

FAMILY AND CLASSROOM CONTEXT EFFECTS ON STUDENTS' OPTIMAL  
EXPERIENCE

by

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## ABSTRACT

This study explored the combined impact of family and classroom contexts on middle school students' experience of flow and undivided interest while doing schoolwork. Flow is an intrinsically motivating experience triggered by high challenges and skills; undivided interest is an experience characterized by high interest and high goal importance. Approximately 312 middle school students at 10 schools filled out questionnaires and responded to the Experience Sampling Method (ESM), a method that uses programmable watches to signal students multiple times a day in their everyday contexts. Students' questionnaire responses on support and challenge at home were used to classify family contexts as either authoritative or nonauthoritative (i.e., authoritarian, permissive, or uninvolved); students' ESM responses on support and challenge at school were used to classify classroom contexts as authoritative or nonauthoritative. Two different ESM measures ( $N =$  approx. 4000) were also used to assess students' flow and undivided interest while doing schoolwork.

The present study examined four distinct contextual combinations (authoritative family + authoritative classroom; authoritative family + nonauthoritative classroom; nonauthoritative family + authoritative classroom; and nonauthoritative family + nonauthoritative classroom) and proposed two main hypotheses: 1) that students who perceived their family as authoritative would more often perceive their classrooms as authoritative; and 2) students in the authoritative family/authoritative classroom group

would report more flow and undivided interest than students in the other three family-classroom combinations. Results of chi-square analyses and follow-up contrasts revealed support for the first hypothesis: Students who perceived their home environment as authoritative more often reported feeling supported and challenged in their classrooms at school. Partial support was found for the second hypothesis: Male students in the authoritative family/authoritative classroom group reported the most flow and undivided interest. For the sample as a whole, however, immediate conditions in the classroom were the most predictive of students' flow and undivided interest at school. The implications of these findings and plans for further research are discussed.

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## INTRODUCTION

Boredom is a frequently experienced phenomenon to the U.S. teen (Larson & Richards, 1991). Research shows that adolescents experience boredom at least one third of the time they spend in school (Larson & Richards, 1991). Situations in which teens have less control over their learning environment have consistently correlated with teens being bored (Larson & Richards, 1991; Shernoff et al., 2003). These situations – found frequently in the classroom – include passive activities such as listening to a lecture or activities perceived as worthless, such as time spent on assignments whose value could not be tied to life outside the classroom (Larson & Richards, 1991; Marks, 2000).

School classrooms are where much of one's "learning" takes place. For too many students, however, this experience consists simply of the ingesting of information to fulfill the requirements of a predetermined curriculum. Success is then measured by one's capacity to quickly and correctly regurgitate that information during a timed, and often standardized, test. The popularity of this approach can be seen in the United States' establishment of government policy that judges students' educational attainment by their ability to meet established standardized test scores (No Child Left Behind, 04/11; see also CEP, 2007; Dillon & Rotherham, 2007). Stemming from this type of classroom experience is the saying that the biggest difference between an "F" student and an "A" student is that the "A" student forgets what he "learned" *after* the test. In such a classroom, learning is more focused on teacher presentation than student experience and disengaged

students lack the interest and concentration needed to absorb the material being covered (Marks, 2000; Rathunde, 2001).

It is rare to experience this type of programmed curricula outside of the classroom. Life's curriculum often mandates a more self-directed approach. There is no required level of academic attainment—simply opportunities to improve or to regress. These opportunities can easily pass by if one is not giving them proper attention. When an individual is intrinsically motivated to learn something they are interested in (e.g., a hobby or an extracurricular activity that they choose), they fully engage the activity with high concentration. Furthermore, this type of experiential learning is often associated with a "flow" experience, or a highly absorbing state of engagement (Csikszentmihalyi, 1990). Research has shown such optimal, flow experiences are associated with a pattern of growth and lifelong learning (Rathunde & Csikszentmihalyi, 2006).

Given the presumed importance of flow for learning, the present study investigates two key factors that affect students' flow experiences: the quality of parenting and teaching. More specifically, the present study looks at how these two contexts may work together, or at odds, to affect the quality of students' experience.

