

AN ANNOTATED BIBLIOGRAPHY OF EDUCATIONAL ENVIRONMENTS

This appendix presents an annotated bibliography of educational environments that identifies linkages between educational psychology, environmental psychology and environmental design research. The annotated bibliography drew from all three disciplines, both empirical and non-empirical work as well as primary and secondary sources. Sources collected were mapped onto the conceptual framework and analyzed. From this analysis, key sources were identified according to how comprehensively they investigated all dimensions of the educational environment. These particular sources (ecological models) have been more fully annotated in the concluding chapter. The following two Tables summarize the content of the annotated bibliography in terms of the multidimensional model (Table A.1), and in terms of empirical status (Table A.2).

Discipline	Dimension of the Educational Environment												Total
	Ecological		Organizational		Social		Personal		Physical		Temporal		
	Source No.	Subtotal	Source No.	Subtotal	Source No.	Subtotal	Source No.	Subtotal	Source No.	Subtotal	Source No.	Subtotal	
Architecture	79a	1	24,31	2		0	105, 106	2	4,18,19,20, 21,24,28,31,50, 51,67,76,77,84, 86,92,98,104, 105,106,107 108,112	23	8,14,22,25, 30,40,66,68, 71,74,81,82, 83,88,92,99, 101,105,126	19	47
Environmental Psychology	56	1	124, 125	2	13, 124, 125	3	2,3,5,7,29,33, 44,46,47,61, 79,89, 95,96, 111,117,122	17	3,5,13,44,46,47, 54,55,56,57,58, 59,60,79,89,91 95,111,117,128	20	9,45,61,91, 100	5	48
Education	1, 26	2	63, 75, 80, 109,123	5	35, 123	2	17,32,35,38, 70,113,114, 118	8	6,15,16,17,27, 32,34,36,41, 42,43,48,49,62, 69,72,78,80,85, 90,93,94,97, 102,103,113, 114,116,119, 120,127	31	11,12,23,37, 39,52,53,64, 65,73,87,110, 115,119,121, 126	16	64
Totals		4		9		5		27		74		40	139

Table A.1 Studies Concerning the Various Dimensions of the Educational Environment in Schools

Discipline	Empirical Sources		Non-Empirical Sources		Total
	Source No.	Subtotal	Source No.	Subtotal	
Architecture	30,67,101,105,106,79a	6	4,8,14,18,19,20,21,22,24,25,28, 31,40,50,51,66,68,71,74,76,77, 81,82,83,84,86,88,92,98,99,104, 107,108,112,126	35	41
Environmental Psychology	2,3,5,7,9,10,13,29,33,44,45,46, 47,54,55,56,57,58,59,60,79,89, 95,96,122, 125	26	61,91,100,111, 117,124,128	7	33
Education	6,15,17,26,32,35,36,38,41,42, 43,49,69,70,80,97,103,109,113, 114,118, 119,120, 123	24	1,11,12,16,23,27,34,37,39,48,52, 53,62,63,64,65,72,73,75,78,85, 87,90,93,94,102,110,115,116,121 126,127	32	56
Totals		56		74	130

Table A.2 Empirical Status of Studies Across Disciplines

No.	Source	Disciplinary Orientation	Methodology/ Approach	Principal Dimension	Dimensions of the Educational Environment	
					Organizational Dimension	Social Dimension
1	Anderson, 1982	Education	Review of Literature	School Climate: Ecology, Milieu, Social system, culture	Unit of analysis is the whole school system	
2	Ahrentzen, 1982	Environmental Psychology	Annotated Bibliography	Personal	elementary school	
3	Ahrentzen, Jue, Skorpanich & Evans, 1982	Environmental Psychology	Review Literature	School environments and stress: Physical environment and Personal interactions	order and organization rule clarity elementary school	
4	Ahrentzen, 1988	Architecture	Historical Review	Physical setting: elementary school facilities	Open Education Elementary school	
5	Ahrentzen & Evans, 1984	Environmental Psychology	Empirical observations	Personal, then Physical setting	Elementary schools	
6	Armstrong, 1975	Education	Literature review	Physical settings: open classroom	Open Education Elementary school	
7	Axle, Baroni & Peron, 1990	Environmental Psychology	Empirical: observations questionnaires	Personal		
8	Bakos, Bozic & Chapin, 1987	Architecture	Non-empirical: Descriptive Case Study	Temporal Dimension	one ward in a large state institution for mentally retarded children	
9	Baldasarrri, Lehman & Wolfe, 1987	Environmental Psychology	Empirical: Participatory action-research qualitative	Temporal Dimension	elementary school	group discussions w/ teachers, parents & community, children
9a	Ballast, 1987	Architecture	Bibliography	Physical setting	elementary schools child care centers	
10	Barker & Gump, 1964	Environmental Psychology	Empirical: observation	Whole system: the behavior setting		
11	Benit, 1990	Education	Non-empirical report	Temporal Dimension		
12	Berg & Apostle, 1991	Education	Non-empirical report	Temporal Dimension	Elementary & secondary schools	

