Chapter 5
Schools as Positive Environments

Sabine Pirchio and Ylenia Passiatore

Abstract School environments can be regarded as the 'third educator', in addition to educators and peers. When focusing on the physical context of schools, we should consider environmental characteristics such as the presence of outdoor natural green spaces as well as indoor environmental quality, which includes classroom listening conditions or overcrowding. Natural environments have the capability to motivate and encourage child learning at school and are especially important for students with concentration problems or attention deficit. Natural environments can also reduce the stress affecting students' learning process. If outdoor spaces are relevant for shaping the students' learning and personal development, the importance of indoor settings, where students spend most of their day, is indisputable. When exploring the school as a developmental setting, one cannot avoid considering the role of interpersonal relationships in shaping the environment and, therefore, the experience that students derive from this process. The specific mechanisms linking environmental qualities, socio-relational processes, and behavioral and psychological outcomes need further investigation. First, it would be useful to identify which features of schools' physical settings influence relational processes and social interactions which, in turn, contribute to student development. Second, it would be important to identify the nature of the relationship between physical and social environments in order to design educational settings in a way that fosters positive relationships and an optimal learning experience.

Keywords School spaces · Environmental characteristics · Teacher-student relationship · Home-school relationship · Physical setting

When we close our eyes and think of our experience as schoolchildren, we certainly remember, more clearly than the contents of the books we studied, the smell and the light of our classroom, the colors of the walls, the shape of the garden, the

S. Pirchio (✉)
Department of Dynamic and Clinical Psychology, Sapienza University of Rome, Rome, Italy
e-mail: sabine.pirchio@uniroma1.it

Y. Passiatore
Department of Education, Roma Tre University, Rome, Italy

C. Steinebach and Á. I. Langer (eds.), *Enhancing Resilience in Youth*,
https://doi.org/10.1007/978-3-030-25513-8_5

arrangement of the desks where our classmates sat, the fun we had playing during the break, and the voice of our teacher explaining, helping, and maybe praising.

All these memories include physical aspects of the place we went to every day for years, together with the social relationships we established with significant peers and adults: they both contribute to characterizing students' experience at school. In this chapter, we summarize the literature about them in order to identify those features which make school a positive environment.

5.1 School Spaces as Positive Environments

Educators are, undisputedly, the most influential actors on the educational stage. However, in addition to their importance, the physical characteristics of the environments where the activities of children and educators/teachers take place represent a crucial factor for the quality of educational institutions. School environments can in fact be regarded as the 'third educator', in addition to educators and peers: studies in the field of environmental psychology have emphasized the role of the socio-physical environment in human psychological processes, behavior, and well-being (Bechtel & Tsertsman, 2002). When focusing on the physical context of schools, we should consider environmental characteristics such as the presence of outdoor natural green spaces as well as indoor environmental quality, which includes classroom listening conditions or overcrowding. Working in high quality environments improves students' and teachers' well-being and productivity. Teaching styles (Horne-Martin, 2002) and students' learning (Earthman, 2004; Schneider, 2002) are related to the physical environment of schools, which is able to shape teacher-child relationships and activities (Waters & Maynard, 2010). Therefore, is it worth examining the relationship between schools' environmental characteristics and their cognitive, physical, social-emotional, and personal benefits for children.

5.1.1 Outdoor Natural Environment

Natural environments have the capability to motivate and encourage child learning at school (Johnson, 2007) and are especially important for students with concentration problems or deficit of attention. Natural environments can also reduce the stress affecting students' learning process (Ozer, 2007). In fact, some environments—called restorative environments—are more able than others to promote physical and psychological benefits. Generally speaking, a restorative environment promotes recovery after a psychological or emotional breakdown due to a stressful day, allowing individuals to regenerate after a long activity requiring strong commitment. These events make individuals deplete their own resources to maintain and increase their adaptation to the environment. Problems in renewing these resources may lead to serious consequences for enacting planned actions and for subjective well-being and phys-