## LITERATURE REVIEW

### Flow Experience

Flow theory describes a holistic learning experience that results in an individual attaining a level of optimal arousal and engagement that lends itself to learning and skill development. Though flow is a subjective experience, research has demonstrated that the experience has common characteristics across cultures (see Csikszentmihalyi & Csikszentmihalyi, 1988). An individual becomes so involved in what they are doing that they lose track of time and are unaware of fatigue; they focus intently on the activity in the present moment, as extraneous and distracting thoughts are forced away; the individual's actions merge with their awareness—they feel like they are a part of what they are doing— as though they were on autopilot. This merging is especially linked to the fact that there is a clear and obtainable goal, or challenge, the individual is working toward, and they are receiving clear feedback about how they are progressing toward that goal. This kind of experience is intrinsically rewarding and feeds into the desire to find new challenges and perfect new skills in order to return to that flow state (Csikszentmihalyi, Rathunde & Whalen, 1997).

Flow experiences are not limited to life outside the classroom. In fact, research has shown the positive effects of flow in school contexts (Rathunde, 2005; Schweinle, Turner & Meyer, 2006, 2008; Shernoff, Csikszentmihalyi, Schneider & Shernoff, 2003). Students from elementary school (Schweinle et al., 2006), junior high (Rathunde, 2005),

and high school (Schweinle et al., 2008; Shernoff et al., 2003) have reported experiencing flow in their school environments. Such reports, in turn, are positively associated with academic achievement and talent development (Csikszentmihalyi et al., 1997).

### The Skill/Challenge Balance of Flow

Flow is more likely to occur when a person's skills and challenges are high and in balance. Skill can be defined as a habitual or practiced response. Mental, emotional, and/or physical skills are the practiced actions used to respond to challenges. Challenges arise from interacting with the environment and can have many sources, from a math homework assignment, to making a sports team, or reading a map. The more challenges experienced and resolved in a particular domain, the more the response is practiced and the more complex a skill becomes (Rathunde & Csikszentmihalyi, 2006). This interplay of skill and challenge can also be affected by a person's self-regulation as they come to recognize states of boredom or anxiety and attempt to counteract them (Rathunde, 2001; Rathunde & Csikszentmihalyi, 2006).

The imbalance of high skill and low challenge often leads to boredom, a common experience in many school classrooms (Larson & Richards, 1991). This boredom can lead to a decrease in the intrinsic motivation and concentration necessary for successful learning (Larson, 2000). Research shows that even when bored, students can accomplish required tasks. However, their engagement is low and lacks the positive internal feedback that will bring the student voluntarily back to the task (Bassi, Steca, Delle Fave & Caprara, 2007). Excessive boredom thus requires greater *extrinsic motivation* (e.g., outside rewards or recognition) to complete a task (Fullagar & Mills, 2008). Voluntary

and intrinsically motivated activities are a greater source of flow than are extrinsically motivated activities (Larson, 2000; Mesurado, 2010).

Even with feelings of boredom, the opportunity for optimal experience is still possible. For example, a teenager skilled in math might feel bored because his assigned homework problems/challenges are well below his skill level. Two different opportunities to alleviate boredom - one positive and one negative - might arise from this imbalance. The teenager could seek a higher challenge through self-discovery (e.g., looking ahead a couple chapters) or by asking a parent or teacher for a new problem. On the other hand, the teen could seek distraction, like turning on the television and watching a show in an attempt to become more engaged. Both scenarios overcome boredom, but only the former provides the opportunity to integrate new skills and experience flow.

The other imbalance that can occur is when perceived challenge exceeds perceived skill. This often causes an individual to feel anxiety (Rathunde & Csikszentihalyi, 2006). Continuing with the example from above, the same teenager might come home with homework well above his skill level. Again there are two contrasting opportunities to act. First, the teen might communicate to his parent that he feels overwhelmed and needs help. The parent and teen could then work together to help build new skills. If the anxiety is not too great, the teen might also alleviate it on his or her own by rereading the chapter in the math textbook. In contrast, the teen could seek to escape anxiety by doing something familiar and easy to accomplish.