Personal Dimension	Physical Dimension	Temporal Dimension	Interactions/ Attributes	Outcomes
			School Climate	School climate is a research paradigm the school building is a unit of inquiry school climate is the personality of the school smaller schools have increased community and awareness social system variables most critical to school climate: admin/teacher; student/teacher; community/school rel
Student behavior, performance and achievement	density noise spatial density social density (?)	design modifications in an open plan school		This review looks at physical components of EBS system (such as noise, social and spatial density, design modifications) which affect student variables (such as... reading ability, open vs closed, physiological, motivational & cognitive effects, peer interaction & development of cooperative interdependence, task & social behaviors, teacher/student rel, student behavior, performance, achievement)
Student classroom experience task orientation locus of control achievement need attendance questioning behaviors persistence on tasks fidgeting behaviors creativity satisfaction with classroom participatory behav social disruptive beh student involvement commitment to school work	Seating Position Windows Study spaces Density School size thermal, luminous, noise Openness arrangement of furnishings soft/hard atmosphere accessibility of materials audiovisual stimulation boundary clarity		Environmental stress	See article for reviews of many articles related to school environments and stress The authors present a taxonomy for the study of stress in elementary school settings (p.246, table 8.1)
Mainstreaming the handicapped	Open Plan Windows and lighting Secluded study spaces Color, textured walls, carpeting, adj. lighting, cushioned benches (for comfort and noise reduction) wall hangings	Adaptability over time Flexibility		
student distraction teacher distraction	degree of classroom openness Secluded study spaces: desk type area volume, ceiling heights	classroom modifications	privacy	1. More open classrooms have increased distractions and less satisfaction 2. More spacious areas have less distraction & greater satisfaction 3. Class activities more likely to be restricted to prevent noise in more open settings 4. Secluded study areas used by students to achieve solitude & associated with increased privacy & satisfaction
effects on teachers: satisfaction leadership behavior student personal adjustment withdrawn behavior self-esteem risk-taking behaviors self-concept of students cognitive env assessment of both children & adults	open plan classrooms versus self-contained classrooms noise photographed classrooms			
mentally retarded children's responses to designs	playroom and outdoor play structure	describes design process w/ children		using analogies instead of conventional images replacing "you can't" statements with statements of conflicts getting the questions right by being aware of a hierarchy of needs avoiding the Head Nurse by involving all Making a design: images into places immersion into a participatory process vs professional distancing
worked with children	focus of discussion of sessions was on images of what the physical setting could be. alternative environments	reports on process of involving children in imaging alternative schools		involvement of children in change process use of media raised issues about underlying power relations betw kids and teachers.
children	innovative school design			
			facility planning facility assessment audits prototypical designs with common building cores	Behavior settings influence behavior of students and teachers • Prototype designs can capitalize on economies of scale

No.	Source	Disciplinary Orientation	Methodology/ Approach	Principal Dimension	Dimensions of the Educational Environment	
					Organizational Dimension	Social Dimension
13	Berliner, 1983	Psychology	Empirical field observations	Physical setting & Social: Activity Structures	elementary schools	"reading circle" "seatwork" "two-way presentation" "one-way presentation" "mediated presentation" "silent reading" "construction" "games" "play" "transition" "housekeeping"
14	Bickmore, 1992	Architecture	Non-empirical report	Temporal Dimension		
15	Bourke, 1986	Education	Empirical: observation & questionnaire	class size: Physical Dimension	elementary school	Teacher practices: class groupings... whole class instruction, small group teaching monitoring of indiv student work
16	Bowers & Hamons, 1990	Education	Non-empirical report	Physical setting: school building design	community recreation center for community programs	community support Top 55 club for senior citizens
17	Brody & Zimmerman, 1975	Education	Empirical: observations questionnaires	classroom organization & personal space	elementary school	
18	Brubaker, 1989a	Architecture	Non-empirical report	Physical setting: impact of technology on educational facilities	elementary & secondary impact of technology on mission statements & philosophy of schools	
19	Brubaker, 1988	Architecture	Non-Empirical report	Physical setting: lessons in school planning	secondary schools	
20	Brubaker, 1989b	Architecture	Non-empirical descriptive case studies	Physical setting	Secondary schools	
21	Brubaker, 1990	Architecture	Non-empirical report	Physical setting		
22	Brubaker, 1991	Architecture	Non-empirical descriptive case studies	Temporal Dimension	Secondary schools	Community
23	Bullis, 1992	Education/ Facilities Management	Non-empirical report	Temporal Dimension		

Personal Dimension	Physical Dimension	Temporal Dimension	Interactions/ Attributes	Outcomes
number of students teacher role student attention			ATI: Aptitude-treatment interaction	classrooms are described in terms of the recurrent activity structures teachers use, which have different functions and possess rules and norms to guide student behavior in the structure Hypotheses about aptitudes that may foster or hinder achievement in different activity structures are suggested: Success in school, judged by school personnel, is some weighed composite of success in any of a number of activity structures and that different characteristics are needed to succeed in different activity structures.
		collaborative models of planning and designing schools		<ul style="list-style-type: none"> • being open to variety of experiences and being receptive to poss. • make due with whatever is at hand • identify indiv. w/ predisposition toward making connections • questions & open-ended structures for thinking must be modus operandi • respect for others' points of view • meetings should have leaders • More connections possible through shared experiences
student achievement (math) teaching practices teacher questioning management of classroom noise homework practices	class size new community recreation facility	Negotiating with public for funds		<ul style="list-style-type: none"> • In smaller classes teachers more often taught the class as a whole and these classes had higher achievement • In larger classes teachers formed more groups and these classes had lower achievement • Smaller classes had fewer interactions & higher achievement • Teachers w/ small classes probed more frequently & their classes had high achievement. <p>• The construction of a community recreation center was found to be a solution for building community support for public education among a growing number of community residents w/out children</p>
student/teacher interaction 3rd/4th grade children	trad. & open classroom settings		personal space	• Open classroom students reported smaller interpersonal distances to specific individuals than traditional classroom students.
impacts of technology on teaching & learning physical education, arts career, continuing ed, home	impacts of technology on the learning environment	impacts of tech on school building design & construction & on community planning		With the advent of technology: <ul style="list-style-type: none"> • the school will become a more integral part of community private business and government • Tech will advance the idea of individualized learning (Schedules will become customized computer assisted instruction & greater access to info) • Tech will promote design of smaller schools • chalkboards and projectors and tvs will be replaced • Tech will forge new links between home and school
	built-in flexibility great spaces innovative building materials energy conservation pitched and visible roofs climate/regional based planning constraints on urban school design specialized school buildings career education centers child-care centers, cont. ed.	recycled buildings additions/renovations designing for reuse		The author discusses changes in the physical form of schools based on a number of trends (21) in school design which are emerging from practice.
	historical review community schools education as multi-locational New trends			New trends (see his 21 trends) this article goes into more detail on describing these trends.
	New trends			This article elaborates on the author's "trends" discussion
		school program planning: replacing old with new school as community center expansion of existing site Steps in facilities management		School program planning is an opportunity for the community to express its commitment to education, and an opportunity to maximize the value of the institution for all citizens.
				Describes the steps to be taken in a facility management process