ical health (Hartig, 2004). Attention Restoration Theory (ART; Kaplan & Kaplan, 1989) and Stress Recovery Theory (SRT; Ulrich, 1983) explain how restorative environments work. ART assumes that four environmental characteristics—fascination, being away, extent, and compatibility—are involved in direct attention recovery. Natural environments more easily afford this experience. SRT focuses on the immediate emotional reaction to environmental stimuli. Psychological restoration should occur through viewing environmental scenes, fostering feelings of mild to moderate interest, pleasantness, and calm, thus reducing the surveillance level and parasympathetic nervous system stimulation. Viewing natural environments facilitates rapid recovery from stressful events by allowing the individual to replace negative with positive feelings. Psychological restoration is a crucial need for students at school because, in educational environments, children are usually exposed to many stressful factors (Shield & Dockrell, 2003) while needing attention to face important cognitive (Evans & Hygge, 2007) and relational demands (Abbas & Othman, 2010). Natural environments may moderate the impact of stressful life events for children (Carrus, Passiatore, Pirchio, & Scopelliti, 2015; Wells & Evans, 2003).

The use of natural environments to enrich the academic curriculum and integrate the standard teaching programs has a positive impact on students' learning outcomes in several subjects compared to traditional schools (Graham, Beall, Lussier, McLaughlin, & Zidenberg-Cherr, 2005; Ozer, 2007). Outdoor environments are an important factor in the improvement of students' learning: the school could use available green spaces not only for children's play activities but also to provide outdoor learning opportunities through learning by hearing, seeing, tasting, smelling, touching, and feeling (Dyment, 2005). In this way, teamwork with other students, inspiration to learn, behavioral engagement, responsibility, and self-esteem (Ozer, 2007) grow along with students' achievement. Also, given that movement has been described as one of the most natural and powerful modes of learning for young children, the presence of green spaces in the school setting is important because it gives them the possibility to move freely (Bilton, 2002). The Forest School movement is widespread in several North European countries, especially at the Primary School level. This is an educational approach where children engage in regular, repeated outdoor learning activities facilitated by a qualified forest school leader (Knight, 2009). Forest school practitioners find learning more enjoyable, motivating (Nundy, 2001), and memorable (Dillon et al., 2006; Peacock, 2006). This setting boosts students' personal, social, and emotional development (Harris, 2017; Mirrahimi, Tawil, Abdullah, Surat, & Usman, 2011). Also, other studies point out that green schools positively affect responsibility, patience, appreciation for relationships, self-esteem, and self-confidence (Bowker & Tearle, 2004). Students have the opportunity to learn significant social skills, cooperation, group work, and persistence (Bell & Dyment, 2008). Contact with nature promotes social relationships starting from infancy, improving emotional self-regulation and positive behaviors (Carrus et al., 2015; Taylor, Kuo, & Sullivan, 2002).

Experiences in green spaces are also important for effective environmental education—knowledge and attitudes—and consequently, for pro-environmental behaviors and sustainable lifestyle choices (Chawla, 2009; Pretty et al., 2009). Environmental

knowledge and pro-environmental attitudes are highly interconnected and the use and management of outdoor spaces proposed at school by adults (most of all by teachers) influences children's environmental attitudes (Malone & Tranter, 2003). In fact, along with internal factors such as knowledge, values, and attitudes, stimuli arising from the immediate environment shape students' environmental behaviors (Asunta, 2004; Lukman, Lozano, Vamberger, & Krajnc, 2013). Environmental education at school could therefore help students change their behaviors, enhancing their environmental awareness and willingness to adopt pro-environmental behaviors (Boyes, Skamp, & Stanisstreet, 2009).

