

Effects of MUSIC Model on Junior High School Students' Learning Climate, and Learning Beliefs about Electricity and Mag

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ABSTRACT

This study investigated the influence of a particular instruction, MUSIC Model, on promoting learning climate, and learning beliefs about electricity and Magnetism for the ninth grade students, and sixty three students of grade ninth participated in the study. Variables of interest were students' learning climate and learning beliefs, teachers' reported use of MUSIC Model for designing eight weeks MUSIC Model teaching projects. A nonequivalent pre-test, post-test, follow-up test control group design was employed. The finding showed a statistically significant interaction of MUSIC Model project for students' learning climate, and learning beliefs. For all outcome variables, the MUSIC model group showed significantly greater gains from pre-test to post-test and follow-up test than the control group. The findings have implications for both practice and research.

Keywords : MUSIC Model、 Learning Climate、 Learning Beliefs

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REFERENCES

- 一、中文部份: 吳明隆 (2007)。SPSS統計應用學習實務:問卷分析與統計。台北:知城。 吳明隆、塗金堂 (2006)。SPSS與統計應用分析。台北:五南。 吳榮鎮 (2006)。生命教育推動的現況與展望。載於何福田 (主編), 生命教育 (9-21頁)。台北:心理。 施文玲 (2007)。以學習理論為基礎的數位化教學策略。生活科技教育月刊, 40(2), 23。 洪鳳美 (2005)。國中導師轉型領導風格、班級氣氛與學習動機關係之研究 - 以台北縣市為例 (未出版之碩士論文)。私立銘傳大學, 台北市。 范熾文 (2000)。營造優質的班級氣氛。國教新知, 46(3), 92-102。 范熾文 (2005)。國小校長轉換型領導與教師組織承諾關係之研究。臺中教育大學學報 (教育類), 2, 1-22。 國民教育社群網 (2011)。97年課程綱要。2011年1月4日取自 http://teach.eje.edu.tw/9CC2/9cc_97.php?login_type=1 教育部全國資訊網 (2011)。2007國際數學與科學教育成就趨勢調查(TIMSS)。2011年1月4日取自 http://www.edu.tw/news.aspx?news_sn=2241&pages=0&keyword=%bc%c6%be%c7 郭秀緞 (2002)。高雄市國小六年級班級氣氛、學習動機與學習成就關係之研究 (未出版之碩士論文)。國立高雄師範大學, 高雄市。 陳風鈴、張嘉蘋 (2005)。運用賦權照顧一位肺結核病患及家屬於手術前後之護理過程。慈濟護理雜誌, 4 (2), 96-104。 劉兆漢 (2002)。數位學習國家型科技計畫總體規劃書。中壢:國立中央大學資訊電機學院 (教育部委託研究)。 劉政宏 (2003)。考試壓力、回饋方式對國小學生學習表現、自我價值及學習動機之影響 (未出版之碩士論文)。國立台灣師範大學, 台北市。 蔡秉恆 (2002)。國小六年級學生運用網路數位學校學習柱體與錐體成效之研究 (未出版之碩士論文)。國立屏東教育大學, 屏東市。 鄭安順 (2007)。高職導師轉型領導風格、班級氣氛與學習動機關係之研究 - 以台東縣某高職為例 (未出版之碩士論文)。國立彰化師範大學, 彰化縣。 鄭增財 (1995)。台北市國中技藝教育班學生學習態度及其相關因素之研究 (未出版之碩士論文)。國立台灣師範大學, 台北市。 二、英文部份: Adams, W. K., Perkins K. K., Podolefsky N. S., Dubson M., Finkelstein N. D., & Wieman C. E. (2006). New instrument for measuring student beliefs about physics and learning physics: The Colorado Learning Attitudes about Science Survey. *Physical Review Special Topics-Physics Education Research* 2(1):010101. Akc,ay, B. (2009). Problem-Based Learning in Science Education. *Journal of Turkish Science Education (TUSED)*, 6(1), 26-36. Amabile, T. M. (1985). Motivation and creativity: Effect of motivational orientation on creative writers. *Journal of Personality and Social Psychology*, 48, 393-399. Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of Educational Psychology*, 84, 261-271. Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall. Bandura, A. (1997). *Self-efficacy: The exercise of control*. New

