Arranging the Room to Engage the Child

This section will include summaries of the literature on motivation and what is motivating or attractive to a child. We will also include literature from the field of education on the important of room set up for learning.

Tafarodi, R. W.(2002). Putting Oneself in the Task: Choice, Personalization, and Confidence. *Personality and Social Psychology Bulletin, Vol. 28,* No. 5, 648-658.

Incidental choice over the features of a task provides both control and personalization. Previous accounts of the tendency of choice to enhance task confidence have emphasized the importance of perceived control. The authors reexamined the enhancement effect to determine whether personalization is equally important. The results of two studies revealed that only choices reflecting personal preferences increased confidence in the task outcome (Study 1) and boosted performance-related self-esteem (Study 2). These findings point to the importance of self-identity expression for understanding the judgmental effects of choice.

Cordova, D. I. (1993). The effects of personalization and choice on students' intrinsic motivation and learning. Unpublished PHD, Stanford University (0212).

Cordova (1993) used a personalization technique designed to enhance intrinsic motivation and mathematics learning for 72 fourth and fifth grade children. Participants were assigned to one five conditions in a 3 (levels of personalization) by 2 (levels of choice) design. The conditions consisted of 1) "generic fantasy/no choice," 2) "generic fantasy/choice," 3) "personalized fantasy/no choice", 4) "personalized fantasy/choice" and, 5) a "no fantasy" control group. The intervention consisted of a HyperCard?-based, computer program designed to teach children arithmetical rules such as order of operations and use of parentheses. Personalization was accomplished by allowing the user to change generic referents in an instructional fantasy story, such as character names, dates corresponding with the users'

birthdays, teachers' names, and desired birthday gifts. Choice was accomplished by allowing the user to select the icons representing the user.

Children were posttested on a battery of attitudinal measures, including self-efficacy (which we will come back to), using 7-point Likert scales. They were also posttested on a related 16-item math test. There were no significant interactions between experimental conditions and students' gender or grade. Significant results show that students reported "relative enjoyment," and scored higher on the math test, for the personalization and choice features of the computer program, but there was no significant interaction between the two treatment variables.

Although the study was not specifically designed to alter percepts of efficacy, there were also no significant interactions between any conditions or the 15-item posttest self-efficacy. Cordova (1993) did, however, report significant main effects for both personalization and choice on two posttest measures of self-efficacy. One measure asked students how good they were at playing with computer games. The second measure asked about whether students would "vote" on a more challenging game in the future. Caution, however, should be exercised here in interpreting these results because self-efficacy was examined using global subject items, such as "How well can you learn math?", "How good do you think you are at playing these computer games?", and "Would you like this new game to be a little bit easier, the same or perhaps a little bit more challenging?" As stated earlier, Bandura (1986) has warned against this kind of global assessment of self-efficacy and has specified a micro-analytic strategy that investigates self-efficacy for specific, criterial tasks. Implications derived from this study, however, do support the notion that personalization increases enjoyment and learning, and may contribute as an influential source of math self-efficacy. JM

Herndon, J. N. (1988). Achievement and continuing motivation under differing levels of personalized instruction. Unpublished PHD, Arizona State University.

Herndon (1988) sought to compare three levels of personalized instruction for understanding syllogisms. Participants were 144 high school seniors, assigned to one of three groups: 1) individual personalization, 2) group

personalization, and 3) non-personalized. Students completed an inventory that asked students to report their most valued possessions, and other personal referents such as the names of people and things. Individual inventory items were then merged into personalized syllogisms for experimental groups one and two. All instructional versions were delivered to students as text. There was no significant effect on posttest achievement (i,e. the number of correctly answered syllogisms). Significant results of the study, however, do show that the individual personalization approach had a positive effect of students' attitudes (i,e. whether the instruction appealed to students). There were also significant effects for the two personalization treatments on continuing motivation (i,e. whether students would like more syllogism instruction), but this variable should be viewed skeptically because it was based on one "yes" or "no" question. Still, what can be gleaned from this study is that personalized instruction may contribute to improved learner affect, which is a step beyond personalized testing only. JM.

Anderson, A., Hattie, J., & Hamilton, R. (2005). Locus of Control, Self-Efficacy, and Motivation in Different Schools: Is moderation the key to success? *Educational Psychology, 25*(5), 517-535.

This study used a novel multidimensional locus of control instrument (I-SEE) to investigate the relationship between locus of control, motivation, and academic achievement in three different types of school. The strengths of the I-SEE are that it incorporates the construct of self-efficacy and that it is embedded in a model of personality and action based on field-theoretical conceptions. Further, it includes the role of the environment and personality in determining action. The results support a multidimensional conceptualisation of locus of control and the utility of the I-SEE. There were statistically significant differences between schools for motivation and achievement and also a mediating effect between locus of control and school type, suggesting that interactional models are required in investigations of motivation and achievement. Furthermore, moderate levels of locus of control and self-efficacy appear to be more adaptive than either extremely high or low levels.

Weinstein, C. S. (1979). The Physical Environment of the School: A Review of the Research**.** ***Review of Educational Research*****.** ***49*****, 577-610.**

This paper reviews research on the impact of classroom environments on student behavior, attitudes, and achievement. The first section examines studies of six environmental variables: seating position, classroom design, density, privacy, noise, and the presence or absence of windows. In the second part of the paper, research conducted from an "ecological" perspective is considered. A third section focuses on the effects of open space school designs. Finally, some future directions for research are discussed, and the advantages and limitations of various research designs are summarized.