### The Context of Flow Experience

With the different opportunities each skill/challenge imbalance presents, the context of the experience can greatly affect optimal arousal and flow (Rathunde, 2001). An individual needs an environment in which they feel challenged and where there are clear expectations and goals to achieve. But that is not enough. Engaging a challenge may result in failure before full success is achieved. Therefore, crucial to the context that facilitates flow is the feeling that one can fail safely—a feeling of love and support that enables the individual to step to the edge and reach beyond their current capacity. This feeling of support and safety also enables an individual to explore—or differentiate—their environment to challenge themselves when experiencing feelings of boredom or fooling, a state of feeling good without focusing on anything important, or passive leisure (Rathunde, 2001). A context that facilitates flow, in other words, is one that helps a child stay in a zone of proximal development (Vygotsky, 1986). The present study looks at two contexts that are important for student experience--the family and the classroom.

### The Family Context

The interaction of challenge and support in the family has been studied extensively by family researchers. For example, Baumrind describes four main family contexts: 1) uninvolved parenting stemming from low responsiveness (or support) and low demandingness (or challenge); 2) permissive/indulgent parenting resulting from high support with low challenge; 3) high challenge and low support leading to authoritarian parenting; and 4) authoritative parenting due to an environment of high support coupled with high challenge and expectation (Baumrind, 1966, 1971).

Research shows a positive relationship between authoritative family contexts and academic success. Steinberg has found in multiple studies that students coming from a home where authoritative parenting is the norm are more likely to succeed in school. His research has demonstrated that such individuals show higher levels of psychosocial maturity, receive more encouragement toward academic success, have parents that are more involved in their academic lives, and are more self-reliant in accomplishing academic tasks (Steinberg, Elmen & Mounts, 1989; Steinberg, Mounts, Lamborn & Dornbusch, 1991; Steinberg, Lamborn, Dornbusch & Darling, 1992). Although many studies have looked at positive outcomes associated with supportive and challenging parenting and home environments, only a few have explored parenting from an experiential perspective.

Different experiential states result from various skill-challenge interactions. These interactions can be influenced by the characteristics of the family. Research suggests that teens more often experience: 1) apathy, in families they perceive as lacking support and challenge; 2) relaxation or boredom, in high support/low challenge family; 3) anxiety or drudgery in families perceived as high in challenge and low in support; and 4) flow in families where teens feel both supported and challenged (Schwienle et al., 2008; see also Rathunde, 2001, 2006).

Flow is more likely in a supportive and challenging context because such balanced/authoritative environments enable an individual to more effectively and fully use their attention. Two major modes of attention have often been identified by theorists interested in attention: One is immediate and spontaneous and the other is more voluntary and selective (James, 1890). James thought that both modes needed to work

harmoniously to optimize experience and learning. John Dewey (1913) suggested the same. High levels of support in the family provide a stable and safe environment that enables a child to immediately attend to and engage in spontaneous exploration without extraneous anxiety about their basic needs. The immediate attention can discover challenges that motivate skill development (Csikszentmihalyi et al., 1997; Rathunde, 2001).

However, if unstructured, immediate attention can mobilize quickly from one thing to another, so in order to contribute to optimal experience, more active, voluntary attention must also be brought to a task. A family environment where high challenge is perceived often provides the model for a child to develop this more selective interest. Within this challenging environment, parents' example and expectations—through their own self-directed behavior and their established family rules—encourage a child to focus his or her attention in ways that are organized and goal-oriented (Rathunde, 2001; Rathunde & Csikszentmihalyi, 2006). Therefore, in a supportive and challenging environment, optimal learning is more likely to take place because both spontaneous and selective patterns of attention can be used to engage activities and regulate arousal.

When high support and high challenge are combined in a family context over time, children have many opportunities to use their attention effectively. Therefore, they are more likely to develop *habits of self-regulation* that are presumably carried over to environments outside the home (e.g., school), making it more likely that the child will experience flow within these contexts (Rathunde, 1996; Rathunde & Csikszentmihalyi, 2006). Such a perspective is also consistent with attachment theory, which suggests that



an internal working model that affects self-regulation and the perception of other contexts is built up by experience in the family (Crittenden, 1990; Zimmermann, 1999).

