.H. Walker. 1999. "Critical Thinking". Critical Thinking. Available: http://www.utc.edu/Teaching-Resource-Center/critical.html, December 18, 2002.
- Julyan, C. and E. Duckwort. "A Constructivism Perspective on Teaching and Learning Science". pp. 55-72. in C. T. Fosnot (ed.). Constructivism: Theory, Perspectives, and Practice. New York: Teacher College Press, 1996.

- Kellerman, L. R. "An Issue as an Organizer: A Case Study". pp. 141-145. in R. E. Yager (ed.). What Research Says to the Science Teacher Volume Seven. The Science, Technology, Society Movement. Washington, DC: The National Science Teacher Association, 1993.
- Kortland, K. "An STS Case Study about Students' Decision Making on the Waste Issue". Science Education. 80(6): 673-689, 1996.
- Krajcik, J. S. "Learning Science by Doing Science". pp. 53-58. in R. E. Yager (ed.).

 What Research Says to the Science Teacher Volume Seven. The Science,

 Technology, Society Movement. Washington, DC: The National Science Teacher

 Association, 1993.
- Lang, H. R., A. McBeath and Jo Hebert. Teaching Strategies and Methods for Student-Centered Instruction. New York: Harcourt & Company, 1995.
- Lasley, T. J. and T.J. Matczynski. Strategies for teaching in a diversity society: instructional models. Boston: Wadsworth Publishing Company, 1997.
- Layton, D. "STS in the School Curriculum: A Movement Overtaken by History?". pp. 32-44. in J. Solomon and G. Aikenhead (eds.). STS Education: International Perspectives on Reform. New York: Teacher College Press, 1994.
- Lazarowitz, P. and Tamir, P. "Research on Using Laboratory Instruction in Science".

 pp 94-128. In D. L. Gabel (ed.). Handbook of Research on Science Teaching and

 Learning. New York: Macmillan Publishing Company, 1994.
- Lederman, N. Standard for Education of Science Teachers: The Nature of Science.

 Available: http://www.msu.edu/~dugganha/NOS.htm, February 16, 2001.
- Leonard, W. H. and J. E. Penick. Biology: A Community Context: Teacher's Guide.

 Ohio: South-Western Educational Publishing. Loughran, J. 1997. "Teaching about
 Teaching: Principles and Practice". pp. 57-69, 1998.
- Loughran and T. Russell (eds.). **Teaching about Teaching: Purpose, Passion and Pedagogy in Teacher Education.** Washington, DC: The Falmer Press.

- Lutz, M. "The Congruency of the STS Approach and Constructivism". pp. 39-58. in R. E. Yager (ed.). Science/Technology/Society As Reform in Science Education. New York: State University of New York Press, 1996.
- Matthews, M.R. Science Teaching: The Role of History and Philosophy of Science. New York: Routledge, 1994.
- National Science Teacher Association, Science / Technology / Society: anew Effort for
 Providing Appropriate Science for All. In R.E. Yager (Ed.). The Science,
 Technology, Society Movement. Washing ton, DC: The National Science Teacher
 Association, 1993.



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