



Examining a Montessori Adolescent Program through a Self-Determination Theory Lens: A Study of the Lived Experiences of Adolescents

Luz Marie Casquejo Johnston†

St. Mary's College of California

Keywords: *middle level education, Montessori education, Montessori adolescent program, motivation, self-determination theory, narrative analysis, analysis of narratives*

Abstract. This study examined the influence of enrollment in a Montessori adolescent program on the development of self-determination. The study focused on seventh-grade students. Student feelings of self-determination were recorded through three cycles of interviews throughout the year to capture the change, if any, in feelings of self-determination. Bounded by self-determination and student-voice theory, this research was designed to give voice to students, add to the discourse on middle-school reform, and provide the perspective of the student.

Based on the analysis of narratives, the major themes indicated the feelings of autonomy, competence, and relatedness that were most prevalent. The study suggests ways in which Montessori adolescent programs support students and in which other middle-level schools can support students.

Literature Review

The design of the Montessori adolescent program was based on the notes and transcripts from a lecture series in which Maria Montessori coined the term *erdkinder*—child of the land. She used the term to describe the child in the third plane of development defined as ages 12 to 18. She also used *erdkinder* to refer to the adolescent learning environment (Montessori, 1967). She believed that the upheaval of this stage was a special time during which the spiritual embryo of the child could awaken. The adolescent program was a place to nurture older children's intellectual, psychological, and emotional development, where children could be liberated through education within a community of caring adults and peers (Montessori, 1967). Choice, working toward mastery, and building community—all hallmarks of Montessori philosophy and methodology—are the foundation upon which autonomy, competence, and relatedness are developed.

Autonomy, competence, and relatedness are the three constructs of self-determination theory (SDT), a subtheory of human motivation developed in 1985 by Deci and Ryan. This work defined self-determination as the feeling of control over one's destiny. International studies showed that when the needs to develop autonomy, competence, and relatedness were supported, individuals felt in control of their destiny, motivating them to achieve their goals.

Supports for these needs are embedded in the adolescent program as described by Montessori (Montessori, 1964, 1972b, 1973). The present study sought to capture the experiences of seventh-grade

students in their first year of a Montessori adolescent program to determine if enrollment in the program affected the development of self-determination. Six students were interviewed at the beginning, middle, and end of their seventh-grade year to gauge the change, if any, in their feelings of self-determination. The question that guided this study was: What do seventh-grade students say that points toward feelings of increased self-determination that may be attributed to their enrollment in a Montessori adolescent program?

Development of the Montessori Adolescent Program

After her first successes with preschool-aged children, Montessori continued to write and to develop programs and schools throughout the world until her death in 1952 (Standing, 1988). Although she wrote speeches and developed theories about the specific needs of the adolescent, she did not design the *erdkinder*. Rather, the work of others—influenced by Montessori’s philosophy—ultimately developed the adolescent program. In particular, Coe (1988) described and analyzed the effectiveness of the adolescent learning community Coe developed. She drew from Montessori’s writings as well as Kohlberg’s theory of moral development and Erikson’s stages of development (Erickson, 1950; Kohlberg, 1981; Montessori, 1967).

Coe (1996) detailed the strategies and practices that enabled teachers to form communities within their school environments. She reflected on the challenges faced by adolescents as they began to define themselves not only in small peer groups, but also within a larger school community. The push and pull both toward and away from peers and family is unique to adolescence. (Montessori, 1967). As a result, although the adolescent program contains the same hallmarks as learning environments created for younger children, the scopes of these concepts are broadened when the notion of community expands from school to neighborhood, city, government, and world.

Self-Determination Theory (SDT)

Montessori’s writings about her method and the *erdkinder* include practices and structures that support the intellectual, psychological, and emotional development of children. These structures align with the basic needs defined in SDT. SDT posits that humans seek out and align themselves with situations that will enable them to meet three universal needs: autonomy, competence, and relatedness (Deci & Ryan, 2002). The Montessori practice of allowing students to choose their work is a support for autonomy. Allowing students to work toward mastery is a support for competence. Relatedness is supported by the inclusion of peace education and conflict resolution in the *erdkinder* curriculum.

Domestic and international research shows a strong positive correlation between self-determination and student achievement (Ryan & Deci, 2000b; Jang, Reeve, Ryan, & Kim, 2009; Shih, 2008). The Carnegie Council on Adolescent Development’s (CCAD) 1989 report, *Turning Points: Preparing American Youth for the 21st Century*, advised middle-level education reforms, including small communities of learning led by caring, respectful adults; rigorous academics tailored to students’ specific needs. Further, an environment that supports the development of self-determination creates intrinsic motivation, well-being, and a unified sense of self (Ryan & Deci, 2002). Conversely, students in settings in which these basic needs are not supported are less engaged and less motivated to achieve (Niemi & Ryan, 2009). Research in education and psychology, as well as Montessori’s writings, suggest ways to create environments that can support adolescent development. Examination of educational settings through the lens of SDT has shown that teachers and administrators can encourage the development of these constructs. In the following sections, each construct will be discussed in depth.

Autonomy. Autonomy is created when individuals are the locus of control for their actions. The locus of control determines the level of motivation, from amotivation to intrinsic. Individuals can act through external pressure or for extrinsic rewards. When pressure is external, the locus of control is outside of the individual, and performance in these circumstances tends to be short-lived. Conversely, as

the locus of control is internalized, long-lasting performance, competence, and the drive to continue toward mastery increase. In addition, individuals can be extrinsically motivated if autonomy and mastery are supported by the extrinsic rewards. For example, students who may not be drawn to the study of organic chemistry can be motivated to earn the extrinsic reward of grades because they want to and have chosen to master chemistry concepts to gain acceptance into medical school (Deci & Ryan, 2000).

Autonomy supports are a hallmark of Montessori methodology. Montessori spoke of choice, challenging teachers to allow students to choose work. In this way, the teacher encourages students to build their own intellect: “Thus here again liberty, the sole meaning will lead to the maximum development of character, in intelligence, and sentiment; and will give to us, the educators, peace and the possibility of contemplating the miracle of growth” (Montessori, 1964, p. 6). Adolescents’ need for choice is highlighted in *This We Believe*, in which the Association for Middle Level Education [AMLE] suggests “multiple learning and teaching approaches that respond to their [students’] diversity” (2000, p. 7). The use of multiple learning approaches allows students to choose how and with what modality they construct their knowledge and demonstrate their understanding.