### The Classroom Context

Similar to the family, the classroom is an arena where adolescent experience can be affected by the balance of support and challenge. Parallels between family and classroom can be drawn in relation to the roles of parent and teacher. The effectiveness of teachers who administer a classroom in an authoritative manner is, in fact, an emerging area of study (see Wentzel, 2002).

In her research on teachers and their classroom environments, Kathryn Wentzel (2002) measured different teaching dimensions that contribute to an authoritative teacher and classroom. She evaluated the effects of these dimensions on students' interest in class and their mastery – elements essential to experience flow. What she found was that fairness, a characteristic of support in the family context previously discussed, and high expectations, a construct similar to high challenge, were the greatest positive contributors to students' abilities to develop interest in the class and achieve relevant goals. Others have shown similar positive results, and more flow experience, associated with teachers that establish a supportive and challenging classroom setting (Rathunde & Csikszentmihalyi, 2005; Schweinle et al., 2006, 2008; Shernoff et al., 2003; Wentzel, 1998). In these studies, students were more likely to experience flow when they were allowed some freedom and self-direction (high support) in a structured and goal-oriented environment (high challenge), e.g., when involved in group work or a class discussion instead of strictly listening to a lecture presentation. Generalizing from the above family

descriptions, such classroom environments could be labeled authoritative. The present study explores how specific combinations of home and classroom contexts may positively or negatively impact students' quality of experience.

### The Family/Classroom Mesosystem and Flow

Taking the perspective of Urie Bronfenbrenner's bioecological model of development, the classroom and home experiences of any adolescent combine to form an interactive mesosystem in which the teen operates. In other words, each microsystem, home or classroom, is influenced by the other (Bronfenbrenner & Morris, 2006), and students' quality of experience is likely influenced by characteristics of both. Wentzel's research (1998) suggests that these sources of social contexts have a "primarily additive rather than compensatory" relationship with one another. Both environments are necessary to increase the effect on elements necessary for flow experience. For example, she found that goal-oriented performance was more positively affected by the home environment and mastery by the school environment than vice versa (1998). The two environments, working together, provide an additive effect in a student's flow experience.

Research has shown the positive effect the authoritative family context has on the flow experience in the academic setting (Csikszentmihalyi et al., 1997; Rathunde, 1996) and the positive influence a teacher can have on the flow in their classroom (Rathunde & Csikszentmihalyi, 2005; Schweinle et al., 2008; Shernoff et al., 2003; Wentzel, 1998). These are the influences that seem to add on to each other to enhance a child's experience in school. However, the present study asks: *How much* of an influence does a classroom environment really have? In other words, if a student comes into the classroom from an

authoritative family, presumably with established self-regulative habits, does it influence the way they perceive the school environment? How essential is an authoritative classroom environment for the experience of flow for students who already have authoritative families? Conversely, if a student enters the classroom coming from a nonauthoritative (permissive, authoritarian, or uninvolved) home environment, how much impact does the classroom environment have on someone less prepared to experience flow?

Research has been done on each element individually. However, the *relationship* between home and classroom impact on flow experience has not been extensively investigated. Since there is a lack of theoretical and empirical work to make specific predictions about the interaction of home and classroom (i.e., the combination of 4 home types and 4 classroom types would yield 16 different student environments that may affect experience at school), the present study adopts an exploratory perspective and investigates a few relevant combinations. More specifically, to reduce complexity and facilitate the analysis of important home/school combinations, the present study will classify home and school environments into authoritative (high support and challenge) vs. nonauthoritative types (i.e., combining the permissive, authoritarian, and uninvolved types). This approach yields 4 distinct environments that students may encounter: *Group 1* - authoritative home and authoritative classroom; *Group 2* - authoritative home and nonauthoritative classroom; *Group 3* - nonauthoritative home and authoritative classroom; and finally, *Group 4* - nonauthoritative home and nonauthoritative classroom.

