



PLACES and SPACES: Case studies in the evaluation of post-secondary, place-based learning environments



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ABSTRACT

The study of learning environments increasingly holds potential for post-secondary research. Disciplines exploring the relationship between environment and learning include science education, environmental psychology and architecture, and is emergent in fields such as environmental education. Learning environment studies typically acknowledge and account for factors in the physical and social realm and describe how these conditions influence the process and experience of learning. This research furthers knowledge on student perceptions of their learning environment. In addition to developing new evaluation instruments, the objective was also to design sustainability assessment tools that attend to student perceptions of the physical and social aspects of informal and campus-based learning environments. The study constitutes 'proof of concept' for future, participatory evaluation studies on post-secondary programs.

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Introduction

For many, this study will provide an introduction to the study of learning environments, a research paradigm that is widely held in some parts of Europe and Australasia, but has yet to become a mainstream approach internationally. Studies conducted by educational researchers on classroom learning environments (otherwise known as classroom climate or classroom ecology) have built on earlier work related to organizational climate and its application in educational settings. Research on learning environments can be described as both descriptive of classroom contexts and predictive of student learning. This research also asserts that the study of learning environments has a valuable role to play: in pre-service teacher training; professional development, the evaluation of new curricula or innovation and generally, as an important field of inquiry in its own right – the description of a valuable psychological and social component of students' educational experience.

In his earliest work on human environments, Moos (1974, 1979) suggested that interest in the physical and social aspects of planning human environmental systems such as towns, workplaces or public institutions was steadily increasing in response to the technological advances that often instigate the large-scale changes and adaptations that are required in our society. He

suggests that these changes (then as now) require a socio-environmental model to conceptualize, assess, and address our evolving perceptions of space (Moos, 1979).

A similar line of inquiry then developed around the study of educational environments. Adapting Moos' ideas to educational settings, Walberg (1991) claimed that the evaluation of teaching is based on structural and behavioral theories that require perceptual measures of what he terms the feel of the class. Walberg (1991) further noted that the analysis of behavioral complexes with educational perceptions may eventually begin to characterize important aspects of what he termed psycho-social and material learning environments.

To address this line of inquiry, this project aimed to answer the question "How do students perceive aspects of an 'ideal' learning environment within the context of a single institution of higher education?" (and in particular in a Faculty of Education where these perceptions might have an enhanced meaning). In addition to investigating this main question, our study completed five associated sub-tasks, those of: conducting an analysis of existing learning environment research in post-secondary environments, development and adaptation of available learning environment assessment tools, pilot testing these physical or socio-environmental assessment tools and inventories, developing mixed methods and evaluation protocols that could assist in the description of informal teaching spaces, and finally, designing and developing a prototype for an educational sustainability assessment instrument that attends to aspects of both the physical and psycho-social learning environment as a 'proof of concept' for future research.

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Important for this research, learning environment studies seek to describe the educational context and to identify empirical relationships among subject matter (curriculum), teaching practices, and environmental variables (Blocher, 1978; Fraser, 1998; Jamieson, 2003; Oblinger, 2006). As such, the study of learning environments is an emerging field of academic inquiry and increasingly prevalent within elementary, secondary, and post-secondary research. Disciplines exploring this relationship between the environment and learning include science education, environmental psychology, campus ecology, architecture, as well as inter- or multi-disciplinary fields of study such as environmental or place-based forms of education (Banning, 1988; Bell, Greene, Fisher, & Baum, 1996; Kenney, Dumont, & Kenney, 2005).

Literature review

Learning environment research

From four decades of learning environment research, there is now compelling evidence to suggest that the classroom environment influences student outcomes such as attitudes, behaviors and cognition (McRobbie, Fisher, & Wong, 1998). The development of learning environment theory may be traced back as early as the 1930s to research conducted by Lewin (1936). Further contributors to this inquiry included Henry Murray, Herbert Walberg, and Rudolf Moos as reported by Fraser (1998). Lewin's (1936) field theory stipulated that human behavior has two potent determinants: the environment and its interaction with an individual's personal characteristics. This idea was unconventional at the time, as most theorists believed a person's previous experience is what informed their future behavior. Lewin (1936) challenged this theory with his assertion that a person's environment also influences a person's behavior. He illustrated this relationship through the formula $B = f(P, E)$ which relates that behavior is a function of the person and the environment. Several decades later, Walberg and Moos began work on research programs that studies the psychosocial environment and were conceptually based on the theories of Lewin.