Competence. Satisfaction of the need for competence is supported by structures and practices that allow people to demonstrate their abilities. People who perceive themselves as competent are confident in their abilities to surmount obstacles and challenges. They feel capable, they challenge themselves, and they are motivated to acquire and practice the skills needed to reach their goals (Ryan & Deci, 2000a). Results of international studies of competence suggest a link between perceived competence and student achievement (Jang et al., 2009; Miserandino, 1996). One study also linked competence to feelings of well-being (Sheldon et al., 2009).

The subjects of the aforementioned studies (Jang et al., 2009; Miserandino, 1996) were adolescents, and study results echo Montessori’s recommendation that teachers support students in the quest for skill attainment. Her instruction to create materials for auto-education, as well as her observation that children thrive in environments in which they are allowed to work to mastery uninterrupted, instilled in students that they had the power to create their own meaning and intellect (Montessori, 1964). While her early work described this process for preschool-aged children, Montessori included these same recommendations for the middle-school program. AMLE’s call for a culture that includes “students and teachers engaged in active learning” (2000, p. 15) also includes students creating meaning through teaching, peer tutoring, and active engagement in school governance. These practices foster a sense of ability to affect their school setting.

Relatedness. Practices and structures that foster caring relationships support the fulfillment of the need for connection (Deci & Ryan, 2000). A hallmark of adolescent development is the creation of deep connections among peers. Adolescence is a time when students define themselves through not only academic successes but also social ones (Elkind, 1994). Relatedness is experienced as a feeling of being safe within both individual and community relationships. Perceived relatedness in adolescents has been shown to encourage well-being and academic achievement (Jang et al., 2009; Rathunde & Csikszentmihalyi, 2005a). In addition, students who expressed that their need for relatedness was satisfied were more likely to connect with their school culture (Niemiec & Ryan, 2009; Rathunde & Csikszentmihalyi, 2005b).

This connection to peers is important as students in the adolescent program begin to work outside of the school community. Montessori believed that children had both innate curiosity and innate goodness. She believed that children, provided with examples of goodwill and direction toward understanding, were the world’s only hope for peace. Teachers were directed to notice when children became aware of peer reactions to their behavior and to provide examples of kindness and understanding (Montessori, 1972a). Within this environment of understanding and caring, the spiritual embryo of the child was brought into peaceful existence. Supports for relatedness—including a caring adult who advocates for students, a caring and safe environment, and cultivation of relationships—are suggested in the CCAD (1989) and AMLE (2000) documents. As adolescents learn their place in the greater community, they learn the skills needed to positively affect their environment.

Student Voice and SDT

Student voice—a theoretical framework—creates an intimate portrait of the lived experience of the most important stakeholders in education. Student-voice researchers advocate that students be given the opportunity to work alongside researchers, educational leaders, and policy makers. Rather than be the objects acted upon by the system, students are empowered to shape and determine their own destinies within it. The use of qualitative methods thus captures the lived experience of those most affected by educational policies and practices. Inclusion of this framework in this study gives voice to the adolescent in a Montessori middle school in a way that examination of achievement data and surveys cannot.

As with other theoretical frameworks, there are both advantages and disadvantages to the use of student-voice research methods. Student voice is a lens through which researchers have been able to view the effectiveness of reforms (Fielding, 2001; Kruse, 2000), the reasons for disengagement from school culture and apathy toward academic achievement (Daniels & Arapostathis, 2005; Kroeger et al., 2004), and youth development (Mitra, 2004). The difficulties lie in (a) proclaiming that the captured voices are representative and generalizable to the overall population of adolescents, (b) the deletion of the key components of transcripts by researchers due to bias, (c) the exclusion of the experiences of those who do not or will not speak, and (d) the reinforcement of current power dynamics between teachers and students (Cook-Sather, 2006; Fielding, 2004).

SDT researchers have used extant data, achievement data, survey results, and experimental practices to highlight the importance of autonomy, competence, and relatedness to adolescent development and achievement (Vansteenkiste, Lens, & Deci, 2006; Ryan & Shim, 2008). Student-voice research, in contrast, is primarily concerned with illuminating the lived experience of students. What students say and do become data that researchers can analyze to gather themes related to development and the effect that construct supportive practices have on students' feelings of well-being. Findings from student interviews corroborate the data gathered from quantitative methods. Adolescents crave the constructs of autonomy, competence, and relatedness. Youth in several studies reported that when teachers create learning environments that support autonomy and competence (Kroeger et al., 2004; Mitra, 2004) or relatedness (Daniels, 2011; Daniels & Arapostathis, 2005; Kroeger et al., 2004), they feel more motivated to complete work and tasks that they would not otherwise be intrinsically motivated to complete.

The present study sought to capture the experiences of seventh-grade students as they acclimated to a Montessori adolescent program: How would a learning environment designed to support students' development of autonomy, competence, and relatedness affect their sense of self-determination during their seventh-grade year?

Methods

The current study was conducted at a charter school in a suburban city in southwestern California. The school site served 450 students in kindergarten through eighth grade. The study focused on a small subset of the student population: students enrolled in the Montessori adolescent program, which serves seventh- and eighth-grade students in three mixed-age classrooms. At the time of the study, the program was in its third year of implementation, and 92 students were enrolled. The three teachers working in the program held both the California Multiple-Subject Credential and the Secondary I/II credential provided by the American Montessori Society.

Purposeful Sampling

Participant-selection variant of an explanatory sequential design. The use of this methodology is appropriate for the study because it allowed for the purposeful selection of participants for the second qualitative phase. Purposeful selection ensured that the finished analysis of narrative contained a representative sampling of the students' voices at the research site. The research question, as

well as the student-voice framework, calls for emphasis on the qualitative methods phase. The use of quantitative data for participant selection allows for the deeper study of subjects who exhibit varying levels of self-determination (Creswell & Plano-Clark, 2007).

Reasoning for choice of initial sampling group. All seventh-grade students attending the research site's Montessori adolescent program were invited to participate in the study. The study focused on seventh grade because it marks the first year in the adolescent program. All students in the seventh-grade sample were experiencing a transition into the adolescent program. Of the total population of 48 seventh-grade students, 11 students completed the consent forms.

Instrument: BNSW-S for Adolescents. Students who returned a consent form completed a modified version of the Basic Needs Satisfaction Work Scale-Student (BNSW-S) for adolescents. This version of the BNSW-S was used to measure SDT constructs in adolescents transitioning to high school (Gillison, Standage, & Skevington, 2008).

