

## References

- Abell, S.K., & Smith, D.C. (1994). What is science?: Preservice elementary teachers' conceptions of the nature of science. International Journal of Science Education, 16(4), 475-487.
- Aguirre, J.M., Haggerty, S.M., & Linder, C.J. (1990). Student-teachers' conceptions of science, teaching, and learning: A case study in preservice science education. International Journal of Science Education, 12(4), 381-390.
- Aikenhead, G.S. (1973). The measurement of high school students' knowledge about science and scientists. Science Education, 57(4), 539-549.
- Aikenhead, G.S. (1997). Toward a first nations cross-cultural science and technology curriculum. Science Education, 81, 217-238.
- Akindehin, F. (1988). Effect of an instructional package on preservice science teachers' understanding of the nature of science and acquisition of science-related attitudes. Science Education, 72(1), 73-82.
- Bianchini, J.A., & Colburn, A. (2000). Teaching the nature of science through inquiry to prospective elementary teachers: A tale of two researchers. Journal of Research in Science Teaching, 37, 177-201.
- Behnke, F.L. (1961). Reactions of scientists and science teachers to statements bearing on certain aspects of science and science teaching. School Science and Mathematics, 61, 193-207.
- Billeh, V.Y., & Hasan, O.E. (1975). Factors affecting teachers' gain in understanding the nature of science. Journal of Research in Science Teaching, 12(3), 209-219.
- Billeh, V.Y., & Malik, M.H. (1977). Development and application of a test on understanding the nature of science. Science Education, 61(4), 559-571.
- Bloom, J.W. (1989). Preservice elementary teachers' conceptions of science: Science, theories and evolution. International Journal of Science Education, 11(4), 401-415.
- Brickhouse, N.W. (1990). Teachers' beliefs about the nature of science and their relationship to classroom practice. Journal of Teacher Education, 41(3), 53-62.

Bybee, R.W., & DeBoer, G.E. (1994). Research on goals for the science curriculum. In Gabel, G.L. (Ed.), Handbook of research on science teaching and learning. New York: Macmillan Publishing Company.

Carey, R.L., & Stauss, N.G. (1970). An analysis of experienced science teachers' understanding of the nature of science. School Science and Mathematics, 70, 366-376.

Cho, H., Kahle, J.B., & Nordland, F.H. (1985). An investigation of high school biology textbooks as sources of misconceptions and difficulties in genetics and some suggestions for teaching genetics. Science Education, 69(5), 701-719.

Cleminson, A. (1990). Establishing an epistemological base for science teaching in the light of contemporary notions of the nature of science and of how children learn science. Journal of Research in Science Teaching, 27(5), 429-445.

Cobern, W.W. (1989). A comparative analysis of NOSS profiles on Nigerian and American preservice, secondary science teachers. Journal of Research in Science Teaching, 26(6), 533-541.

Collette, A.T., & Chiappetta, E.L. (1994). Science instruction in the middle and secondary schools. 3rd ed. New York: Merrill.

Cooley, W.W., & Klopfer, L.E. (1961). Test on Understanding Science: Form W. Princeton, New Jersey: Educational Testing Service.

Eflin, J.T., Glennan, S., & Reisch, G. (1999). The nature of science: A perspective from the philosophy of science. Journal of Research in Science Teaching, 36(1), 107-116.

Erickson, G.L., & Erickson, L.J. (1984). Females and science achievement: Evidence, explanations, and implications. Science Education, 68(2), 63-89.

Fensham, P. (1983). A research base for new objectives of science teaching. Science Education, 67(1), 3-12.

Gallagher, J.J. (1991). Prospective and practising secondary school science teachers' knowledge and beliefs about the philosophy of science. Science Education, 75(1), 121-133.

Garnett, P.J., & Tobin, K.G. (1984). Reasoning patterns of preservice elementary and middle school science teachers. Science Education, 68(5), 621-631.

Gustafson, B.J., & Rowell, P.M. (1995). Elementary preservice teachers: Constructing conceptions about learning science, teaching science and the nature of science. International Journal of Science Education, 17(5), 589-605.

Hashweh, M.Z. (1996). Palestinian science teachers' epistemological beliefs: A preliminary survey. Research in Science Education, 26(1), 89-102.

Herron, M.D. (1969). Nature of science: Panacea or pandora's box. Journal of Research in Science Teaching, 6, 105-107.

Hogan, K. (2000). Exploring a process view of students' knowledge about the nature of science. Science Education, 84, 51-70.

Hoyt, C. (1941). Test reliability estimated by analysis of variance. Psychometrika, 6(3), 153-160.

Kementerian Pendidikan Malaysia. (1993). Kurikulum Bersepadu Sekolah Menengah: Huraian sukatan pelajaran, Kimia Tingkatan V. Kuala Lumpur: Dewan Bahasa dan Pustaka.

Kimball, M.E. (1967-1968). Understanding the nature of science: A comparison of scientists and science teachers. Journal of Research in Science Teaching, 5(2), 110-120.

King, B.B. (1991). Beginning teachers' knowledge of and attitudes toward history and philosophy of science. Science Education, 75(1), 135-141.

Klopfer, L.E. (1969). The teaching of science and the history of science. Journal of Research in Science Teaching, 6(1), 87-95.

Koulaidis, V., & Ogborn, J. (1989). Philosophy of science: An empirical study of teachers' views. International Journal of Science Education, 11(2), 173-184.

Kozlow, M.J., & Nay, M.A. (1976). An approach to measuring scientific attitudes. Science Education, 60(2), 147-172.