No.	Source	Disciplinary Orientation	Methodology/ Approach	Principal Dimension	Dimensions of the Educational Environment	
					Organizational Dimension	Social Dimension
24	California Department of Education, 1990	Architecture	Non-empirical analytical case studies	Both Physical setting & Organizational: Design implications of school reform	Methods of instruction services for children at risk of failure pre-school & before- and after-school care use of technology in curriculum & assessment year-round schooling	collegiality & professionalism among teachers community use of facilities parental involvement
25	de Carlo, 1975	Architecture	Non-empirical essay report	Temporal Dimension: Design of school bldgs	discusses the relationship between organizational goals & architecture	
26	Centra & Potter, 1980	Education	Review of the research	Interrelational model: school and teacher effects on student achievement	school district conditions within school conditions	
27	Chopra, 1991	Education	Non-empirical report	Physical setting: Financing construction of new school building	Elementary schools	Community politics
28	Christopher, 1992	Architecture	Non-empirical report	Physical setting: Architecture for education	educational philosophy and its link to architecture	
29	Cohen, Goodnight, Poag, Cohen, Nichol, & Worley, 1986	Environmental Psychology	Empirical questionnaires interviews	Personal	elementary school	
30	Colven, 1990a	Architecture	Empirical case study report	Temporal Dimension	pre-school nursery school	
31	Colven, 1990b	Architecture	Non-empirical report and case studies	Physical setting: how physical environment affects educational quality	Hidden curriculum	
32	Conners, 1983	Education	Review of research	Personal: stress		
33	Cotterell, 1984	Environmental Psychology	Empirical: diaries	Personal	junior high school	
34	Crowe, 1990	Education/ Environmental Design	Design guideline report	Physical setting		

Personal Dimension	Physical Dimension	Temporal Dimension	Interactions/ Attributes	Outcomes
use of manipulative materials	school size modular/flexible schools	planning steps determining specs planning for quality		<ul style="list-style-type: none"> • Flexible classroom spaces necessary to accommodate various sized groups & multiple instructional methods • As students work with more materials, additional space will be necessary • Teachers need space to work together, classrooms will need to be larger to accommodate several teachers working with students • partnerships between school and community may change the design of schools • With different groups using the school, it will need to be designed to be open year-round and around the clock • Strong parental involvement will affect school design • Access to technology will vary widely & design will have to accommodate this variety
		discusses the whys of design before the hows		<ul style="list-style-type: none"> • The institutional school furnishes a limited education • The least suitable place in which to carry out educational activity is the school building since it closes off teaching & learning from contacts with the complex context of society. • Job of architect to outline the organizational structure which should realize educational activities in space.
student characteristics, achievement & behavior teacher characteristics, achievement & behavior				See article for a comprehensive structural model of school and teacher variables influencing student learning outcomes
		campaign for bond issue key supporters transferring leadership selecting architect educ specifications contractor selection		[JAL: a promotional piece without much substance]
	innovative school designs building as teacher friendly environments attention to detail, variety of exp. adequate space, flexibility, inspiring a sense of community			<ul style="list-style-type: none"> • most successful environments are friendly to users, feel at home and welcome through child scaled designs with color, texture and graphics • The building can be used as a teacher by expressing systems • Buildings should emulate the positives of their surrounding environmental context • Schools should provide a variety of spatial experiences
Individual: affective & cognitive effects of different spatial familiarization experiences	A school campus consisting of three buildings and a playground area			• Differences in attitudes towards academic, spatial security and social affairs in school occurred as a function of the spatial familiarization experiences.
		design and planning process		<p>Why did process often fail to produce suitable solutions? Why did school premises often relate poorly to requirements? Why did so many environmental problems & building performance failures occur? Problems with user participation and feedback, design and building management Measures for improving planning procedures presented</p>
pupil perspective	whole school env. case studies are reviewed space becomes a place importance of social areas in schools	appropriation of space A/C relationship problems in planning process maintenance of quality	aspects of quality in school environments	<ul style="list-style-type: none"> • design of social areas allows small groups of students to meet giving a feeling of togetherness and relaxation • Streets and courtyards can act as social areas which can be used by teachers and students as well as facilitating integration with the community as a whole.
student's response to (env press) social interaction	activity nodes spatial organization seating position, classroom design & arrangement, density & crowding, and noise		stress wayfinding privacy	<ul style="list-style-type: none"> • Designed environments of schools may stress users of the facility both directly and indirectly, both school-wide and at the classroom level. • Schools must provide places which will enhance goals for interaction, for participation in social networks and control of time and place of social interactions. • physical env effects non-achievement behaviors and attitudes
student and teacher anxiety	open plan schools conventional school designs			<ul style="list-style-type: none"> • teachers in open schools experience more tension & anxiety than teachers in conventional schools. • In open plan schools, transitions to new activities more frequent, and more prolonged and student off-task behavior was greater.
	Design elements which make school safer			Crime prevention through environmental design