York: Freeman. Baumeister, R. & Leary, M. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117, 497-529. Boggiano, A. K., Main, D. S., & Katz, P. A. (1988). Children's preference for challenge: The role of perceived competence and control. *Journal of Personality and Social Psychology*, 54, 134-151. Bugental, D. B. (1992). Affective and cognitive processes within threat-oriented family systems. *Parental belief systems: The psychological consequences for children*, 2, 219-248. Hillsdale, NJ: Lawrence Erlbaum associates. Covington, M. V. (1992). *Making the grade: A self-worth perspective on motivation and school reform*. New York: Cambridge University Press. Crocker, J. & Knight, K. (2005). Contingencies of self-worth. *American psychological society*, 14(4), 200-204. Csikszentmihalyi, M. (1985). Reflections on enjoyment. *Perspectives in Biology and Medicine*, 28, 469-497. de Charms, R. (1976). *Enhancing motivation: Change in the classroom*. New York: Irvington. Deci, E. L. & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum. Deci, E. L., Schwartz, A. J., Sheinman, L., & Ryan, R. M. (1981). An instrument to assess adults' orientation toward control versus autonomy with children: Reflections on intrinsic motivation and perceived competence. *Journal of Educational Psychology*, 73, 642-650. De Volder, M. & Lens, W. (1982). Academic achievement and future time perspective as a cognitive-motivational concept. *Journal of Personality and Social Psychology*, 42(3), 566-571. Eccles, J. S. & Wigfield, A. (1995). In the mind of the actor: The structure of adolescents' achievement task values and expectancy-related beliefs. *Personality and Social Psychology Bulletin*, 21(3), 215-225. Eren, A. (2009). Exploring the effects of changes in future time perspective and perceived instrumentality on graded performance. *Electronic Journal of Research in Educational Psychology*, 7(3), 1217-1248. Fang, Z. (1996). A review of research on teacher beliefs and practices. *Educational Research*, 38(1), 47-65. Farrell, M., Kerry, T., & Kerry, C. (1995). *The Blackwell handbook of education*. Massachusetts: Basil Blackwell. Filak, V. F. & Sheldon, K. M. (2008). Teacher support, student motivation, student need satisfaction, and college teacher course evaluations: Testing a sequential path model. *Educational Psychology*, 28(6), 711-724. Flink, C., Boggiano, A. K., & Barrett, M. (1990). Controlling teaching strategies: Undermining children's self-determination and performance. *Journal of Personality and Social Psychology*, 59(5), 916-924. Freeman, T. M., Anderman, L. H., & Jensen, J. M. (2007). Sense of belonging in college freshmen at the classroom and campus levels. *The Journal of Experimental Education*, 75(3), 203-220. Furrer, C. & Skinner, E. (2003). Sense of relatedness as a factor in children's academic engagement and performance. *Journal of Educational Psychology*, 95(1), 148-162. Ghaith, G.M. & Yaghi, H. (1998). Effect of cooperative learning on the acquisition of second language rules and mechanics. *System* 26, 223-234. Ghaith, G. (2002). The relationship between cooperative learning, perception of social support, and academic Achievement. *System* 30, 263-273. Ghaith, G. (2003). The relationship between forms of instruction, achievement and perceptions of classroom climate. *Educational Research*, 45, 83-95. Ghaith, G. M., Shaaban, K. A., & Harkous, S. A. (2007). An investigation of the relationship between forms of positive interdependence, social support, and selected aspects of classroom climate. *System*, 35, 229-240. Goodenow, C. (1993). Classroom belonging among early adolescent students: Relationships to motivation and achievement. *Journal of Early