Using a sample population of junior high school students, it is predicted that: 1) students who perceive their families as authoritative are more likely to perceive

authoritative conditions in the classroom; and 2) the authoritative (home)/authoritative (classroom) combination will lead to the highest amount of flow experience and undivided interest for students. Contrasts between the four groups are expected to show: 1) Students in Group 1 will report more flow than students in the other groups (i.e., students from an authoritative home in a classroom with an authoritative teacher will experience the highest amounts of flow and undivided interest), and 2) students in Group 2 will report more flow than students in Group 4 (i.e., students from an authoritative home will experience flow and undivided interest more than those from nonauthoritative homes, especially in nonauthoritative classrooms). Analyses will evaluate these predictions looking first at the overall group, and then by breaking down the overall group by gender and age/grade level.

Understanding the joint contributions of home and classroom to students' quality of experience could make valuable contributions to understanding how to increase the likelihood of socializing lifelong learners. It might contribute to the fine-tuning of classroom environments in ways that promote the development of individuals who can more successfully encounter and adapt to the future challenges facing their families and communities.

## METHOD

### Schools and Students

Montessori schools and students participated in this study. Montessori pedagogy differs from that of traditional schools in that it is more aligned with optimal experience theory. In other words, teachers emphasize intrinsic motivation and task choice, but with the discipline necessary to provide structure within which a student's interest is encouraged to operate and interact with the environment (Rambush, 2010). Using Montessori schools in this study, therefore, increases the probability that students will sometimes encounter classroom contexts that enhance the experience of flow, facilitating hypothesis testing about the interaction of authoritative classrooms with various family types.

Data were collected at 10 Montessori schools from different states; 8 were located in suburban environments and 2 in rural areas, with all the schools being private except one. From these 10 schools, 312 sixth- through ninth-graders participated in the study. European Americans comprised 73% of the sample, 7.2% were Asian Americans, 7.4% were African American, 5.8% were Latino, and 6.6% of students were from other ethnic backgrounds. These 312 students contributed approximately 4000 Experience Sampling Method (ESM) observations while students were productively engaged at schools. It is these ESM signals – combined from data used for two other studies looking at flow

within middle school environments (see Rathunde, 2010; Rathunde & Csikszentmihalyi, 2005) – that comprise the main data for analysis in this study.

### Procedure

*Data collection.* At each school a member of the research team held an introductory meeting with the participating students and explained the study, distributed questionnaires, and provided the necessary materials for the Experience Sampling Method (ESM) (i.e., students were given watches programmed to signal the students approximately 8 times per day between 7:30 a.m. and 10:30 p.m. for 7 consecutive days for the 2005 data (see Csikszentmihalyi and Larson, 1987). For the 2010 data, students were only signaled during school hours. Students were also taught how to respond to the signals--by filling out a short response form, and they had a chance to practice filling out the ESM forms. After introducing the ESM, students filled out a questionnaire that contained important background and demographic measures. These measures contained the questionnaire on family context used to determine whether students came from authoritative or nonauthoritative families.

*Home and classroom environments.* To determine the type of home environment, items 9.1-9.4 from the background questionnaire were used (see Appendix A). Support and challenge were measured by asking students to indicate whether or not they experienced certain things at home. For example, to measure support, students either agreed or disagreed with statements like, "In my family I feel appreciated for who I am" or "We enjoy having dinner together and talking." Example of challenge measures include "In my family I am expected to do my best" or "We express our opinions about

current events, even when they differ." Sixteen items were used to measure perceived support ( $\alpha = .81$ ) and 16 items to measure challenge ( $\alpha = .74$ ). [For additional reliability information on the questionnaire see Rathunde, 2001.]

Using mean splits on these two variables, four family types were first identified: high support/high challenge, high support/low challenge, low support/high challenge, and low support/low challenge. Support and challenge are similar to what Baumrind labeled "responsiveness" and "demandingness" (1966, 1971). Using Baumrind's terminology, student perceptions of high support and high challenge were labeled as authoritative, high support and low challenge were permissive, low support and high challenge were authoritarian, and low support and low challenge were uninvolved. Since this study was concerned only with authoritative vs. nonauthoritative families, these four family types were recoded into two groups (i.e., the permissive, authoritarian, and uninvolved types were combined).