5.1.2 Indoor Environments

If outdoor spaces are relevant for shaping the students' learning and personal development, the importance of indoor settings, where students spend most of their day, is indisputable. Several studies have demonstrated that working or studying in good and comfortable indoor environmental conditions enhances well-being, satisfaction, productivity, and learning. The importance of improving the environmental conditions of educational buildings is related to the amount of time spent by children in school. Factors such as air quality, thermal comfort, and acoustic performance are often taken into account as parameters for assessing indoor conditions.

Appropriate ventilation can be guaranteed in naturally ventilated classrooms instead of using air conditioning systems. The importance of maintaining adequate indoor air quality in schools is recognized as a contributing factor in pupils' learning performance (Fisk, 2000). According to a recent study (De Giuli, Da Pos, & De Carli, 2012), windows are often not left open long enough to provide proper ventilation (the ventilation design should have the capability to deliver 8 l/s per person) and carbon dioxide (CO_2) concentration levels tend to be high (they should be lower than 1500 ppm while the classroom is being used). Mumovic et al. (2009) also collected data with semi-structured interviews with teachers and revealed that working in these conditions caused them persistent headaches. Usually, teachers open the windows only during breaks and not during lessons, which increases these risk conditions. Also, the temperature perceived by students during the lessons is important because it can impact performance. The number of hours the classroom is used per day, the classroom's crowding level, and students' behavior are factors to be considered as influencing ventilation condition.

Air quality, light conditions, acoustic performance, and thermal comfort are interrelated parameters to consider for students' well-being and performance.

Concerning light conditions, window size and lighting systems are often improperly designed, which makes it impossible to reach the minimum illuminance values (300 lx). Light conditions also vary according to the school's surroundings: houses, public parks, or traffic. In fact, teachers tend not to open the windows when there is heavy traffic because of the bad smells and noise. Acoustical conditions play a major role in learning process especially for younger pupils: in fact, their ability to perceive

and understand spoken messages under adverse listening conditions is lower than in adolescents and adults. Exposure to noisy conditions may have harmful effects on children's learning and well-being at school. Experts recommend that reverberation times do not exceed 0.6 s for classrooms with a volume of about 250 m^3 and that ambient noise levels in empty rooms do not exceed 35 dB (Shield & Dockrell, 2003). In the presence of noise, children are more easily distracted by irrelevant sounds than adults and thus less able to focus their attention on the task (Gumenyuk, Korzyukov, Alho, Escera, & Naatanen, 2004). In these adverse listening conditions, more cognitive resources are required by children to decode speech signals and process information. In this regard, Klatte, Meis, Sukowski, and Schick (2007) show that primary school children exposed to long reverberation perform worse in a phonological processing task than children from classrooms with short reverberation. Chronic exposure to noise also has a negative impact on cognitive function, oral language acquisition (Maxwell & Evans, 2000), and reading development; later on, this hinders written language acquisition (Evans & Hygge, 2007).

In conclusion, it must be considered that both outdoor and indoor conditions affect teaching and child learning and well-being. Creating adequate conditions in the environment where instruction takes place also means improving students' learning and health in the long term.

5.2 Positive Relationships at School

A long tradition of psychology research confirms the importance of interpersonal relationships for human development and well-being. From an ecological perspective of individual development (Bronfenbrenner, 1979), relationships are components of the microsystem, the proximal ecological environment where individuals have a direct experience of the world, make mental representations of it, and act.

When exploring the school as a developmental setting, one cannot avoid considering the role of interpersonal relationships in shaping the environment and, therefore, the experience that students derive from this process. Even if relationships can be collectively created among all of the school's social actors (students, teachers, the principal, non-educational staff, volunteering parents, etc.), the psychological and educational literature looking for the basis of student's achievement, development, and well-being has focused on three particular types of relationships, located in students' microsystem and mesosystem, which we discuss in the following sections: the teacher-student and the teacher-parent relationships.