Validation of BNSW-S for Adolescents. Gillison et al. (2008) modified questions from the BNSW-S to include educational-setting terminology that adolescents would understand. For example, the statement "When I'm at work, I have to do what I'm told" was changed to "When I'm at school, I have to do what I'm told." Students answered the survey using a 7-point Likert scale ranging from *not true at all* (1) to *very true* (7). In addition, students of the same age who were not in the sample group also took the survey. When these students were asked if they understood the questions on the scale, they indicated that they understood the vocabulary and did not need further explanation of terms. (Gillison et al., 2008). Based on these results, I requested the modified version of the BNSW-S for Adolescents from Gillison, who sent me all forms required to administer the survey.

Purposeful sampling strategy. The 11 students who submitted consent forms were invited to complete the survey. I met with this group in the morning at a time that was convenient for both teachers and students. The survey was administered in a pencil-and-paper format. I stayed at the back of the room to answer any questions. All students completed the survey within 15 minutes. None of the students asked for clarification during administration of the survey. BNSW-S for Adolescents data from the 11 students were coded and entered into IBM SPSS Statistics 20. Bands for low, medium, and high self-determination (Gillison et al., 2008) were used to determine the levels of self-determination in the student sample

Analysis of quantitative data. Scores were categorized into bands of low, medium, and high self-determination. Descriptive analysis was conducted to identify groups of students based on their perceived overall feelings of autonomy, competence, and relatedness. Demographic data collected in the original data were used to identify one male and one female student from each band, bringing the total sample size for the qualitative phase to six. Results from descriptive analysis of the surveys are presented in Table 1 and Figure 1.

The intent of the study was to gather qualitative data from students with low, medium, and high self-determination based on the data from the BNSW-S. A mean score of 4.9 showed that the 11 seventh-grade students who took the BNSW-S had medium-to-high self-determination scores. None of the students who completed the scale measured low in self-determination. Although my sample did not include students with low measured self-determination, I decided the importance of capturing the voices of these students would still add to the existing literature on the adolescent-lived experience and provide insight into practical implications.

While the data fell within the medium-to-high self-determination range, three bands of data were discovered in the sample: below-the-expected median, at-the-expected median, and above-the-expected median. The original design of the study called for the identification of six students: two students from each band of low, medium, and high self-determination. Because the sample did not contain students with low self-determination, two students were chosen from the bands that were identified. In keeping with the original study design, demographic data were used to identify one male and one female student from the below-the-expected median, at-the-expected median, and above-the-expected median bands. All students in the at-the-expected-median band were female; thus, this group had two female representatives. As a

result, a total of six students (two males and four females) were invited to participate in the qualitative phase of the study. Table 2 details the demographic data of the invited participants.

Table 1

Table of Mean Self-Determination and Total Self-Determination (SD)

Participant	Mean SD	Total SD
	3.1	75
G1	3.9	93
M4	4.2	100
G9	4.4	106
G4	4.5	108
G2	5.2	125
G11	5.3	129
G8	5.5	131
M3	5.8	138
G7	5.8	140
G5	6.4	154

Note. Mean SD and total SD used to choose participants for the qualitative phase. Two subjects below the expected median, at the expected median, and above the expected median were chosen. When possible, one male and one female were chosen from each band.

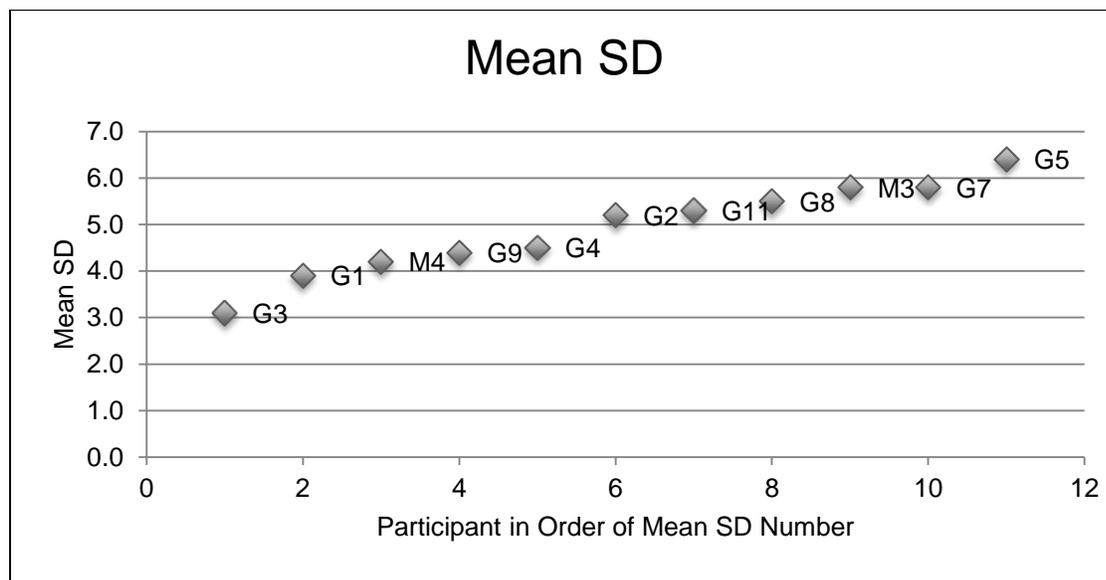


Figure 1. Graph of mean self-determination (SD) used to choose participants.

Instrument: semistructured interview. Accounts of students’ lived experiences over a 7-month period were collected through semistructured interviews. The interview protocol and questions were intentionally sparse to allow for the conceptual transformation of interviewer and interviewee to listener

and narrator (Chase, 2005). The questions were designed to be both specific and open ended. For example, to measure feelings of autonomy, I asked students if they felt they had choice and freedom in the work they do at school. To avoid questions that could imply specific answers, I paid close attention to verbiage and word choice. The protocol included nine questions designed to gather background information as well as measure feelings of autonomy, competence, and relatedness. Specific phrases such as *Tell me more* and *Please describe that in more detail* were used to draw out more information. Due to the small sample size for the qualitative phase, I conducted all of the interviews.

Table 2

Demographic Information for Qualitative Phase Participants

SD Band	Participant	Sex	Years in Montessori
Below the Expected Median	G3	Female	1
Below the Expected Median	M4	Male	2
At the Expected Median	G2	Female	1
At the Expected Median	G11	Female	1
Above the Expected Median	G5	Female	6
Above the Expected Median	M3	Male	1

Note. Students indicated how many years they had attended a Montessori school. In *Years in Montessori*, a 1 indicates that students were in their first year of Montessori education.