No.	Source	Disciplinary Orientation	Methodology/ Approach	Principal Dimension	Dimensions of the Educational Environment	
					Organizational Dimension	Social Dimension
35	Crumpacker, 1992	Education	Empirical: ethnographic, interpretive & descriptive	Social: school culture	elementary school	multiple meanings of smallness home as a template for school feeling like family & support implications of shared space feelings of belonging school as a repository for cultural memories and lore.
36	David, 1981	Education	Review of the research	Physical setting: the Physical classroom environment	elementary schools preschool settings	
37	Day & Day, 1991	Education/ Environmental Design	Non-empirical report	Temporal Dimension		
38	Daly & Suite, 1981	Education	Empirical: observations interviews	Personal	preschool to secondary	
39	Dierdorff, 1989	Education	Non-empirical Essay report	Temporal Dimension	elementary & secondary schools	
40	Dunwoody, 1988	Architecture	Non-empirical report	Temporal Dimension		
41	Edwards, 1991	Education/ Public Policy	Empirical	Physical setting	Public school system	
42	Elias & Elias, 1976	Education	Empirical	Physical setting	elementary school	
43	Englehardt, 1988	Educational facility management	Empirical survey design	Physical setting		
44	Evans, Kilewer & Martin, 1991	Environmental Psychology	Review of empirical research	Physical environment and Personal		
45	Evans & Lovell, 1979	Environmental Psychology	Empirical research	Temporal Dimension: design modification		
46	Fisher, 1975	Environmental Psychology	Empirical research: interview observation self-reports	Physical setting/ Personal	elementary schools program openness language arts instruction	
47	Fraser & Fisher, 1981	Environmental Psychology	Empirical research: questionnaires tests	Physical setting/ Personal	33 junior high schools program openness	

Personal Dimension	Physical Dimension	Temporal Dimension	Interactions/ Attributes	Outcomes
experience of comfort signif of ambient sensory info factors leading to feelings of safety and security	artifacts of a school facility	Implications are drawn for architects & school facility planners		<ul style="list-style-type: none"> generally, a school facility which worked facilitated interaction among people was easy-to-read, had long unbroken visual lines lacked an institutional feel was the embodiment of the community contained constructs which users defined & adapted as homelike offered a safe, secure environment had a place to congregate, had activity options for users was compact, but adaptable contained no off limit places was never pierced by the amplified noise of an intercom system
student achievement	open plan vs conventional argument		hiring consultants	Primarily a review of research on open classrooms
classroom seating choice teachers perceptions of students	traditional classroom setting		Designing for behavior life-cycle costing developing program specifications Equip. & furnishings designing schools with maintenance in mind	<ul style="list-style-type: none"> Students in front of classroom viewed more favorably by teachers Teachers regard males sitting in rear and females in front more positively in early grades & negative in later grades Teacher social-communicative anxiety affects evaluations based upon seating choice. <p>Article describes the process for administrators</p>
Student achievement	building conditions broadly defined	parental involvement		<ul style="list-style-type: none"> Research looks at the impact of parental involvement on the overall condition of school buildings; then looks at impact of variables on student achievement. Capital outlays to improve basic conditions of schools may contribute to students' achievement.
student curiosity and openmindedness	open classroom			open classrooms may encourage some aspects of curiosity to a greater extent than does the traditional classroom
	Science classrooms			evidence of spatial influence on science teaching
health and well-being of children	crowding, pollutants, noise and architectural design elements pathogenic conditions, stimulation levels, functional complexity, control, structure and predictability exploration		environmental stress	
interruptions substantive questioning process questioning	open-plan school	Design modifications: addition of variable height partitions		Following design modifications of the school's open classrooms, substantive, content questioning increased, classroom interruptions decreased, while non-substantive questioning remained the same.
Student behavior variables (activities, social group size) Teacher behavior variables	self-contained instructional areas seen as "closed space" architecture vs "open space" architecture			<ul style="list-style-type: none"> teachers in open programs engage fewer students & consulted w/ small groups of students than teachers of less open programs Program openness is a useful dimension upon which to distinguish among educational environments.
Student achievement & attitudes	"closed space" architecture vs "open space" architecture			Actual openness accounted for a substantial and significant amount of the variance in affective but not cognitive achievement

No.	Source	Disciplinary Orientation	Methodology/ Approach	Principal Dimension	Dimensions of the Educational Environment	
					Organizational Dimension	Social Dimension
48	Folks, 1985	Education	Non-empirical essay	Physical setting		junior high & middle schools
49	Garbarino, 1980	Education	Review of empirical studies	Physical setting		secondary schools
50	Genervro, 1990	Architecture	Non-empirical case study report	Physical setting		elementary and secondary urban schools school reform issues
51	Goldberger, 1990	Architecture	Non-empirical report	Physical setting		elementary and secondary urban schools school reform issues
52	Goldberg & Bee, 1991	Education	Non-empirical report	Temporal Dimension		elementary and secondary urban schools school reform issues: school-based management assessment strategies
53	Goleman, 1992	Education	Non-empirical report	Temporal Dimension		school play areas
54	Gump, 1974	Environmental Psychology	Empirical	Physical setting		primary and intermediate school grades open education
55	Gump, 1978	Environmental Psychology	Review of empirical research	Physical setting		preschool, K-12, college
56	Gump, 1987	Environmental Psychology	Review of empirical research	Physical setting		preschool, K-12, college "program units"
57	Gump & Good, 1976	Environmental Psychology	Empirical observations interviews	Physical setting		primary and intermediate school grades open education
58	Ross & Gump, 1979	Environmental Psychology	Empirical observations interviews questionnaires	Physical setting		19 elementary schools