5.2.1 The Teacher–Student Relationship

In the learning process, the role of the teacher has always been an indisputable variable: the teacher's knowledge of the content, mastery of teaching strategies, and

ability to translate them into activities are doubtlessly a fundamental part of the teaching/learning process.

Besides this, the psychological literature in the last 30 years has focused on a different aspect of the teaching process: the role of the teacher-student relationship. In fact, this relationship can be regarded as an ecological environment where the student develops knowledge, competences, and an image of him/herself as a student. This impacts on the student's academic success and psychological well-being.

A positive teacher-student relationship is defined as being warm and close, and having low levels of conflict (Driscoll, Wang, Mashburn, & Pianta, 2011). Such a relational experience since the beginning of the child's school life is linked with positive academic and social outcomes, both short- and long-term (e.g. Pianta et al., 2005), promoting the child's assumption of his/her role as a student and the fulfillment of the demands attached to this role (Hamre & Pianta, 2001).

In the framework of the ecological paradigm of human development, a positive relationship with the teacher provides the student with the scaffolding and the emotional support needed to acquire new abilities, while also affording a space to autonomously express and use the abilities that he/she already possesses, thus managing in a flexible way the balance of power between the expert and the novice (Bronfenbrenner, 1979). A clear example of this process is represented by the teacher's communicative behavior with young children and its role in fostering language learning (Girolametto, Hoaken, Weitzman, & van Lieshout, 2000; Taeschner, 2005).

This is an important topic for two main reasons: the increasing tendency to bring forward the child's first school experience at an early age—a critical or sensitive period for language learning—and the increasing number of non-native children in preschool and primary school who have poor second language competences.

Some research experiences involving the use of the narrative format approach (Taeschner, 2005) show the importance of the communicative relationship between teacher and students for language learning and social integration in various school contexts. The narrative format is a theoretical and practical language teaching model widely used in Europe for first, second, and foreign language learning. Its main theoretical stance is that, since language is a tool for communication and relationships, it is best learned and should be taught in an authentic and rich relational framework; consequently, teachers pay special attention to the use of positive verbal and non-verbal communication strategies to place students in an interactional structure characterized by mutual understanding and turn taking. This method has been shown to be effective in promoting foreign language learning in preschool and primary school. Importantly, in such settings, children's language performance has been found to depend on the teacher's communication (Taeschner, 2005): the teacher's sensitivity to the children's focus of attention, communicative turns, and emotional state, together with his/her use of nonverbal communication, create the best context for learning a foreign language. Significant outcomes were also found when using the narrative format to teach a second language to adolescent immigrant students: the program fostered language learning and also promoted positive feelings about the new country and was associated with better academic achievement at the

end of the school year (Taeschner, Rinaldi, Tagliatatela, & Pirchio, 2008). The use of the narrative format in a framework of inclusive education in multicultural primary schools showed a positive effect on the social climate of the classroom: the native children who participated in the intervention program together with their immigrant classmates improved their level of interethnic relationships, while the opposite trend was observed in a comparable control classroom (Pirchio et al., 2017).

Promisingly, this line of research has also highlighted how the teacher-student relationship is grounded on specific communicative actions involving sensitivity to the child's needs and behaviors (Ansari & Pianta, 2018; Girolametto et al., 2000) and flexibility in using activities and verbal and non-verbal communication (Pirchio et al., 2017; Taeschner, Destino, & Pirchio, 2016).