Validation of interview protocol. In the spring, prior to the study, interviews were conducted to gauge whether the questions were understandable to seventh- and eighth-grade students, as well as whether the collected answers reflected the type of response data that would address the research questions. Student responses indicated that not only did students understand the questions, but also that these questions were valid for collecting data that addressed the research questions.

Narrative analysis and analysis of narratives. Analysis of qualitative data was conducted through both narrative analysis and analysis of narrative methods. Interviews were professionally transcribed and checked against audio to validate accuracy. Narrative analyses of each subject’s interviews were examined for themes. I conducted in vivo coding, which identified phrases and words that pointed toward themes that were generalizable to the individual narrative. This phase differed from the analysis of narratives phase, in that findings were gleaned from individual narratives. During the analysis-of-narratives phase, phrases and words were identified across narratives based on the phrases and words used in the in vivo coding that was conducted in narrative analysis, giving a general set of themes for all participants across all interview cycles.

Analysis of qualitative data: narrative analysis. Students were assigned a code corresponding to their gender and the order in which they submitted their consent form. The chosen students were referred to by their coded names (e.g., G3 was the third girl who submitted her consent form) throughout the interview cycles. Each participant was interviewed separately at selected times during the school day. Teachers were consulted to determine the times of the day that would be least disruptive to student productivity.

I recorded the audio from each interview. Audio recordings were professionally transcribed, and transcriptions were checked for accuracy. In vivo coding was used to develop themes. This process was repeated for each cycle of interviews, which occurred in November, February, and May. I compiled codes from each participant’s interviews to gather a narrative of the student’s experience. Although the intent was to collect narratives from the students throughout their seventh-grade year and note the development

of feelings of self-determination, examination of in vivo codes revealed that students' overall feelings of autonomy, competence, and relatedness did not change. Students reported feelings of autonomy, competence, and relatedness in each cycle of interviews.

Analysis of qualitative data: analysis of narratives. After completion of narrative analysis, the in vivo codes were grouped into themes found throughout the narratives of all participants for all interview cycles (Table 3). These themes were entered manually into mind-mapping software to produce graphic representations of data. This analysis produced a rich, multilayered approach to the codes and themes identified through the entire body of narrative text. A combination of in vivo coding and cluster coding was used to group similar words, such as the clusters for choose–choice–chose and free–freedom. Groupings of codes were developed into themes that were categorized as major or minor. The data revealed major themes that represented a majority or all of the students in the qualitative phase.

Table 3

Themes Identified Through In Vivo Coding

SDT Component	Themes Identified	Utterances: Students
Autonomy	Choose Type of Work	48:6
	Choose Order of Tasks	24:6
	Choose Clothing	9:1
	Free to Express Yourself	3:1
	Choose with Whom to Work	3:3
	Choose Where to Work	2:2
	Choose to Retake Tests	1:1
	Competence	Scared at First...Now I Can
Organize Time		10:6
More Social Confidence		5:3
Capability to Do Well in High School		3:3
First Things First		1:1
Perseverance		1:1
Think Win-Win		1:1
Relatedness	Teacher Care: Help Me Stay on Top of Things	30:6
	Student Care: Community Meeting	11:3
	Student Care: Nice to Me	6:5
	Student Care: Academic Help	5:3
	Teacher Care: Offer Fun Activities	3:3
	Teacher Care: Conflict Resolution	3:2
	Student Care: Not Bullying	3:1
	Teacher Care: Respect Opinions	2:2
	Staff Care: Make Sure...	2:1
	Student Care: Some Students Care	2:1
	Teacher Care: Provide Challenging Work	2:1
	Staff Care: Help When Hurt	1:1
	Staff Care: Take Care of Bad Language	1:1
	Staff Care: Take Ideas	1:1
	Student Care: Don't Care Who I Hang Out With	1:1
Teacher Care: Good Connection	1:1	

Note. Themes identified through analysis of narratives. Themes are presented by descending number of utterances represented in each theme. Ratios represent number of utterances to number of students.

Results

Major Themes Within the SDT Construct of Autonomy

All students used words or phrases related to choice throughout the narratives. Participants included choice in their answers regarding feelings about the middle-school program, differences between the middle-school program and their last school environment, and feelings about choice and freedom in their work at school. Figure 2 illustrates the way in which in vivo codes were grouped into types of choice in a mind-map graphic. This theme incorporated in vivo codes representing 48 utterances related to *Choose Type of Work*. Furthermore, Choose Type of Work was mentioned by all students. The number of times Choose Type of Work was mentioned, coupled with the fact that all students mentioned it, illustrates that choosing work was very important to all students in the sample.

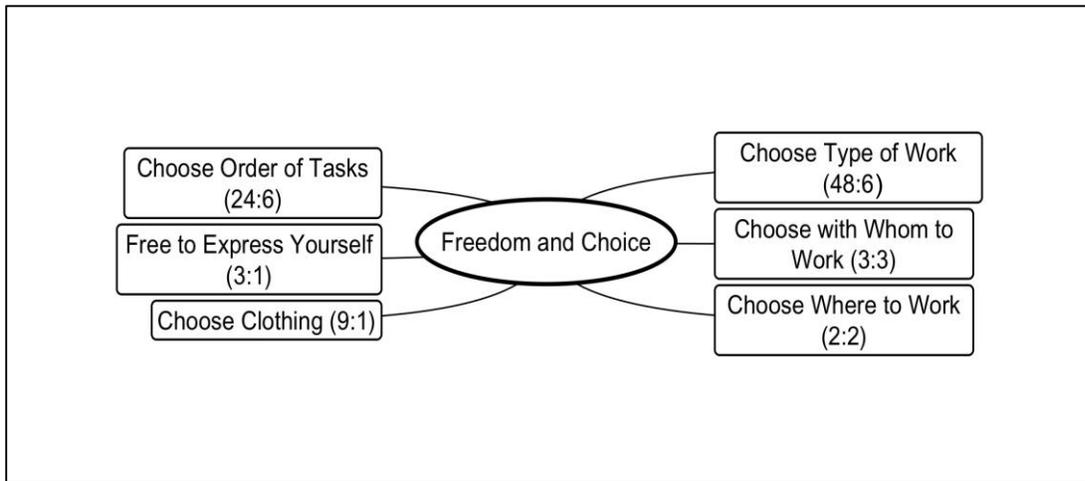


Figure 2. Freedom and choice mind map. In vivo codes grouped into themes. Brackets denote number of times students mentioned type of choice: number of students who mentioned type of choice

The *Choose Order of Tasks* theme incorporated in vivo codes representing 24 utterances. Every participant mentioned Choose Order of Tasks. The number of times Choose Order of Tasks was mentioned, coupled with the fact that all students mentioned it, is important.