Personal Dimension	Physical Dimension	Temporal Dimension	Interactions/ Attributes	Outcomes
	Interior design elements: furnishings, walls, hallways	Students involved in interior design of their classrooms		<ul style="list-style-type: none"> Classrooms and hallways should abound with mobiles, posters art productions, displays, plants, etc./ reflect kid's interests in TV movies, music, etc./ learning centers/ flexible seating arrange/ movable space dividers, portable chalkboards/ shelving/ maps This env should reflect interest, desires and needs of children
adolescent development	School size			<ol style="list-style-type: none"> school size matters particularly to academically marginal students school size is not a simple linear effect but involves a threshold effect so that increases above 500 (in secondary schools) do not have appreciable effect. recent trends indicate that many schools are beyond size forcing larger numbers of marginal students into these schools
	school size school design			<ul style="list-style-type: none"> Schools should respect students and teachers as individuals, have warmth (spacious, bright, inviting), have security and flexibility. A classroom "suite" (2 teacher offices, small-group mtg rm w/ kit & 2 classrooms) would foster relationships & sense of being & belonging to a particular place. Image of "house" to less perceived scale of schools. "House plans" similar to suite.
	school size multiple learning spaces	collaborative design processes		<p>A review of the Genervro article</p> <ul style="list-style-type: none"> Trends towards multiple spaces for various learning styles ("intelligences") shared decision-making will change collaborative processes
		processes of design with children		Children's environments research group in CUNY
individual student behavior	open vs traditional design schools			Open design provides easy access to various facilities and persons, increases non-substance time, provides for flexibility in grouping, is more active and stimulating than traditional. Differences are slight at intermediate levels, but more pronounced at primary level.
student and teacher behavior and attitudes student achievement	size and density open school environments			see review for various hypotheses all based on Gump's ecological theory
student and teacher behavior and attitudes student achievement "participant action" psychoosocial questionnaires	size and density open school environments spatial patterns & paths classroom seating school objects			see review for various hypotheses all based on Gump's ecological theory
individual student behavior	open vs traditional design schools problems with open designs			Non-substance time could be reduced by designing "anchor places" near teacher areas; changing program by requiring less site changes; provide a "noisy room".
		design modifications which lead to more open designs		<p>Study explores questions of original design openness, modified design openness, program openness, teacher-reported advantages and disadvantages, and factors involved in facilitating or inhibiting an open program</p> <ol style="list-style-type: none"> open physical design most suited for open programs persisting forces tend to push away from the open arrangement toward simpler organization (one less dependent on cooperative teacher effort). training required of teachers to maintain open education over traditional forms of instruction

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					Organizational Dimension	Social Dimension
59	Gump & Ross, 1977	Environmental Psychology	Essay on empirical research	Physical setting	elementary school	
60	Gump & Ross, 1978	Environmental Psychology	Essay on empirical research	Physical setting	elementary school	
61	Hart, 1967	Environmental Psychology	Non-empirical essay	Personal/ Temporal Dimensions	pre-school & elementary school	
62	Heddens, 1981	Education	Historical review & Review of empirical research	Physical environment	Elementary education	
63	Herman, 1990	Education	Non-empirical report	Organizational Institution	Educational specifications for building or remodeling schools	
64	Herman, 1991	Education	Non-empirical report	Temporal Dimension:		
65	Hertz, 1990	Education	Non-empirical report	Temporal Dimension		
66	Hill, 1990	Architecture	Non-empirical report	Temporal Dimension		
67	Hoag & Johnson, 1975	Environmental	Empirical	Physical setting	elementary schools	
67	Hoag & Johnson, 1975	Design				
68	Holt, 1975	Environmental Design	Non-empirical report	Temporal Dimension		
69	Horowitz & Otto, 1973	Education	Empirical	Physical setting	college english course	

Personal Dimension	Physical Dimension	Temporal Dimension	Interactions/ Attributes	Outcomes
individual behavior of students and teachers	open/traditional classroom designs			Paper argues for the study of school environments as clusters of synomorphs
	measures of openness in elementary school classrooms			The paper argues for the careful measurement of designed and modified openness in classrooms (openness quotient)
child development social and psychological benefits	Playground design	involvement of children in design		Article presents the argument for child participation: all should have the opportunity to participate
	open space schools seating & furniture arrangement windowless classrooms noise			This article is a general review from the encyclopedia of education may be a nice piece to review the history of elementary school education
	elements of school design as they relate to educ specs			If educators complete a comprehensive set of educ specs, the physical plant will enhance the instructional and support programs to be offered within it.
		planning a new or remodeled school building		Establish the need, involve many people, do detailed planning, market it well, monitor the entire process, sell what it will do for students, hire experts when needed, avoid minefields, and let the community enjoy and be proud of the finished product.
		reflections on a building program		Importance of construction manager, meeting the construction deadline, involvement of staff, visits to the sites, roles of the superintendent
	Energy conservation through daylighting	design guidelines for daylighting		The article presents some basic design principles for daylighting in schools.
	open vs traditional classrooms			Article presents (I think) a comparative study of open and traditional classrooms as a pilot study for a larger study
		Involvement of users in school planning: users represented on teams delphi technique mobilizing community feelings open-forum planning (CRS) team approach		
student performance, behavior	"alternative" classroom env vs. traditional row/column classrm			No significant differences found in grades earned by students, however, participation, disengagement with the instructor and openness to criticism by peers more evident in experimental over controlled ones.