Lam, S.Y. (1994). Spatial ability, formal reasoning ability, and field dependence-independence as predictors of form four students' achievements in geometry and engineering drawing. Unpublished master's dissertation, University of Malaya.

Lantz, O., & Kass, H. (1987). Chemistry teachers' functional paradigms. Science Education, 71(1), 117-134.

Lavach, F.L. (1969). Organization and evaluation of an in-service program in the history of science. Journal of Research in Science Teaching, 6(2), 166-170.

Lederman, N.G. (1992). Students' and teachers' conceptions of the nature of science: A review of the research. Journal of Research in Science Teaching, 29(4), 331-359.

Lederman, N.G. (1999). Teachers' understanding of the nature of science and classroom practice: Factors that facilitate or impede the relationship. Journal of Research in Science Teaching, 36(8), 916-929.

Lederman, N.G., & O'Malley, M. (1990). Students' perceptions of tentativeness in science: Development, use, and sources of change. Science Education, 74(2), 225-239.

Lederman, N.G. & Zeidler, D.L. (1987). Science teachers' conceptions of the nature of science: Do they really influence teaching behavior? Science Education, 71(5), 721-734.

Livermore, A.H. (1964). The process approach of the AAAS Commission on science education. Journal of Research in Science Teaching, 2, 271-282.

Mackay, L.D. (1971). Development of understanding about the nature of science. Journal of Research in Science Teaching, 8(1), 57-79.

Mah, C.C. (1999). Conceptions in circular motion among form six physics students in Kuching, Sarawak. Unpublished master's project paper, University of Malaya.

Malaysia (1998). KPLI: Sukatan pelajaran pengajian sains. Ministry of Education: Teacher Education Division.

Matthews, M.R. (1990). History, philosophy and science teaching: A rapprochement. Studies in Science Education, 18, 25-51.

McComas, W.F. (1996). Ten myths of science: Reexamining what we think we know about the nature of science. School Science and Mathematics, 76(1), 10-16.

Meichtry, Y.J. (1992). Influencing student understanding of the nature of science: Data from a case of curriculum development. Journal of Research in Science Teaching, 29(4), 389-407.

Meichtry, Y.J. (1993). The impact of science curricula on students views about the nature of science. Journal of Research in Science Teaching, 30(5), 429-443.

Miller, R. (1984). Science teaching for the citizen of the future. Science Education, 62, 449-458.

Norusis, M.J. (1997). Statistical package for the social science, SPSS. Illinois: SPSS Inc.

Ogunniyi, M.B. (1982). An analysis of prospective science teachers' understanding of the nature of science. Journal of Research in Science Teaching, 19(1), 25-32.

Ogunniyi, M.B., & Pella, M.D. (1980). Conceptualizations of scientific concepts, laws, and theories held by Kwara State, Nigeria secondary school science teachers. Science Education, 64(5), 591-599.

Palmquist, B.C., & Finley, F.N. (1997). Preservice teachers' views of the nature of science during a postbaccalaureate science teaching program. Journal of Research in Science Teaching, 34(6), 595-615.

Pella, M., O'Hearn, G., & Gale, C. (1966). Referents to scientific literacy. Journal of Research in Science Teaching, 4(3), 199-208.

Pomeroy, D. (1993). Implications of teachers' belief about the nature of science: Comparison of the beliefs of scientists, secondary science teachers and elementary teachers. Science Education, 77(3), 261-278.

Robinson, J.T. (1969). Philosophy of science: Implications for teacher education. Journal of Research in Science Teaching, 6(1), 99-104.

Rogers, P.J. (1982). Epistemology and history in the teaching of school science. European Journal of Science Education, 4(1), 1-10.

Rubba, P.A., & Andersen, H.O. (1978). Development of an instrument to assess secondary school students' understanding of the nature of scientific knowledge. Science Education, 62(4), 449-458.

Schmidt, D.J. (1967-1968). Test on understanding science: A comparison among several groups. Journal of Research in Science Teaching, 5(4), 365-366.

Scharmann, L.C. (1988). Locus of control: A discriminator of the ability to foster an understanding of the nature of science among preservice elementary teachers. Science Education, 72(4), 454-465.

Scharmann, L., Harty, H., & Holland, J. (1986). Development and partial validation of an instrument to examine preservice elementary teachers' process orientation to science. Science Education, 70(4), 375-387.

Science Literacy Center. (1967). Wisconsin Inventory of Science Processes. Madison, Wisconsin: Regents of the University of Wisconsin.

Siow, C.F. (1993). Achievement of form five students in selected aspects of logical reasoning in Mathematics. Unpublished master's practicum report, University of Malaya.

Smith, M.U., & Scharmann, L.C. (1999). Defining versus describing the nature of science: A pragmatic analysis for classroom teachers and science educators. Science Education, 83, 493-509.

Tan, H.L. (1998). An evaluation of the postgraduate teacher education programme for science in selected Malaysian teacher training colleges. Unpublished doctoral dissertation, University of Malaya.

Tobin, K.G., & Capie, W. (1981). Development and validation of a group test of logical thinking. Educational and Psychological Measurement, 41(2), 413-424.

Tulasi, P. (1999). Scientific attitudes of college teacher trainees and their relationships with science major, gender, and achievement in science teaching methodology. Unpublished master's dissertation, University of Malaya.

Welch, W.W. (1979). Twenty years of science curriculum development: A look back. Review of Research in Education, 7, 282-306.

Welch, W.W., & Pella, M.O. (1967-1968). The development of an instrument for inventorying knowledge of the processes of science. Journal of Research in Science Teaching, 5(1), 64-68.

Wood, R.L. (1972). University education student's understanding of the nature and processes of science. School Science and Mathematics, 72, 73-79.