Major Themes Within the SDT Construct of Competence

Figure 3 uses a mind-map graphic to illustrate the themes identified through analysis of narratives for the SDT component of competence. One major theme emerged in all three cycles and was mentioned by all group members. Participants mentioned that, at the beginning of the school year, they had had negative feelings about their ability to finish all assignments and do well. Although students reported emotions about academic work at the beginning of the year—fear, anxiety, and worry—at the time of the first cycle of interviews conducted in November, all participants noted that they felt confident that they could, in the words of student G11, “get all the work done.” Positive feelings about the ability to complete work occurred as early as the first cycle of interviews. Belief in the ability to complete work was mentioned a total of 18 times throughout the complete narratives of all participants over all three cycles of interviews.

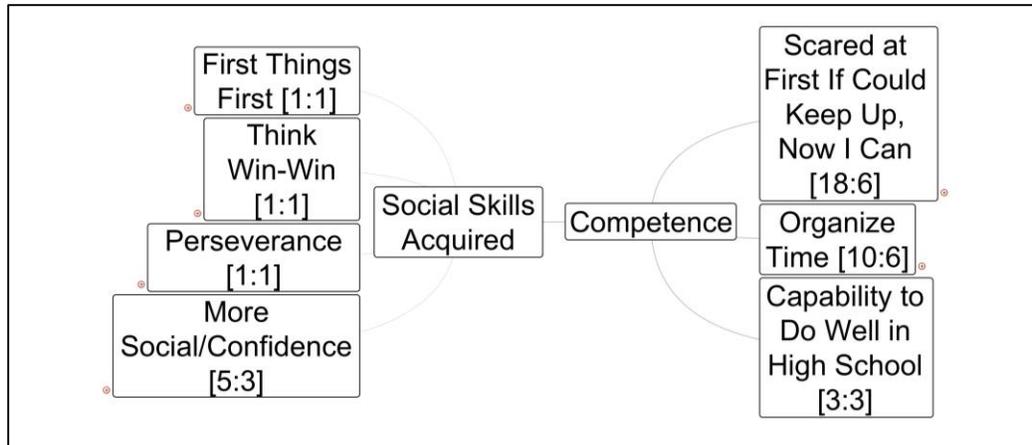


Figure 3. Skills mind map. In vivo codes grouped into themes. Brackets denote number of times students mentioned type of skill: number of students who mentioned type of skill.

Major Themes Within the SDT Construct of Relatedness

Relatedness was measured by utterances of feeling connected and cared for within the adolescent program. Caring by teachers, staff, and students was a recurring theme throughout all interviews. Figure 4 contains a mind map that illustrates the ways in which students felt people at the school cared for them.

A significant number of teacher-care actions emerged from the narratives. Teachers showed they cared in 13 distinct ways. The most prevalent theme for teachers was *Helping Me Stay on Top of Things*, which included actions such as redirecting off-task behavior, helping with task organization and planning, creating homework contracts, and issuing notes to parents about missing work (*orange slips*). When I asked students about homework contracts and orange slips, students responded that neither action was punitive. In fact, a few participants mentioned choosing homework and choosing to receive an orange slip so that they could spread work out over the weeknights or weekends. The theme *Helping Me Stay on Top of Things* represented 30 utterances by all six participants.

Discussion

Implications for Educators of Middle School Students

Personalized learning. Reform at all levels, spearheaded by the adoption in 45 states of the Common Core State Standards (CCSS), focuses on deep learning that can be fostered only through empowered learning. The CCSS call for a personalized learning approach that gives students choice in work and shows them how to demonstrate mastery (NETP, 2010). This learning strategy is a foundational characteristic of Montessori methodology and practice. Furthermore, personalization supports the development of autonomy. As noted in the findings, the theme *Choose Type of Work* was important to student satisfaction in the Montessori adolescent program. Student G3 mentioned that her interest in writing led her to choose writing assignments, to write more for each assignment, and to write the text for group assignments. The voices of the participants in this study add to what has been quantified in international studies.

Support for personalized learning is further corroborated by domestic and international studies. Studies of Montessori practice (Dohrmann, Nishida, Gartner, Lipsky, & Grimm, 2007; Hanson, 2009; Hobbs, 2008; McCladdie, 2006; Peng, 2009) included the same learner-centered approaches, such as differentiated instruction and auto-education, cited in general education studies (Weinberger & McCombs, 2003). These findings are also found in SDT literature, pointing to a possible positive correlation between

autonomy supports and student achievement (Chirkov, 2009; Chirkov & Ryan, 2001; Niemiec, et al., 2006; Shih, 2008; Soenens & Vansteenkiste, 2005).