Evans, G. W. (2006). Child Development and the Physical Environment. ***Annual Review of Psychology,*** *57,* 423-451.

Characteristics of the physical environment that influence child development are discussed. Topics include behavioral toxicology, noise, crowding, housing and neighborhood quality, natural settings, schools, and day care settings. Socioemotional, cognitive, motivation, and psychophysiological outcomes in children and youths are reviewed. Necessary methodological and conceptual advances are introduced as well.

Weinstein, C. S. (1977). Modifying Student Behavior in an Open Classroom through Changes in the Physical Design. ***American Educational Research Journal, 14*** **(3), 249-262**

Spatial distribution of activity in a second-third grade open classroom was observed before and after a change in the physical design, to test the hypothesis that minor changes in the physical setting would produce predictable, desirable changes in student behavior. In most cases the desired behavior changes were produced.

Watts, R. H., Cashwell, C. S., & Schweiger, W. K. (2004). Fostering Intrinsic Motivation in Children: A Humanistic Counseling Process. *Journal of Humanistic Counseling Education and Development, 43*(1), 16.

Humanistic counselors working with children seek to help them grow and develop the motivation needed to make decisions and changes in their lives. Intrinsic motivation, an important component of humanistic counseling, is defined and explicated, research is reviewed, and suggestions are made for counselors who seek to foster intrinsic motivation in children. Counselors can use a variety of talking and nontalking approaches to counseling to foster intrinsic motivation in children. Specifically, counselors can focus on the four underlying constructs of intrinsic motivation--self-determination, self-perceived competence, relatedness, and perceived salience--when counseling children. The purpose of this article is to review current theory and research on intrinsic motivation and to discuss specific ways in which humanistic counselors may foster intrinsic motivation in children.

Gingold, W. (1971) The effects of physical environment on children's behavior in the classroom. Eric # ED120942.

No significant difference of student-concrete physical environment interaction occurred with a change in physical environment. A test was made on five null hypotheses related to the change of physical environment and (1) student-concrete physical environment interaction; (2) environmental preference by students; (3) student attending behavior; (4) student movement within the classroom; and (5) student-concrete physical environment interaction relationship to temperature, humidity, atmospheric pressure, sound level, and illumination level. All data recording and collecting procedures were made through classroom visitations and observations in classes that involved academic subjects. Subjects for the study consisted of 230 elementary and junior high age students located in three separate school facilities in Wisconsin. Forty of these subjects were educable mentally retarded children. All students had been in an "old" structure for at least a month before moving to a "new" structure. Other factors remained constant: classroom unit composition, curricula, teachers, and general time schedule.

Woolner, P., Hall, E., Higgins, S., McCaughey, C., & Wall, K. (2007). A Sound Foundation? What we know about the Impact of Environments on Learning and the Implications for Building Schools for the Future. ***Oxford Review of Education, 33*****(1), 47-70.**

This paper reports on a literature review conducted in the UK for the Design Council and CfBt (Higgins et al., 2005) which looked at the evidence of the impact of environments on learning in schools. We have reviewed the available evidence regarding different facets of the physical environment and provided an analysis based on different areas of effect, including the extent to which different facets interact (positively and negatively) with one another. Our conclusions suggest that, although the research often indicates the parameters of an effective environment, there is an overall lack of empirical evidence about the impact of individual elements of the physical environment which might inform school design at a pratical level to support student achievement. However, at a secondary level of analysis, there are indications that environmental changes can be a part of catalytic process of school development and improvement. The implications of these findings for Building Schools for the Future will be discussed. Includes appendix of search strategy and results.

Fielding, R. (2006) Learning, Lighting and Color: Lighting Design for School and Universities in the 21st Century. See http://www.designshare.com/articles/1/133/fielding_light-learn-color.pdf.

If you were training to take your place on the assembly line, you needed to focus on the work at hand and ahead to your supervisor, but the future no longer belongs to students who look only straight ahead. In a world where advanced degrees in professional disciplines are rapidly becoming a commodity, prosperity belongs to individuals with the ability to react with agility to unpredictable market forces, data, and events. Successful schools and universities are adapting their offerings to learner-centered, rather than teacher or curriculum-centered, modes of delivery. The paradigm is no longer about delivering information, but in nurturing a broad array of learning styles and experiences. Many of the environments for learning have not caught up with these approaches to educational delivery. When working

with architects and lighting designers, even visionary educators often ask for the same old classroom, with a few bells and whistles added, such as new carpeting, a ceiling mounted data projector, and extra electrical outlets. However, an effective learning environment in the 21st century has little in common with the rows of classrooms and desks or child factories of the industrial or information age. Fielding dispels seven myths about color and lighting in educational architecture: (1) Uniform brightness level; (2) Primary colors for children; (3) Red incites aggression, green is calming; (4) Neutral colors are best; (5) It's best to use all the same lamps; (6) It's best not to use natural light in gymnasiums; and (7) Performance spaces should not have any windows, advocating the identification of patterns of learning activity and design prior to laying out a building as a good way to ensure a lighting solution that takes advantage of the full range of human capabilities. This article comments on the role of lighting in: (1) Vistas, Movement, and Lighting Design Principles; (2) Full-Spectrum Lighting; (3) Welcoming Entry; and (4) Science Lab Areas. [This article was co-published in German and English by PLD -- the official magazine of the European Lighting Designers' Association(ELDA) and the International Association of Lighting Designers(IALD).]