Adolescence*, 13, 21-43. Grolnick, W. S. & Ryan, R. M. (1987). Autonomy in children's learning: An experimental and individual difference investigation. *Journal of Personality and Social Psychology*, 52(5), 890-898. Hamachek, D. (1995). *Psychology in teaching, learning, and growth*. Boston: Allyn and Bacon. Harter, S. (1982). The perceived competence scale for children. *Child Development*, 53, 87-97. Harvey, O. J. (1986). Belief systems and attitudes toward death penalty and other punishments. *Journal of psychology*, 54, 143-159. Hicks, L. (1997). Adolescents' social and academic motivation. *The Education Digest*, 63(3), 45-49. Hidi, S. & Renninger, K. A. (2006). The four-phase model of interest development. *Educational Psychologist*, 41(2), 111-127. Hofer, B. K. (2001). Personal epistemology research: Implications for learning and instruction. *Educational Psychology Review*, 13(4), 353-382. Hofer, B. K. & Pintrich, P. R. (1997). The development of epistemological theories: Beliefs about knowledge and knowing and their relation to learning. *Review of Educational Research*, 67(1), 88-140. Hyde, M. S. & Gess-Newsome, J. (1999/2000). Adjusting educational practice to increase female persistence in the sciences. *Journal of College Student Retention*, 1(4), 335-355. Johnson, D. W. & Johnson, R. T. (1990). Cooperative learning and achievement. In S. Sharan(ed.). *Cooperative learning: Theory and research*(pp 23-37). New York: Praeger. Johnson, D. W., Johnson, R. T., & Anderson, A. (1983). Social interdependence and classroom climate. *Journal of Psychology*, 114(1), 135-142. Johnson, D. W., Johnson, R. T., & Holubec, E. (1994). *The new circles of learning: Cooperation in the classroom and school*. Alexandria, VA: Association for Supervision and Curriculum Development. Jones, B. D. (2009). Motivating students to engage in learning: The MUSIC Model of Academic Motivation. *International Journal of Teaching and Learning in Higher Education*, 21(2), 272-285. Jones, B. D. (2010a). An examination of motivation model components in face-to-face and online instruction. *Electronic Journal of Research in Educational Psychology*, 8(3), 915-944. Jones, B. D. (2010b). Strategies to implement a motivation model and increase student engagement. Paper presented at the annual meeting of the International Society for Exploring Teaching and Learning, Nashville, TN. Jones, B. D., & Wilkins, J. L. M. (2010). Testing the MUSIC Model of Academic Motivation through confirmatory factor analysis. Manuscript submitted for publication. Knowles, M. S. (1989). *The Making of an adult educator*. San Francisco: Jossey-Bass. Marsh, H. W. (1990). A multidimensional, hierarchical self-concept: Theoretical and empirical justification. *Educational Psychology Review*, 2(2), 77-172. Marsh, H. W. & Yeung, A. S. (1997). Causal effects of academic self-concept on academic achievement: Structural equation models of longitudinal data. *Journal of Educational Psychology*, 89(1), 41-54. McCombs, B. L. (2000). Reducing the achievement gap. *Society*, 37 (5), 29-39. McGillicuddy-De Lisi, A. V., & Sigel, I. E. (1995). Parent beliefs are cognitions: The Dynamic Belief Systems Model. *Handbook of parenting*, 3, 485-508. Hillsdale, NJ: Lawrence Erlbaum Associates. McGrath, P. L. (1991). "Time, Interaction, and Performance (TIP): A Theory of Groups." *Small Group Research*, 22, 147-174. McKay, E. A. (2007). Psychological sense of school membership mediates the relationship between attachment and academic motivation in adolescents (Unpublished master dissertation). Central Connecticut State University, New Britain, Connecticut. Murdock, T. B. (1999). The social context of risk: Status and motivational predictors of