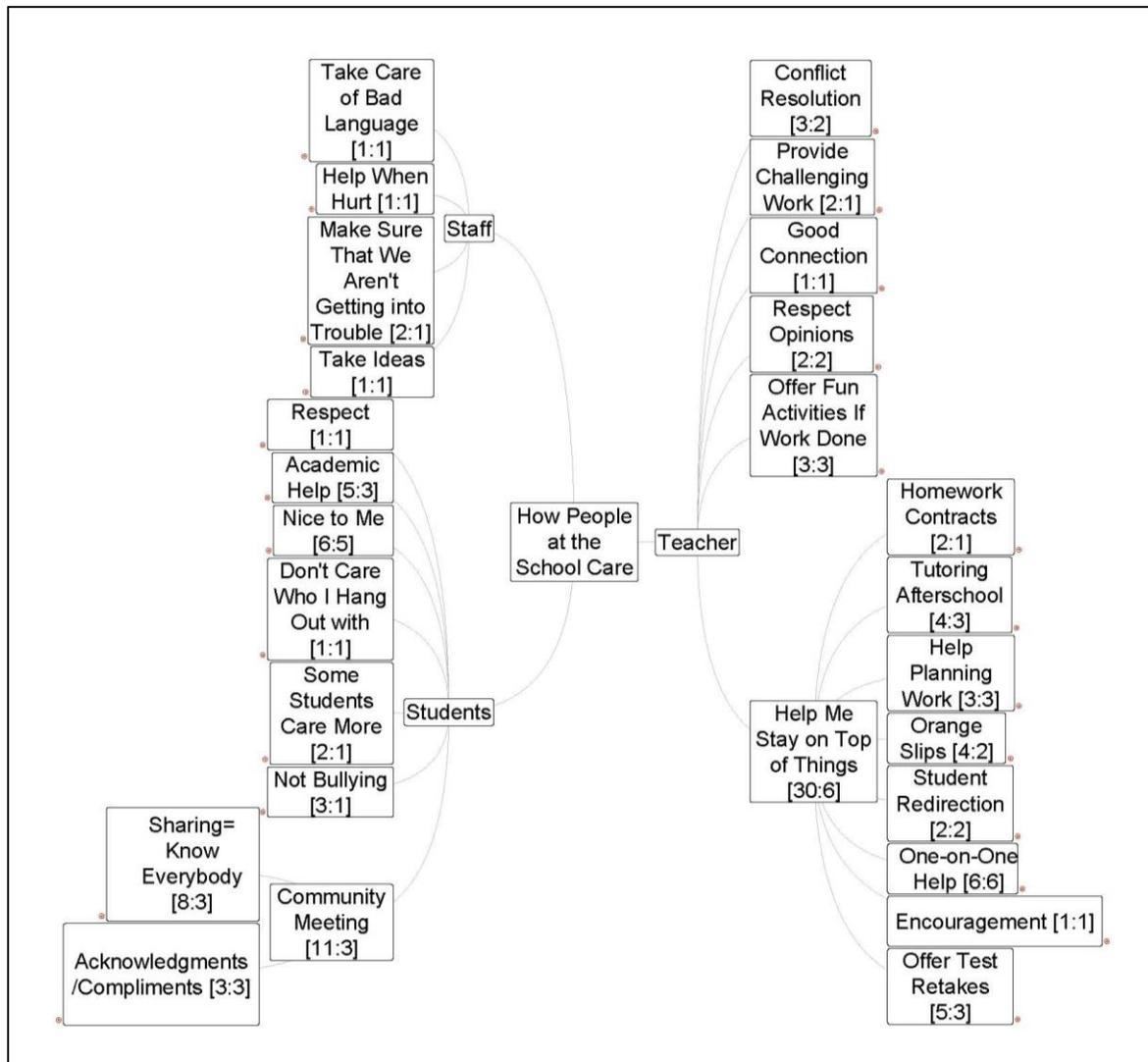


Figure 4. How people care mind map. In vivo codes grouped into themes. Brackets denote number of times students mentioned type of care: number of students who mentioned type of care.

Community. Participants in this study mentioned the various ways in which caring individuals supported them. Students freely used the term *community* and expressed feeling that they were cared for by students, teachers, and staff. Domestic and international studies suggest a positive correlation between increased relatedness and student achievement (Dee, 2004; Goddard, Tschannen-Moran, & Hoy, 2001; Goddard, Salloum, & Berebitsky, 2009; Jang et al., 2009; Musial, 1986; Roessingh, 2006; Sahlberg, 2007; Wentzel, 1991). Montessori’s writings, as well as articles written by current Montessorians, detail and illustrate the importance of building relational trust to create an authentic Montessori learning environment (Coe, 1996; Enright, Schaefer, Schaefer, & Schaefer, 2008; Gillespie, 1994; Montessori, 1973; Rule & Kyle, 2009). Teacher care was felt strongest when teachers supported learning through one-on-one help, creation of homework contracts, afterschool tutoring, and test retakes. Student M4 stated,

It makes me feel like they care about us achieving all our work and getting it done because on [sic] other school that I went to they didn't seem like they cared whether we got all our work done or not. If we didn't have it done, they would automatically give us a grade.

This thought was echoed in similar ways by students G5, M3, and G2. They had wanted to succeed in their previous learning environments; however, they had not been given the help to do so, hampering their ability to do well and feel good about their work. Making time in the work period for individual help, tutoring, and test retakes showed teacher care. These practices can occur when teachers have both the will to provide these structures and the support to do so. These small changes could have a big impact on student motivation and achievement.

Personalized learning practices require teachers to alter their teaching practices and classroom management. Teacher care requires that teachers invest time in better understanding their students. These paradigm shifts can occur only in environments that are risk supportive.

Implications for Educational Leaders

Montessori methodology and practice include supports for autonomy, competence, and relatedness. Domestic and international studies indicate a positive correlation between self-determination supports and increased student achievement. Students in this study consistently felt they had freedom and choice and that they were cared for by teachers, staff, and other students. Their voices captured in this study point toward a positive feeling of self-determination.

The findings in this study indicate the practices and program characteristics that students most value. Teacher practices included reteaching, personalized learning, test retakes, helping students create plans to catch up on work or skills, and afterschool tutoring. These same practices are described in foundational material that detail middle-level reform (CCAD, 1989; AMLE, 2000) and recent reform (NETP, 2010). Although these practices are common features in Montessori learning environments, they do not require that teachers complete Montessori training.

Practices listed in the previous section require two things: the willingness of teachers to shift their classrooms from teacher centered to student centered, and support from school administration. This finding is echoed in another study of trust and improvement in schools, which found that, in schools that had successfully implemented reforms, teachers consistently cited trustworthy faculty relationships as a principal component of these successes. (Louis, 2007). Administrative support can come in the form of providing staff development and training, including collaboration time, and offering release time for teachers to observe colleagues who can serve as mentors and models.

Limitations

Students with low measured self-determination. This study did not include students with low measured self-determination. Students who submitted consent forms and completed the survey did not have low measured self-determination, which affected the qualitative phase. This result was echoed in a larger study conducted on students in court schools (Glassett, 2012). In that study, students with low measured self-determination could not be included in the qualitative phase due to incarceration or disenrollment from court schools. The voices of students with low measured self-determination have not been heard. Further research that specifically includes this group would add to the SDT field, suggest education reform, and give voice to these currently unheard students.

Generalization. This study was conducted in one Montessori adolescent program in one southwestern California school. The number of Montessori adolescent programs throughout the United States and the world is small, and they vary in their implementation and development. Although certain characteristics are foundational to Montessori methodology and practice, the degree to which they are

authentically represented also varies. In addition, while the study was designed to include students with low, medium, and high self-determination, the seventh-grade students who participated in the quantitative phase represented students with medium-to-high overall self-determination. The voices of students with low self-determination were not captured. The stories that were presented and analyzed give readers a taste of the lived experience of seventh-grade students in the Montessori adolescent program but cannot possibly be extrapolated to this school's entire seventh-grade community, much less all seventh graders who attend Montessori adolescent programs.