No.	Source	Disciplinary Orientation	Methodology/ Approach	Principal Dimension	Dimensions of the Educational Environment	
					Organizational Dimension	Social Dimension
70	Hoy, 1980	Education	Empirical: survey	Personal	Secondary schools	
71	Ingalls, 1986	Architecture	Non-empirical report	Temporal Dimension	educational philosophies and educational programs	
72	Interface Project, 1990	Education	Non-empirical position paper	Physical Setting	educational reform issues	
73	Jordan, 1991	Education	Non-empirical case study report	Temporal Dimension	K-12	issues of community support
74	Kaplan, 1992	Architecture	Non-empirical report	Temporal Dimension	Elementary school	
75	King, 1990	Education	Non-empirical case study report	Organizational: Curricula & Instruction	Instructional technologies School reform issues	
76	Kurent & Olson, 1990	Architecture	Non-empirical report	Physical setting	community support (taxes)	
77	Le, 1989	Facility management	Non-empirical case study report	Physical setting		
78	Lundquist, Dunekack, Felling, 1991	Education	Non-empirical case study report	Physical setting	Middle school science instruction	
79a	MacPherson, 1984	Environmental Psychology	Empirical	Physical setting/ Personal	Australian high school	Spatial patterns of classroom interaction
79b	Marcus, Whyman, Morgan, Whitton, Maver, Canter & Fleming, 1972	Architecture	Empirical research	Whole system		
80	McKee & Witt, 1990	Education	Review of empirical research	Physical setting (Organization)	classroom organization and management Instruction	
81	McKinley, 1991a	Architecture	Non-empirical report	Temporal Dimension		

Personal Dimension	Physical Dimension	Temporal Dimension	Interactions/ Attributes	Outcomes
Student and teacher attitudes	open and traditional classrooms			<ul style="list-style-type: none"> • Architectural design did not contribute significantly to differences in attitudes of students and teachers • There was a trend toward positive attitudes for teachers in open plan schools, and trend toward positive attitudes for students in traditional plan schools
		program/ planning		Article presents a guide for bridging educational philosophy with educational specifications and facility planning
	school facility as a whole			Article presents the National Interface Taskforce's explorative study on the interface between school facility and student learning.
		Design and construction of a renovation project		Article gives a description of the process of renovation of an existing school.
		Design of school for student needs, teaching methods, building		This article describes one architect's interpretation of CRS's "squatter sessions" as a means to building consensus. "Flexibility" is also a key word for design of schools
				Article describes the Saturn School of Tomorrow in St. Paul Minnesota. This would be a good case study for my directed research project next semester. Address to send for more information/ also get name of educational consultant that Teflon Man worked with/ and look his school
	need for more space/ flexibility modular buildings			Report discusses architectural related concerns for learning env: budget pressures, global competitiveness, information revolution, building boom, changing functions of schools, individualized and cooperative learning, focus on indoor env quality, energy efficiency
	Convertible school (adaptive reuse designed)			School designed to be adaptively reused in the future for a 18 unit self-contained apartment facility for senior citizens.
	technology lab: multi-purpose spaces, visually open spaces, modular organization, student-centered class management			Article presents floor plans of five lab designs for middle & high schools
Student definitions of the classroom: control over classmates/teachers, sociability, academic commitment	row and column classroom settings			<ul style="list-style-type: none"> • Row/column classroom increases teachers' problems of control: front and back row student behavior varies (ie students who choose a dominate social role in the classroom sit further away from the teacher) • Study emphasizes student perceptions of classroom over teacher
	Seating position Classroom design & furniture arr. Spatial density and crowding noise, lighting			This book section is a review of instructional and environmental variables in the classroom. A structural model is presented of school & teacher variables which influence student learning outcomes (Contra & Potter 1980)
		Programming Gaming		Article stresses the importance of programming as a way of making sure each new school facility is as close to what the school district expected.

No.	Source	Disciplinary Orientation	Methodology/ Approach	Principal Dimension	Dimensions of the Educational Environment	
					Organizational Dimension	Social Dimension
82	McKinley, 1991b	Architecture	Non-empirical report	Temporal Dimension		
83	McKinley, 1992	Architecture	Non-empirical case study report	Temporal Dimension		
84	Mendelson, 1992	Architecture	Non-empirical report	Physical setting		
85	Midjaas, 1981	Education	Review of literature	Physical setting		
86	Murphy, 1991	Architecture	Non-empirical Case studies	Physical setting		
87	NYSSBA, 1989	Education	Non-empirical report	Temporal		school boards
88	Pearson, 1991	Architecture	Non-empirical Case study report	Temporal		
89	Pellegrini, 1987	Environmental Psychology	Review of empirical research	Physical setting/ Personal		pre-school
90	Pesaneff, 1990	Education	Non-empirical report	Physical setting		
91	Proshansky & Wolfe, 1975	Environmental Psychology	Essay based on empirical work	Temporal/ Physical setting		elementary school open education
92	Rienbeck, 1990	Architecture	Non-empirical historic report	Temporal/ Physical setting		
93	Rist, 1990a	Education	Non-empirical case study report	Physical setting		Middle school
94	Rist, 1990b	Education	Non-empirical case study report	Physical setting		High school