5.2.2 The Home–School Relationship

The relationship between the two environments where children grow up and develop can be considered from the meso-system perspective: the ecological properties of the child's developmental environment depend on the quality of the relationships between two microsystems. In this framework, parental involvement in the child's school experience and its role in promoting adjustment and success is a major topic. In the literature, several types of parental involvement have been identified. For example, Hill and Tyson (2009) conceptualize three forms of parental involvement at school: a school-based involvement including participation in events occurring at school (meeting teachers, special events, volunteering); a home-based involvement including helping with homework, proposing cultural activities such as going to libraries or museums, and making books and newspapers available at home; and performing academic socialisation by making explicit their expectations about the child's education and how they value education, establishing connections with the job world, stimulating professional aspirations, discussing learning styles and strategies, and planning an educational program for the future. Of course, these types of involvement can be more influential in different developmental stages: for example, helping with homework may be useful in primary school, while establishing connections with the professional world and future jobs may make a difference in high school. Parental involvement has an impact on the child's school achievement, even in the long run (Arnold, Zeljo, Doctoroff, & Ortiz, 2008), and also on the child's socio-emotional adjustment (Mashburn & Serpell, 2011). The theme of parental engagement in children's education generally calls into consideration the role of school actors to involve them and create an actual partnership with the family. In the vast majority of cases, the teacher is the school actor committed to this task. Consequently, parental involvement is the outcome of parents' attitudes, values, and behaviors towards education and of the interaction between parents' and teachers' variables. A number of parental variables (e.g. socioeconomic level, status, education, parenting style, self-efficacy, stress) have been linked with the level of involvement. One of these variables is currently particularly relevant for European societies: belonging to an ethnic minority

(e.g. Mendez, Waanders, & Downer, 2007) is associated with a lower level of parental engagement. This may be due to different causes: parents' lower SES and education, difficulties communicating with school staff and understanding school documents and the academic curriculum because of poor language knowledge, and cultural differences influencing parents' values toward education, expectations about schooling, and parenting (Crosnoe, 2010). These issues may create difficulties in encouraging teachers and parents to create an educational partnership that could be beneficial for the child's learning and socio-psychological adjustment.

Intervening in this process was the aim of a EU-funded project involving preschools and primary schools with multiethnic and multicultural classes in Italy, Scotland, Switzerland, and Spain. The project promoted the inclusion of children from an immigrant background through a multitarget model of intervention including a teacher training program, a class-based language learning activity that adopted the narrative format model, and an inventory of activities to be shared with parents that allowed for different levels and structures of participation. After the project's completion, benefits in terms of cognitive, language, and social outcomes were observed (Arcidiacono, Padiglia, & Miserez-Caperos, 2017; Pirchio, Passiatore, Carrus, & Taeschner, 2017; Robinson & Sorace, 2018).

5.3 Conclusion

The literature review conducted, together with our own research findings, showed how schools provide a wide range of challenges, limitations, and resources for human development.

Some of the first environmental psychology studies addressed the issue of the influence of the physical features of institutions on relationships and social variables and psychological outcomes. Importantly, in assessing the environmental factors influencing human behavior, the consideration of socio-environmental features instead of simple physical environmental features could make it possible to identify relevant psychological processes: for example, the level of crowding stress is better explained considering social density instead of spatial density (Evans, 2003; Stokols, 1972). Unfortunately, current psychological research addresses the role of the physical and social features of school settings on human development and well-being separately, with very few exceptions (Abbas & Othman, 2010; Cameron-Faulkner, Melville, & Gattis, 2018; Carrus et al., 2015; Legendre, 1999; Read, Sugawara, & Brandt, 1999).

The specific mechanisms linking environmental qualities, socio-relational processes, and behavioral and psychological outcomes need further investigation. Here, we envisage two possible directions for knowledge development in this area.

First, it would be useful to identify which features of schools' physical settings influence relational processes and social interactions which, in turn, contribute to student development. For instance, socio-relational processes may operate as mediating factors linking the physical environment and psychological development outcomes. Second, it would be important to identify the nature of the relationship between

physical and social environments in order to design educational settings in a way that fosters positive relationships and an optimal learning experience.

References

Abbas, M. Y., & Othman, M. (2010). Social behavior of preschool children in relation to physical spatial definition. *Procedia-Social and Behavioral Sciences, 5,* 935–941.