Narrative inquiry does not seek to generalize findings. Rather, its purpose is to capture the stories of individuals or groups and to faithfully analyze and retell the authentic stories of study participants. Without bias, I put aside knowledge of the individuals and remained open to the perceptions and meanings in each participant's narrative. The purpose of this study was to give voice to the voiceless. The voices of the students add to existing literature on Montessori methodology, middle-level education, and SDT.

Conclusion

This study was guided by the research question, What effect, if any, would a learning environment designed to support the development of autonomy, competence, and relatedness have on the students' development of self-determination during their seventh-grade year? The voices of the participants in this study give a description of the lived experiences of these students over a 7-month period. Their responses clearly indicate an overall feeling of autonomy, competence, and relatedness. In their own words, students mentioned the same supports described by Montessori (1972b) and designed by Coe (1996). While their feelings did not change over the time of the study, their repetition of themes and responses provide a robust narrative description of their seventh-grade year. Each recurring code and theme corroborates the theory that supports for autonomy, competence, and relatedness were incorporated in the adolescent program.

The supports mentioned by students are hallmarks of Montessori methodology at every level; however, they can be implemented in any school. Both AMLE (2000) and the NETP (2010) have lauded these same supports. Implementing these supports requires a shift from an age-old paradigm. Administrators must lead the reform through both the inclusion of practices that support teachers and the creation of high-trust schools. We must include these supports to provide the education that all children deserve.

AUTHOR INFORMATION

†Corresponding Author

Luz Marie Casquejo Johnston is a Visiting Assistant Professor at St. Mary's College of California in Moraga, California. She can be reached at lmc16@stmarys-ca.edu.

References

- Association for Middle Level Education [AMLE] (2000). *This we believe: Successful schools for young adolescents*. Westerville, OH: National Middle School Association.
- Carnegie Council on Adolescent Development [CCAD] (1989). *Turning points: Preparing American youth for the 21st century*. Washington, D.C.: Carnegie Corporation.
- Chase, S. (2005). Narrative inquiry: multiple lenses, approaches, voices. In N. K. Denzin and Y. S. Lincoln, (Eds.), *The handbook of qualitative research* (pp. 651-679). Thousand Oaks, CA: SAGE.
- Chirkov, V. I. (2009). A cross-cultural analysis of autonomy in education: A self-determination theory perspective. *Theory and Research in Education*, 7(2), 253–262. doi 10.1177/1477878509104330
- Chirkov, V. I. & Ryan, R. M. (2001). Parent and teacher autonomy-support in Russian and U.S. adolescents: Common effects on well-being and academic motivation. *Journal of Cross-Cultural Psychology*, 32(5), 618–35. doi: 10.1177/0022022101032005006

- Coe, E. J. (1988). *Creating an holistic, developmentally responsive learning environment that empowers the early adolescent*. (Doctoral dissertation). (Order No. 8906565). Retrieved from ProQuest Dissertations & Theses Global. (303644613)
- Coe, E. J. (1996). Montessori and middle school. *Montessori Life*, 8(2), 26–29, 40.
- Cook-Sather, A. (2006). Sound, presence, and power: “Student voice” in educational research and reform. *Curriculum Inquiry*, 36(4), 359–39. doi: 10.1111/j.1467-873X.2006.00363.x
- Creswell, J. W. & Plano-Clark, V. L. (2007). *Designing and conducting mixed methods research*. Thousand Oaks: SAGE Publications.
- Daniels, E. (2011). Creating motivating learning environments: Teachers matter. *Middle School Journal*, 43(2), 32–37. doi: 10.1080/00940771.2011.11461799
- Daniels, E., & Arapostathis, M. (2005). What do they really want? Student voices and motivation research. *Urban Education*, 40(1), 34–59. doi: 10.1177/0042085904270421
- Deci, E. L. & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.
- Deci, E. L. & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268.
- Dee, T. S. (2004). The race connection: Are teachers more effective with students who share their ethnicity? *Education Next*, 4(2), 52–59.
- Dohrmann, K. R., Nishida, T. K., Gartner, A., Lipsky, D. K., & Grimm, K. J. (2007). High school outcomes for students in a public Montessori program. *Journal of Research in Childhood Education*, 22(2), 205–217.
- Erickson, E. H. (1950). *Childhood and society*. New York, NY: Norton.
- Elkind, D. (1994). *Sympathetic understanding of the child: birth to sixteen*. Boston, MA: Allyn and Bacon.
- Enright, M. S., Schaefer, L. V., Schaefer, P. S., & Schaefer, K. A. (2008). Building a just adolescent community. *Montessori Life*, 20(1), 36–42.
- Fielding, M. (2001). Students as radical agents of change. *Journal of Educational Change*, 2(2), 123–141.
- Fielding, M. (2004). Transformative approaches to student voice: Theoretical underpinnings, recalcitrant realities. *British Educational Research Journal*, 30(2), 295–311.
- Gillespie, T. (1994). You start with trust: An interview with Marie M. Dugan. *Montessori People*. *Montessori Life*, 6(2), 18–21.
- Gillison, F., Standage, M. & Skevington, S. (2008). Changes in quality of life and psychological need satisfaction following the transition to secondary school. *British Journal of Educational Psychology*, 78(1): 149–162. doi: 10.1348/000709907X209863
- Glassett, S. (2012, April). *Using self-determination theory in participant selection for narrative inquiry: A methodology for the participant-selection variant of an explanatory sequential design*. Paper presented at the meeting of the American Educational Research Association, Vancouver, Canada.
- Goddard, R. D., Salloum, S. J., & Berebitsky, D. (2009). Trust as a mediator of the relationships between poverty, racial composition, and academic achievement: Evidence from Michigan’s public elementary schools. *Educational Administration Quarterly*, 45(2), 292–311.
- Goddard, R. D., Tschannen-Moran, M., & Hoy, W. K. (2001). A multilevel examination of the distribution and effects of teacher trust in students and parents in urban elementary schools. *The Elementary School Journal*, 102(1), 3–17.
- Hanson, B. E. (2009). *An exploratory study on the effectiveness of Montessori constructs and traditional teaching methodology as change agents to increase academic achievement of elementary Black students*. (Doctoral dissertation). (Order No. 3371732). Retrieved from ProQuest Dissertations & Theses Global. (305164185).
- Hobbs, A. (2008). *Academic achievement: Montessori and non-Montessori private school settings*. (Doctoral dissertation). (Order No. 3309550). Retrieved from ProQuest Dissertations & Theses Global. (304603839).