Two items from the ESM were used to determine the perceived classroom environment. For times when students were in class and working on academic subjects, each student answered "YES" or "NO" to the questions: "Right now in this place--do you feel: Supported by others to be yourself and do the things you like to do?" and "Challenged by others to be at your best and show your full potential?" (see Appendix B). ESM responses with two yes answers were indicative of an authoritative classroom; yes on support and no on challenge was considered permissive; no on support and yes on challenge was labeled authoritarian; and two no's denoted an uninvolved classroom. Again, since the present study was only interested in authoritative vs. nonauthoritative

classrooms, these four classroom types were recoded into two groups (i.e., yes support and yes challenge vs. all other combinations).

*Creation of the combined family/classroom types.* Once the families and classrooms were categorized into authoritative vs. nonauthoritative types, the final combined groups were created as follows: Group 1: authoritative family/authoritative classroom ( $N= 794$  ESM observations); Group 2: Authoritative family/nonauthoritative classroom ( $N= 815$  ESM observations); Group 3: nonauthoritative family/authoritative classroom ( $N= 833$  ESM observations); Group 4: nonauthoritative family/nonauthoritative classroom ( $N= 1519$  ESM observations).

#### Quality of Experience Measures

*ESM signal selection.* To ensure students' experiences *in the classroom* were captured, ESM responses were selected based on student response to the items: "Where were you as you were beeped?" and "What was the main thing you were doing?" All the signals were selected for times when students were in their classrooms and doing academic activities. Academic activities included responses like listening to the teacher, class discussion or presentation, doing homework, taking tests, or participating in class activities, etc. Only students who responded to at least 15 signals for the entire week were included for analysis. Such a cutoff point helps ensure the validity of the ESM measures and is typical of other ESM studies (Csikszentmihalyi et al., 1997).

*Flow experience.* Flow was computed using two variables: "Challenges of the activity" and "skills in the activity." Mean skill and challenge scores were calculated for the 4000 ESM signals when students were productively engaged at schools. When any



particular signal indicated above average skill and challenge, that signal was designated as a flow signal. Due to the joint focus on families and classrooms in this study, the calculation of flow deviates slightly from what is typical of other ESM studies (see Csikszentmihalyi et al., 1997). Typically, individual flow signals are aggregated to produce one flow percentage per individual student (e.g., if a student responded to 10 signals in class, and 5 were above average skill and challenge, that student's amount of flow was 50%). Since the measure of authoritative classrooms is on the signal level (i.e., one student moves between classrooms and teachers and evaluates each context as authoritative or nonauthoritative), individual percentages of flow served no purpose in this study.

*Undivided interest.* Another more experientially based way to measure flow is to identify times when students reported being intrinsically interested at the moment and focused on goals at the same time, a variable referred to here as "undivided interest." Undivided interest is an alternative way to measure a flow experience by directly assessing whether students are affectively and cognitively engaged at the same time (Rathunde, 2001; Rathunde & Csikszentmihalyi, 2006). Scores from two single items on the ESM form -- interest and importance -- were used to measure undivided interest. The former question asked: Was this activity interesting (0=not at all; 9 = very much)? The latter question asked: How important was (this activity) in relation to your future goals (0=not at all; 9 = very much)? Mean scores for each item were calculated for the approximately 4000 times when students were engaged with productive activities at school. Each ESM signal that was above average on both variables was categorized as an instance of undivided interest. In other words, this variable was calculated the same way

as the flow variable, but using items that were more directly descriptive of subjective experience. (see Appendix B).

The compound nature of both the flow and undivided interest measures (i.e., using the synchrony of two variables) is intended to capture the complex and multifaceted state of experience. Fully engaging, optimal experiences have been shown to include both immediacy of affect and a prolonged focus and concentration. It is difficult for any single variable to accurately capture this type of experience.