Ansari, A., & Pianta, R. C. (2018). Teacher–child interaction quality as a function of classroom age diversity and teachers' beliefs and qualifications. *Applied Developmental Science*, 1–11. https://doi.org/10.1080/10888691.2018.1439749.

Arcidiacono, F., Padiglia, S., & Miserez-Caperos, C. (2017). Transitions in the representation and implementation of a language-learning project within a multicultural context. *European Journal of Psychology of Education*, 1–16. https://doi.org/10.1007/s10212-018-0367-z.

Arnold, D. H., Zeljo, A., Doctoroff, G. L., & Ortiz, C. (2008). Parent involvement in preschool: Predictors and the relation of involvement to preliteracy development. *School Psychology Review, 37*(1), 74–90.

Asunta, T. (2004). Knowledge sources, attitudes and self-reported behavior of secondary-level science students concerning environmental topics. In A. Laine, J. Lavonen, & V. Meisalo (Eds.), *Current research on mathematics and science education*. University of Helsinki, Research Report 253.

Bechtel, R. B., & Tsertsman, A. (2002). *Handbook of environmental psychology*. New York, NY: Wiley.

Bell, A. C., & Dyment, J. E. (2008). Grounds for health: The intersection of green school grounds and health promoting schools. *Environmental Education Research, 14*(1), 77–90.

Bilton, H. (2002). *Outdoor play in the early years*. London: David Fulton.

Boyes, E., Skamp, K., & Stanisstreet, M. (2009). Australian secondary students' views about global warming: Beliefs about actions, and willingness to act. *Research in Science Education, 39*(5), 661–680.

Bowker, R., & Tearle, P. (2004). Gardening as a learning environment: A study of children's perceptions and understanding of school garden as part of an international project. *Learning Environmental Research, 10,* 83–100.

Bronfenbrenner, U. (1979). *The ecology of human development*. Cambridge, MA: Harvard University Press.

Cameron-Faulkner, T., Melville, J., & Gattis, M. (2018). Responding to nature: Natural environments improve parent-child communication. *Journal of Environmental Psychology, 59,* 9–15.

Carrus, G., Passiatore, Y., Pirchio, S., & Scopelliti, M. (2015). Contact with nature in educational settings might help cognitive functioning and promote positive social behaviour. *Psyecology, 6*(2), 191–212.

Chawla, L. (2009). Growing up green: Becoming an agent of care for the natural world. *The Journal of Developmental Processes, 4*(1), 6–23.

Crosnoe, R. (2010). Two-Generation Strategies and Involving Immigrant Parents in Children's Education. *Urban Institute (NJ1).*

De Giuli, V., Da Pos, O., & De Carli, M. (2012). Indoor environmental quality and pupil perception in Italian primary schools. *Building and Environment, 56,* 335–345.

Dillon, J., Rickinson, M., Teamey, K., Morris, M., Choi, M. Y., Sanders, D., et al. (2006). The value of outdoor learning. *School Science Review, 87*(320), 107–111.

Driscoll, K. C., Wang, L., Mashburn, A. J., & Pianta, R. C. (2011). Fostering supportive teacher–child relationships: Intervention implementation in a state-funded preschool program. *Early Education & Development, 22*(4), 593–619.