Personal Dimension	Physical Dimension	Temporal Dimension	Interactions/ Attributes	Outcomes
			Construction manager vs general contractor	Article emphasizes the advantages and disadvantages of both traditional and CM approaches
			project staging strategy	The decision to plan two schools on one site as a response to changing demographics of the school district is explained.
	Integrated Information System in a centralized network			
	EBS relations Plant construction Trends in facility design	planning process		This article is a review of the "school plant and facilities" from the encyclopedia of Educ Research [may be good just to review this article for its critical review]
	Case studies of completed designs			Good source for future case studies
			facilities planning, design and management	Long-range planning is critical, should be used to develop a vision but also respond to several larger trends (\$ are mentioned) Article addresses school boards
			getting communities involved keeping child's size in mind	A short article/essay about school design
playground behavior	playground design			
	playgrounds, parks, bus stops			Playgrounds, parks, and bus stops can be ideal places for "classrooms without walls"
	open vs traditional classrooms	planning of classrooms		The authors emphasize the process of planning and the questions involved in that process. Practitioners should put more thought into the planning and arranging of their classrooms. They have developed a framework for doing this, instead of a solution to a problem.
	school designs	History of public school design in NYC		
	color schemes for school wide light-filled corridors outdoor walkways seating areas primary colors foster lively atmosphere			
	two story student commons created in renovation by filling in an existing courtyard cafeteria modeled after fast food restaurants in malls			

No.	Source	Disciplinary Orientation	Methodology/ Approach	Principal Dimension	Dimensions of the Educational Environment	
					Organizational Dimension	Social Dimension
95	Rivlin & Rothenberg, 1976	Environmental Psychology	Empirical	Physical setting	2 elementary schools open education	patterns of use
96	Rivlin, Rothenberg, Justa, Wallis and Wheeler, 1974	Environmental Psychology	Empirical	Personal	2 elementary schools open education	
97	Rothenberg, 1989	Education	Review of the empirical research	Physical setting	open education philosophy	
98	Rydeen, 1991	Architecture	Non-empirical report	Physical setting	K-12	
98	Rydeen, 1991 (continued)					
99	Sanoff & Barbour, 1975	Environmental Design	Non-empirical case study report	Temporal Dimension	Alternative school	
100	Sebba, 1986	Environmental Psychology	Non-empirical: essay based on empirical support	Temporal Dimension		
101	Sheat & Beer, 1989	Environmental Design	Empirical Case Study	Temporal Dimension		
102	Smith, 1990	Education	Non-empirical case study report	Physical setting		
103	Sonnier, 1981	Education	Review of empirical research	Physical setting	open education	
104	Stanard, 1989	Facility Management	Non-empirical report	Physical setting		
105	Stuebing, Knox, Petrakaki & Giddings (1991)	Architecture	Empirical	Temporal/ Physical setting	elementary school teaching modes Apple Classrooms of Tomorrow (ACOT) Longitudinal Research Centers	

Personal Dimension	Physical Dimension	Temporal Dimension	Interactions/ Attributes	Outcomes
student and teacher behavior and attitudes	a variety of open classrooms & furniture arrangements			<ul style="list-style-type: none"> • Even with freedom to move furniture the researchers found layouts to be relatively stable over the period of study. • There was much individual work despite value expressed for group work • Questions are raised as to the meanings of "open" to teachers • Uneven use of classroom space • open classrooms evolve from earlier stated goals until it settles on some static form of comfort to the teacher where an integration between setting and educational activities results
children's perceptions of open classrooms via scale models	open classroom			<ul style="list-style-type: none"> • children able to translate their images of the room to the model • Children could answer questions using the model • there were stylistic differences in children's descriptions
	open classroom			The article is a good summary of the research which has been done on the open classroom.
	school size			<p>school size is growing, reasons are listed.</p> <ul style="list-style-type: none"> • changes in technology has increased library into a media center • windows in every classroom increases circulation to those rooms • Special education requirements • gyms have increased in size; girls athletics programs • house concept adds space • special art, science and music rooms
		planning with children in charrettes		Authors describe a structured charrette process by which participants came to define their educational goals and program as implications for design.
impact of physical environment on child development		social implications of various design approaches		
environmental learning experience for students		user participatory design methodology		participation not only holds great potential as a means of producing a design, but also as an environmental learning experience in itself for users and designers
	Technology: Hypermedia			
	open classroom			Contains an interesting categorization of teaching modes, types of teaching objectives and quality of teaching objectives
	"Distance Education" (technology)			Article describes then discusses the implications of "Distance Learning Systems (DLS) which are a collective name for sending instructional materials via telephone, fax or other future communication mediums to students in other geographic areas.
teacher attitudes observation of student and teacher behavior	learning technologies	design modifications of existing classrooms		<ul style="list-style-type: none"> • More space required for tech-rich classrooms • mode of teaching can alter design requirements of classroom • interactive technologies do not necessarily increase flexibility • design & arrangement of furniture needs further development to adapt to interactive technologies • comfort and climate needs heightened with intro of tech

No.	Source	Disciplinary Orientation	Methodology/ Approach	Principal Dimension	Dimensions of the Educational Environment	
					Organizational Dimension	Social Dimension
105	(continued)					
106	Stuebing, Giddings & Cousineau, 1992	Architecture	Empirical	Physical setting	K-12 Apple Classrooms of Tomorrow (ACOT) Longitudinal Research Centers	
107	Sutner, 1991	Architecture	Non-empirical report	Physical setting		
108	Taylor, 1992	Architecture	Non-empirical report	Physical setting	Headstart classrooms of the future	
109	Traub, Weiss, Fisher & Musella, 1972	Education	Empirical	Organizational	open education	
110	Vasilakis, 1990	Education	Non-empirical report	Temporal		
111	Wachs, 1987	Developmental Psychology	Non-empirical: theoretical perspectives	Personal/ Physical setting		
112	Walters, 1992	Architecture	Non-empirical case study report	Physical setting		
113	Weinstein, 1977	Education	Empirical	Personal/ Physical setting	2nd and 3rd grade open education	spatial distribution of activity
114	Weinstein, 1979	Education	Review of empirical research	Physical setting		
115	Weinstein, 1980	Education	Non-empirical: design guide	Temporal	instructional program	
116	Weinstein, 1981	Education	non-empirical: design guide	Physical setting		
117	Weinstein & David, 1987	Developmental Psychology	Non-empirical: theoretical perspective	Physical setting		