- IBM Corp. Released 2011. IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.
- Jang, H., Reeve, J., Ryan, R. M., & Kim, A. (2009). Can self-determination theory explain what underlies the productive, satisfying learning experiences of collectivistically oriented Korean students? *Journal of Educational Psychology, 101*(3), 644–661. doi: 10.1037/a0014241
- Kohlberg, L. (1981). *Essays on moral development: The philosophy of moral development*. (Essays on Moral Development, Vol. 1). San Francisco, CA: Harper and Row.
- Kroeger, S., Burton, C., Comarata, A., Combs, C., Hamm, C., Hopkins, R., & Kouche, B. (2004). Student voice and critical reflection: Helping students at risk. *Teaching Exceptional Children, 36*(3), 50–57.
- Kruse, S. (2000). Student voices: A report from focus group data. *National Association of Secondary School Principals Bulletin, 617*, 77–85. doi: 10.1177/019263650008461711
- Louis, K. S. (2007). Trust and improvement in schools. *Journal of Educational Change, 8*, 1–24.
- McCladdie, K. (2006). *A comparison of the effectiveness of the Montessori method of reading instruction and the balanced literacy method for inner city African American students*. (Doctoral dissertation). (Order No. 3213429). Retrieved from ProQuest Dissertations & Theses Global. (304913488).
- Miserandino, M. (1996). Children who do well in school: Individual differences in perceived competence and autonomy in above-average children. *Journal of Educational Psychology, 88*(2), 203–214.
- Mitra, D. L. (2004). The significance of students: Can increasing student voice in schools lead to gains in youth development? *Teachers College Record, 106*(4): 651–688.
- Montessori, M. (1972a). *The discovery of the child*. New York, NY: Ballantine.
- Montessori, M. (1972b). *Education and peace*. Chicago, IL: Regnery.
- Montessori, M. (1973). *From childhood to adolescence; including Erdkinder and the function of the university*. New York, NY: Schocken.
- Montessori, M. (1964). *The Montessori Method*. New York, NY: Schocken.
- Montessori, M. (1967). *To educate the human potential*. Madras, India: Kalakshetra.
- Montessori, M. (1976). *Education for human development: Understanding Montessori*. New York, NY: Schocken.
- Musial, D. (1986). In search of excellence: Applying the principles of trust to education. *Contemporary Education, 58*(1): 42–44.
- National Education Technology Plan. (2010). *Transforming American education learning powered by technology*. (USDE Office of Education Technology). Alexandria, VA: Education Publications Center USDE.
- Niemiec, C. P., Lynch, M. F., Vansteenkiste, M., Bernstein, J., Deci, E. L., & Ryan, R. M. (2006). The antecedents and consequences of autonomous self-regulation for college: A self-determination theory perspective on socialization. *Journal of Adolescence, 29*(6), 761–775.
- Niemiec, C. P., & Ryan, R. M. (2009). Autonomy, competence, and relatedness in the classroom: Applying self-determination theory to educational practice. *Theory and Research in Education, 7*(2), 133–144. doi:10.1177/1477878509104318
- Peng, H. (2009). *A comparison of the achievement test performance of children who attended Montessori schools and those who attended non-Montessori schools in Taiwan*. (Doctoral dissertation). (Order No. 3394721). Retrieved from ProQuest Dissertations & Theses Global. (304900265).
- Rathunde, K., & Csikszentmihalyi, M. (2005a). Middle school students' motivation and quality of experience: A comparison of Montessori and traditional school environment. *American Journal of Education, 111*(3): 341–371.
- Rathunde, K., & Csikszentmihalyi, M. (2005b). The social context of middle school: Teacher, friends, and activities in Montessori and traditional school environments. *The Elementary School Journal, 106*(1): 59–79.
- Roessingh, H. (2006). The teacher is the key: Building trust in ESL high school programs. *The Canadian Modern Language Review, 62*(4), 563–590.

- Rule, A. C., & Kyle, P. B. (2009). Community-building in a diverse setting. *Early Childhood Education Journal*, 36(4), 291–295.
- Ryan, R. M., & Deci, E. L. (2000a). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, 25(1), 54–67.
- Ryan, R. M., & Deci, E. L. (2000b). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68–78.
- Ryan, R. M., & Deci, E. L. (2002). Overview of self-determination theory: an organismic dialectical perspective. In E. L. Deci and R. M. Ryan (Eds.), *Handbook of self-determination research* (pp. 3–33). Rochester, NY: University of Rochester Press.
- Ryan, A. M., & Shim, S. S. (2008). An exploration of young adolescents' social achievement goals and social adjustment in middle school. *Journal of Educational Psychology*, 100(3), 672–687.
- Sahlberg, P. (2007). Education policies for raising student learning: The Finnish approach. *Journal of Educational Policy*, 22(2), 147–171.
- Sheldon, K. M., Abad, N., & Omoile, J. (2009). Testing self-determination theory via Nigerian and Indian adolescents. *International Journal of Behavioral Development*, 33(5), 451–459. doi: 10.1177/0165025409340095
- Shih, S. (2008). The relation of self-determination and achievement goals to Taiwanese eighth graders' behavioral and emotional engagement in schoolwork. *The Elementary School Journal*, 108(4), 313–334.
- Soenens, B., & Vansteekiste, M. (2005). Antecedents and outcomes of self-determination in 3 life domains: The role of parents' and teachers' autonomy support. *Journal of Youth and Adolescence*, 34(6), 589–604.
- Standing, E. M. (1998). *Maria Montessori: Her life and work*. New York, NY: Plume.
- Vansteenkiste, M., Lens, W., & Deci, E. L. (2006). Intrinsic versus extrinsic goal contents in self-determination theory: Another look at the quality of academic motivation. *Educational Psychologist*, 41(1), 19–31.
- Weinberger, E. & McCombs, B. L. (2003). Applying the LCPs to high school education. *Theory into Practice*, 42(2), 117–126. doi: 10.1207/s15430421tip4202_5
- Wentzel, K. R. (1991). Relations between social competence and academic achievement in early adolescence. *Child Development*, 62(5), 1066–1078.