Dyment, J. E. (2005). Green school grounds as sites for outdoor learning: Barriers and opportunities. *International Research in Geographical & Environmental Education, 14*(1), 28–45.
Earthman, G. I. (2004). *Prioritization of 31 criteria for school building adequacy*. Baltimore, MD: American Civil Liberties Union Foundation of Maryland.
Evans, G. W. (2003). The built environment and mental health. *Journal of Urban Health, 80*(4), 536–555.
Evans, G., & Hygge, S. (2007). Noise and cognitive performance in children and adults. In L. M. Luxon & D. Prasher (Eds.), *Noise and its effects* (pp. 549–566). New York: Wiley.
Fisk, W. J. (2000). Health and productivity gains from better indoor environments and their relationship with building energy efficiency. *Annual Review of Energy and the Environment, 25*(1), 537–566.
Girolametto, L., Hoaken, L., Weitzman, E., & van Lieshout, R. (2000). Patterns of adult-child linguistic interaction in integrated day care groups. *Language, Speech, and Hearing Services in Schools, 31*(2), 155–168.
Graham, H., Beall, D. L., Lussier, M., McLaughlin, P., & Zidenberg-Cherr, S. (2005). Use of school gardens in academic instruction. *Journal of Nutrition Education and Behavior, 37*(3), 147–151.
Gumenyuk, V., Korzyukov, O., Alho, K., Escera, C., & Naatanen, R. (2004). Effects of auditory distraction on electrophysiological brain activity and performance in children aged 8–13 years. *Psychophysiology, 41,* 30–36.
Hamre, B. K., & Pianta, R. C. (2001). Early teacher–child relationships and the trajectory of children's school outcomes through eighth grade. *Child Development, 72*(2), 625–638.
Harris, F. (2017). The nature of learning at forest school: Practitioners' perspectives. *Education 3–13*, *45*(2), 272–291.
Hartig, T. (2004). Restorative environments. In C. Spielberger (Ed.), *Encyclopedia of applied psychology* (pp. 273–279). New York, NY: Academic Press/Elsevier.
Hill, N. E., & Tyson, D. F. (2009). Parental involvement in middle school: A meta-analytic assessment of the strategies that promote achievement. *Developmental Psychology, 45*(3), 740.
Horne-Martin, S. (2002). The classroom environment and its effects on the practice of teachers. *Journal of Environmental Psychology, 22*(1–2), 139–156.
Johnson, P. (2007). Growing physical, social and cognitive capacity: Engaging with natural environments. *International Education Journal, 8,* 293–303.
Kaplan, R., & Kaplan, S. (1989). *The experience of nature: A psychological perspective*. New York, NY: Cambridge University Press.
Klatte, M., Meis, M., Sukowski, H., & Schick, A. (2007). Effects of irrelevant speech and traffic noise on speech perception and cognitive performance in elementary school children. *Noise and Health, 9,* 64–74.
Knight, S. (2009). *Forest schools and outdoor learning the early years*. London: Sage.
Legendre, A. (1999). Interindividual relationships in groups of young children and susceptibility to an environmental constraint. *Environment and Behavior, 31*(4), 463–486.
Lukman, R., Lozano, R., Vamberger, T., & Krajnc, M. (2013). Addressing the attitudinal gap towards improving the environment: A case study from a primary school in Slovenia. *Journal of Cleaner Production, 48,* 93–100.
Malone, K., & Tranter, P. (2003). School grounds as sites for learning: Making the most of environmental opportunities. *Environmental Education Research, 9*(3), 283–303.
Mashburn, A. J., & Serpell, Z. N. (2011). Family-school connectedness and children's early social development. *Social Development, 21*(1), 21–46.
Maxwell, L. E., & Evans, G. W. (2000). The effects of noise on pre-school children's pre-reading skills. *Journal of Environmental Psychology, 20*(1), 91–98.
Mendez, J. L., Waanders, C., & Downer, J. T. (2007). Parent characteristics, economic stress and neighborhood context as predictors of parent involvement in preschool children's education. *Journal of School Psychology, 45,* 619–636.

Mirrahimi, S., Tawil, N. M., Abdullah, N. A. G., Surat, M., & Usman, I. M. S. (2011). Developing conducive sustainable outdoor learning: The impact of natural environment on learning, social and emotional intelligence. *Procedia Engineering, 20,* 389–396.

Mumovic, D., Palmer, J., Davies, M., Orme, M., Ridley, I., Oreszczyn, T., et al. (2009). Winter indoor air quality, thermal comfort and acoustic performance of newly built secondary schools in England. *Building and Environment*, *44*(7), 1466–1477.