alienation in middle school. *Journal of Educational Psychology*, 91, 62-75. Nelson, R. & Debacker, K. (2008). Achievement motivation in adolescents: The role of peer climate best friends. *The Journal of Experimental Education*, 76(2), 170-189. Novak, J. D. (1987). Human Constructivism: Toward A Unity of Psychological and Epistemological Meaning Making. In J. D. Novak (ed.), *Second International Seminar: Misconceptions and Educational Strategies in Science and Mathematics*, Ithaca, New York: Dept. of Education, College of Agriculture & Life Science, Cornell University. Novak, J. D. & Gowin, D. B. (1984). *Learning how to learn*. Cambridge, London : Cambridge University Press. Ntalianis, F. (2010). Do personality and learning climate predict competence for learning? An investigation in a Greek academic setting. *Learning and Individual Differences*, 20(6), 664-668. Osterman, K. F. (2000). Students ' need for belonging in the school community. *Review of Educational Research*, 70(3), 323-367. Perry, W. G. (1970). *Forms of intellectual and ethical development in the college years: A scheme*. New York: Holt, Rinehart & Winston. Perry, W. G. (1981). Cognitive and ethical growth: The making of meaning. In A. W. Chickering (Ed.), *The modern American college*, 76-116. San Francisco: Jossey-Bass. Phan, H. P. (2008). Future time perspective in sociocultural contexts: A discussion paper. *Electronic Journal of Research in Educational Psychology*, 7(2), 761-778. Reynolds, J. M. & Hancock, D. R. (2010). Problem-based learning in a higher education environmental biotechnology course. *Innovations in Education and Teaching International*, 47(2), 174-186. Ryan, R. M. & Connell, J. P. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. *Journal of Personality and Social Psychology*, 57, 749-761. Ryan, R. M. & Deci, E. L. (2000). Self-determination theory and facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68-78. Ryan, R. M. & Grolnick, W. S. (1986). Origins and pawns in the classroom: Self-report and projective assessment of individual differences in children ' s perceptions. *Journal of Personality and Social Psychology*, 50, 550-558. Schavelson, R. J. & Bolus, R. (1982). Self-concept: The interplay of theory and models. *Journal of Educational Psychology*, 74, 3-17. Schommer, M. (1990). Effects of beliefs about the nature of knowledge on comprehension. *Journal of Educational Psychology*, 82, 498-50. Schommer, M. (1993). Epistemological development and academic performance among secondary students. *Journal of Educational Psychology*, 85, 406-41. Schommer, M. (1994). An emerging conceptualization of epistemological beliefs and their role in learning. In R. Garner & P. A. Alexander (Eds.), *Beliefs about text and instruction with text* (pp. 25-40). Hillsdale, NJ: Erlbaum. Schommer, M. & Hutter, R. (1995). The relationship between epistemological beliefs and controversial day-to-day issues. Paper presented at the annual meeting of the American Educational Research Association, San Francisco. Schraw, G. & Lehman, S. (2001). Situational interest: A review of the literature and directions for future research. *Educational Psychology Review*, 13(1), 23-52. Schunk, D. H. & Pajares, F. (2005). Competence perceptions and academic functioning. In A. J. Elliot, & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 141-163). New York: Guilford. Schunk, D. H., Pintrich, P. R., & Meece, J. L. (2008). *Motivation in education: Theory, research, and applications*. Upper Saddle River, NJ: Pearson. Schwenk, C. & Valacich J. S. (1994). Effect of devil ' s advocacy and dialectical inquiry on individuals versus groups. *Organizational Behavior and Human Decision Processes*, 55, 210-222. Shafritz, Koeppel & Soper. (1988). *The facts on file dictionary of education*. New York: Facts On File. Simons, J., Vansteenkiste, M., Lens, W., & Lacante, M. (2004). Placing motivation and future time perspective theory in a temporal perspective. *Educational Psychology Review*, 16(2), 121-139. Slavin, R. E. (1984). Component building: A strategy for research – based instructional improvement. *The Elementary School Journal*, 84(3), 254-269. Slavin, R. E. (1995). *Cooperative learning: Theory and research, and Practice*(2th ed.). N. J.: Prentice Hall. Smith V. C. & Wiener-Ogilvie S. (2009). Describing the learning climate of general practice training: the learner ' s perspective. *Educ Prim Care*, 20(6), 435-40. Tabachnick, S. E., Miller, R. B., & Relyea, G. E. (2008). The relationships among students ' future-oriented goals and subgoals, perceived task instrumentality, and task-oriented self-regulation strategies in an academic environment. *Journal of Educational Psychology*, 100(3), 629-642. Vallerand, R. J. & Bissonnette, R. (1992). Intrinsic, extrinsic, and amotivational styles as predictors of behavior: A prospective study. *Journal of Personality*, 60, 599-620. Van Calster, K., Lens, W., & Nuttin, J. R. (1987). Affective attitude towards the personal future: Impact on motivation in high school boys. *American Journal of Psychology*, 100, 1-13. Walker, C. O., Greene, B. A., & Mansell, R. A. (2006). Identification with academics, intrinsic/extrinsic motivation, and self-efficacy as predictors of cognitive engagement. *Learning and Individual Differences*, 16, 1-12. Wigfield, A., & Eccles, J. S. (2000). Expectancy-value theory of achievement motivation. *Contemporary Educational Psychology*, 25, 68-81. Withall, J. (1949). The Development of a technique for the measurement of social-emotional climate in classroom. *Journal of Experimental Education*, 17, 347-361.