Moos (1974, 1979) continued this line of inquiry and began its application to the academic environment developing surveys and assessments that address students' behavior in post-secondary settings. Within primary and secondary education, Walberg (1991) began investigating how teaching is evaluated through the behavioral and structural aspects of the class environment. Walberg's work gave rise to an exploration of students' perceptions and how these are influenced by the context which learning occurs. The work of both Walberg and Moos launched the field of learning environment research and provided a conceptual foundation for what is being researched today (Fraser, 1998; Fraser, Tobin, & McRobbie, 2012).

All learning environment studies seek to describe the educational context and to identify empirical relationships among subject matter (curriculum), teaching practices, and environmental variables (Blocher, 1978; Fraser, 1998; Jamieson, 2003; Oblinger, 2006) and over the last forty years learning environment research has grown considerably, including a diverse range of approaches that have been developed, tested and validated in a variety of educational settings and in different countries (Fraser, 1998). Disciplines exploring this relationship between 'environment' and learning include science education, environmental psychology, campus ecology, architecture, and now, interdisciplinary fields of study such as environmental or place-based forms of education (Banning, 1988; Bell et al., 1996; Kenney et al., 2005; Zandvliet, 2007, 2012). During this time research in learning environments has provided convincing

evidence that the quality of the classroom environment in schools is a significant determinant of student learning (McRobbie et al., 1998).

The campus as a learning environment

American environmentalist David Orr noted that, "the curriculum embedded in any building instructs as fully and as powerfully as any course taught in it" (1999, p. 212). The built environment of campuses and schools therefore affects how we move through space, how we gather with peers, and how we feel in a space. Campus rooms and buildings have the potential to move beyond supporting our daily needs; they can enhance educational pedagogy in critical ways. In addition, school buildings have the ability to support and foster occupants' imaginations as well as occupants' connection to themselves, peers, to the larger community, and to the immediate natural environment (Alexander, Ishikawa, & Silverstein, 1977; Uptis, 2004). The built environment thereby can enhance or detract from our perceptions of our natural surroundings or local contexts in the same conceptual ways as the psychosocial environment we experience.

In the earliest research in this area, Astin (1975), Pascarella and Terenzini (1980, 1991), and Tinto (1987) centered their research on student behavior within the post-secondary campus to determine what academic, social, economical, and environmental factors supported or impeded students' success. As illustrated by Tinto's *Model of Institutional Departure* (1987), they found that the campus environment significantly participates in the social and academic engagement of students leading to their increased rates of completion (Astin, 1975; Chickering & Reisser, 1993; Pascarella & Terenzini, 1980).

Strange and Banning (2001) further examined the influence of design, arrangement, and orientation of space within the campus in *Educating by Design*. Space, as they describe it, is an informal communicator to students, staff, faculty, and visitors to a campus. Examined through several lenses including planning, utilization, proxemics, and wayfinding, space persuades behavior symbolically and often silently. This symbiotic relationship between space and its occupants is central to creating a cohesive environment. As they describe:

The college campus is a classic behavior setting, composed of essentially two parts: the human or social aspects of the setting and the nonhuman component or physical aspects. For example, on the college campus, as students, faculty, and staff interact, they do so in a physical environment including many nonhuman components such as pathways, parking lots, activity fields, statuary, artwork, and buildings, presenting a myriad of designs that vary in size, color, and arrangement. It is the transactional (or mutually influential) relationship between the human and nonhuman elements in the behavior setting that shapes behavior. (p. 19)

Oblinger's (2006) work also contributed to a dialog on environment-behavior relationships in her book *Learning Spaces*. Compiling a series of case studies from the United States and Canada, this research revealed several parallels in the factors that create productive learning spaces at different campuses and what assessment and evaluation processes were used to determine the social, physical, and individual value of these. Temple (2007) identified that the greatest influences in the planning and designing of space appear to be instigated by new approaches to teaching and learning, in addition, to noted technological advances and expanding community expectations. Given the correlation and influence that the environment can have on student behavior, further empirical research must delve into 'how we perceive informal and campus spaces' and what influences us within these contexts.

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