Personal Dimension	Physical Dimension	Temporal Dimension	Interactions/ Attributes	Outcomes
				<ul style="list-style-type: none"> servicing and networking problems needs for storage greatly increased.
teacher attitudes observation of student and teacher behavior	Impact of technology on the physical environment			<ul style="list-style-type: none"> teachers should be given support to better understand classrooms Embedded beliefs can limit possibilities for change Change in env fosters change in teaching and learning & encourage collaborative work. Tech rich classroom requires greater architectural consideration whether retrofit or new construction.
student performance	building conditions			This article from the Washington Post is a summary of Edwards study of building conditions
	pavilion designs for classrooms			Not sure whats going on with this one. I know she is into environmental education
				teacher questionnaire (Dimensions in Schooling DISC) Unless I start getting into open education research, this article is too detailed for my use at this time.
		Master Planning		Facilities planning is required more than every considering all the changes occurring now and into the future. The article presents the case for school districts considering short and long-term planning
child development	environment broadly defined			The author states the case for the developmental perspective along side of the educational, architectural and environmental psychologist. Theoretical in nature
	Prototypical designs for NYC			Playful design breaking the mold of institutional looking architecture Prototypical floor plan designs for 1st and 2nd grade classrooms called "The Jolt": offset designs which create flexible spaces
student behavior	Open classroom			Minor changes in the physical setting produces predictable, desirable changes in student behavior.
student attitudes, behavior and achievement teacher attitudes & behavior	seating position classroom design density, privacy, noise windowlessness open space school designs			See article for a comprehensive set of conclusions concerning the literature on the physical environment of the school.
student behavior		Designing classroom environments		Teachers generally do not consider the environment as a variable that can affect student behavior. Teachers often seek interpersonal or pedagogical explanations for undesirable behavior when a relatively simple problem w/ the classroom's physical arrangement is responsible. Article presents principles for design and management of classroom
	classroom design & arrangement classrooms organized by function aesthetics			
				<ol style="list-style-type: none"> 1. Built envs have both direct and symbolic impacts on children 2. Study of the built env & child's development will benefit from a multistating perspective 3. All envs for children should serve a certain common functions with respect to child development: to provide opportunities for

No.	Source	Disciplinary Orientation	Methodology/ Approach	Principal Dimension	Dimensions of the Educational Environment	
					Organizational Dimension	Social Dimension
117	Weinstein & David, 1987					
118	Morrow & Weinstein, 1982	Education	Empirical	Personal	kindergarten school literature program	
119	Weinstein & Pincotti, 1988	Education	Empirical	Temporal Dimension/ Physical setting	K-3	
120	Weinstein & Woolfolk, 1981	Education	Review of empirical research	Physical settings		
121	Westbrook, 1988	Education	Non-empirical case study report	Temporal Dimension	School system	
122	Wintrowski, Gottfredson & Roberts, 1983	Environmental Psychology	Empirical	Personal	Secondary schools: 321 junior high schools 321 senior high schools urban/suburban schools	school disruption behaviors
123	Winett, Battersby & Edwards, 1975	Education	Empirical	Physical setting/ Organizational/ Social	sixth-grade classroom individualized instruction math and language period	group contingencies social behavior child-teacher interactions
124	Wolfe, 1986	Environmental Psychology	Historical review	Organizational/ Social (Whole system?)	institutional expectations control and authority	children's socialization
125	Wolfe & Rivlin, 1987	Environmental Psychology	Review of empirical research	Organizational/ Social	stated goals administrative, educational therapeutic programs contextual env (pol, econ, social)	children's socialization
126	Yelland, 1990	Architecture	Non-empirical report	Temporal		
127	Zifferblatt, 1972	Education	Non-empirical essay	Physical Setting		
128	Zimring & Barnes, 1987	Environmental Sociology	Non-empirical: methodological and theoretical essay	Physical setting/ Temporal		

Personal Dimension	Physical Dimension	Temporal Dimension	Interactions/ Attributes	Outcomes
				growth, promote a sense of security and trust, to allow both social interaction and privacy. 4. There are substantial individual and cultural variations in the use and interpretation of settings care environments (adults needs must be met as well).
children's use of literature	control and experimental setting			Without a well designed library corner, few children chose to read literature as a free-play activity.
child behavior parent's and designer's goals for playground	tire playground	Design of playground		construction of playground led to significant decreases in organized games, uninvolved behavior, and roughhousing, and significant increases in active play and pretend play.
child impression formation	classroom design			classroom design could be seen as a teacher's nonverbal statement about that teacher and could effect child impression formation. Environmental factors may communicate messages about teachers' and students' behavior.
		Decision-making in planning and design of Illinois Public School Facilities		factors which influence decision-making are ranked in importance It is assumed that education professionals differ according to their occupational orientation.
				Goal to construct a "crude map of the school social terrain" Moore's scales
academic work outcomes				Individualized instruction with group contingencies increased academic production of children at all levels of ability, improved social behavior, changed teacher mode of instruction & interaction Individualized instruction alone had lesser effects, while architectural changes produced no significant changes in the academic or social behavior of children or teacher behaviors.
				Because institutions are resistant to change, children should be given projects that empower change in themselves.
				Similar to Wolfe, 1986
		managing the public investment of educational facilities		
Student behavior Teacher behavior	classroom arrangements			Article is an introduction to the relationship between architecture and behavior by the use of some examples. (may be a useful document for future descriptions of the relation between architecture and behavior in classrooms)
				content issues: who and what are being studied? Methodological issues Ways of defining settings • suggestions for further research • implications for design