*Background variables.* Parental education, gender, and ethnicity can affect parenting and student engagement in the classroom (Bingham & Okagaki, 2012; Marks, 2000). Therefore, these three variables were selected as background variables to account for in the analyses. Gender and ethnicity were determined from single items on the student background questionnaires. Parent education was measured on a 7-point scale. (1= did not finish H.S., 2 = graduated from H.S., 3 = attended 2-year school; 4 = went to college (did not complete degree), 5 = graduated from college, 6 = master's degree or equivalent, 7 = Ph.D., M.D., or other professional degree). When information was available for both parents, parental education was reported as the average score between both parents. For the less than 10% of students who did not provide information about either parent, parental education information came from parental questionnaires (if available) or census track information (estimated based on the SES of the community).

### Statistical Analysis

The main analyses proceeded in four steps. First, to assess whether parental education influenced the students' perceptions of their families and classrooms, a oneway

ANOVA was performed: The independent variable was the four family/school groups; the dependent variable was parental education. Second, to assess whether family type affected students' perceptions of their classrooms, a Pearson Chi-Square test compared family type (authoritative vs. nonauthoritative) with classroom type (authoritative vs. nonauthoritative). Third, to assess whether the family/school groups affected flow experience in schoolwork, a Chi-Square analysis compared the four groups across the two flow categories (i.e., yes or no reporting flow). This analysis was also broken down by gender, and then student age, in order to assess whether the pattern of results changed. Finally, the fourth step in the analysis again used a Chi-Square and looked at the combined family/school groups and the two undivided interest categories (i.e., yes or no). As with the previous flow analysis, the Chi-Square tests were repeated to take a more detailed look at possible gender and/or age differences. Finally, all the Chi-Square analyses described above assessed whether any of the column percentages differed from each other at the .05 level. A Bonferroni correction was applied to compensate for the number of column comparisons (Larzelere & Mulaik, 1977).

## RESULTS

### Parent Education and Family Influences on Students' Perceptions of the Classroom

Results of the oneway ANOVA comparing the levels of parental education across the four family/classroom groups showed that parental education was similar across the groups  $F(3, 339) = 1.37, p = .25$ ; the post hoc tests using the Scheffe criterion for significance showed no differences between the four groups.

The findings in Table 1 show the results from the Chi-Square tests comparing family type with classroom type. As predicted, the findings showed that students coming from an authoritative family were more likely than expected by chance to identify their classrooms as authoritative,  $X^2(1, N=3961) = 76.61, p = .000$ . This result was significant whether the student was male:  $X^2(1, N=1684) = 37.44, p = .000$ ; female:  $X^2(1, N=2240) = 38.91, p = .000$ ; younger (grades 6-7):  $X^2(1, N=1683) = 24.94, p = .000$ ; or older (grades 8-9):  $X^2(1, N=2259) = 40.61, p = .000$  (see Table 2). The numbers in parentheses are the number of responses above or below what is expected by chance.

**Table 1.** Crosstabulation of Family Type and Classroom Type

<i>Authoritative Family</i>	<u>Authoritative Classroom</u>		$X^2$
	Yes	No	
Yes	794 (133.1) 48.8%	815 (-133.1) 34.9%	76.61*
No	833 (-133.1) 51.2%	1519 (133.1) 65.1%	

Note \* =  $p \leq .000$

**Table 2.** Crosstabulations of Family Type and Classroom Type by Gender and Age

Male

<i>Authoritative Family</i>	<u>Authoritative Classroom</u>		$X^2$
	Yes	No	
Yes	324 (60) 50%	362 (-60) 34.9%	37.44*

Female

<i>Authoritative Family</i>	<u>Authoritative Classroom</u>		$X^2$
	Yes	No	
Yes	461 (71.7) 47.5%	438 (-71.7) 34.5%	38.91*

6/7 Grade

<i>Authoritative Family</i>	<u>Authoritative Classroom</u>		$X^2$
	Yes	No	
Yes	259 (46.9) 42.8%	331 (-46.9) 30.7%	24.94*

8/9 Grade

<i>Authoritative Family</i>	<u>Authoritative Classroom</u>		$X^2$
	Yes	No	
Yes	521 (74.8) 51.7%	479 (-74.8) 38.3%	40.61*

Note \* =  $p \leq .000$

The Combination of Family Type and Classroom Type  
and Optimal Experience

The next several analyses compared the four family/classroom groups on students' reports of optimal experience while productively engaged at school. The first analyses compare the four groups (i.e., Group 1 (authoritative family/authoritative classroom); Group 2 (authoritative family/nonauthoritative classroom); Group 3 (nonauthoritative family/authoritative classroom); and Group 4 (nonauthoritative family/nonauthoritative classroom)) on the number of flow signals they reported. The next set of analyses look at the same groups and their reports of undivided interest in schoolwork.