Nundy, S. (2001). *Raising achievement through the environment: The case for fieldwork and field centres*. Walsall: NAFSO.

Ozer, E. J. (2007). The effects of school gardens on students and schools: Conceptualization and considerations for maximizing healthy development. *Health Education & Behavior, 34*(6), 846–863.

Peacock, A. (2006). *Changing minds: The lasting impact of school trips*. Exeter: University of Exeter.

Pianta, R., Howes, C., Burchinal, M., Bryant, D., Clifford, R., Early, D., & Barbarin, O. (2005). Features of pre-kindergarten programs, classrooms, and teachers: Do they predict observed classroom quality and child-teacher interactions? *Applied Developmental Science, 9*(3), 144–159.

Pirchio, S., Passiatore, Y., Carrus, G., Maricchiolo, F., Taeschner, T., & Arcidiacono, F. (2017). Teachers and parents involvement for a good school experience of native and immigrant children. *Journal of Educational, Cultural and Psychological Studies, 15*, 73–94.

Pirchio, S., Passiatore, Y., Carrus, G., & Taeschner, T. (2017). Children's interethnic relationships in multiethnic primary school: Results of an inclusive language learning intervention on children with native and immigrant background in Italy. *European Journal of Psychology of Education*, 1–14. https://doi.org/10.1007/s10212-017-0363-8.

Pretty, J., Angus, C., Bain, M., Barton, J., Gladwell, V., Hine, R., et al. (2009). *Nature, childhood, health and life pathways*. ICES Occasional Paper 2009–02. Colchester: University of Essex.

Read, M. A., Sugawara, A. I., & Brandt, J. A. (1999). Impact of space and color in the physical environment on preschool children's cooperative behavior. *Environment and Behavior, 31*(3), 413–428.

Robinson, M. G., & Sorace, A. (2018). The influence of collaborative language learning on cognitive control in unbalanced multilingual migrant children. *European Journal of Psychology of Education*, 1–18. https://doi.org/10.1007/s10212-018-0377-x.

Schneider, M. (2002). Do school facilities affect academic outcomes? *ERIC Publications, National Clearinghouse for Educational Facilities*. http://www.edfacilities.org.

Shield, B., & Dockrell, J. E. (2003). The effects of noise on children at school: A review. *Building Acoustics, 10,* 97–116.

Stokols, D. (1972). On the distinction between density and crowding: Some implications for future research. *Psychological Review, 79*(3), 275.

Taeschner, T. (2005). *The magic teacher*. London: CILT.

Taeschner, T., Destino, K., & Pirchio, S. (2016). The onset of story comprehension and production in young Italian children learning English as a second language: or1495. *International Journal of Psychology, 51,* 814.

Taeschner, T., Rinaldi, P., Tagliatatela, D., & Pirchio, S. (2008). Le parole per raccontarmi. Una ricerca sull'apprendimento dell'italiano da parte di adolescenti figli di immigrati. *Psicologia dell'educazione e della formazione*, *10*(1), 21–35.

Taylor, A. F., Kuo, F. E., & Sullivan, W. C. (2002). Views of nature and self-discipline: Evidence from inner city children. *Journal of Environmental Psychology*, *22*(1–2), 49–63. (Licentiate thesis). Linköping University, Linköping.

Ulrich, R. S. (1983). Aesthetic and affective response to natural environment. In I. Altman & J. F. Wohlwill (Eds.), *Human behavior and environment: Advances in theory and research. Vol. 6: Behavior and the natural environment* (pp. 85–125). New York, NY: Plenum.

Waters, J., & Maynard, T. (2010). What's so interesting outside? A study of child-initiated interaction with teachers in the natural outdoor environment. *European Early Childhood Education Research Journal, 18*(4), 473–483.

Wells, N. M., & Evans, G. W. (2003). Nearby nature: A buffer of life stress among rural children. *Environment and Behavior, 35*(3), 311–330.