*Flow experience.* Table 3 summarizes the chi-square analyses performed comparing the family/classroom groups on students' reports of flow. The overall analysis shows that the groups reported significantly different amounts of flow  $\chi^2(3, N = 3961) = 103.65, p = .000$ . The observed counts of high skill/high challenge (flow) beeps were higher than expected in Groups 1 and 3; the z-tests comparing column percentages (with Bonferroni corrections) indicated that Groups 1 and 3 differed ( $p < .05$ ) from Groups 2 and 4. Common between these two group-pairings was the classroom context: Groups 1 and 3 contain students who perceived their classrooms -- at the moment of the ESM signal -- as authoritative, or with high levels of support and challenge; those in Groups 2 and 4 saw their classrooms as nonauthoritative.

**Table 3.** *Crosstabulation of Flow Mean and Family Type*

<i>Flow</i>	<u>Family Type</u>				$X^2$
	Group 1	Group 2	Group 3	Group 4	
Yes	338 <sub>a</sub> (55.2) 42.6%	244 <sub>b</sub> (-46.3) 29.9%	390 <sub>a</sub> (93.3) 46.8%	439 <sub>b</sub> (-102.1) 28.9%	103.65*
No	456 <sub>a</sub> (-55.2) 57.4%	571 <sub>b</sub> (46.3) 70.1%	443 <sub>a</sub> (-93.3) 53.2%	1080 <sub>b</sub> (102.1) 71.1%	

Note \* =  $p \leq .000$

Each subscript letter denotes a subset of Group categories whose column proportions do not differ significantly from each other at the .05 level.

Table 4 repeats the same Chi-Square analyses of flow outcomes separately for males/females and younger (6<sup>th</sup>/7<sup>th</sup>)/older students (8<sup>th</sup>/9<sup>th</sup>). Male students in the four family/classroom groups reported different amounts of flow  $X^2 (3, N = 1684) = 54.10, p = .000$ ; so did female students  $X^2 (3, N = 2240) = 76.58, p = .000$ ; so did 6<sup>th</sup>- and 7<sup>th</sup>-grade students  $X^2 (3, N = 1683) = 55.86, p = .000$ ; and so did 8<sup>th</sup>- and 9<sup>th</sup>-grade students  $X^2 (3, N = 2259) = 67.23, p = .000$ . For male students, the  $z$ -tests comparing column percentages indicated that Group 1 reported the highest percentage of flow beeps (53.4%) and this percentage differed ( $p < .05$ ) from all of the other family/school groups. The next highest percentage of flow occurred in Group 3, which differed ( $p < .05$ ) from Groups 2 and 4. The pattern for female students was different than for male students. The  $z$ -tests comparing column percentages indicated that Group 3 reported the highest percentage of flow beeps (48.5%) and this percentage differed ( $p < .05$ ) from all of the other family/school groups. The next highest percentage of flow occurred in Group 1, which differed ( $p < .05$ ) from Groups 2 and 4. The pattern for younger students resembled the results for male students: the  $z$ -tests indicated that Group 1 reported the highest

**Table 4.** Crosstabulations of Flow Mean and Family Type by Gender and Age

Male					
	Family Type				
Flow	Group 1	Group 2	Group 3	Group 4	X <sup>2</sup>
Yes	173 <sub>a</sub> (48.7) 53.4%	115 <sub>b</sub> (-23.9) 31.8%	143 <sub>c</sub> (18.7) 44.1%	215 <sub>b</sub> (-43.6) 31.9%	54.10*
Female					
	Family Type				
Flow	Group 1	Group 2	Group 3	Group 4	X <sup>2</sup>
Yes	159 <sub>a</sub> (5.1) 34.5%	120 <sub>b</sub> (-26.3) 27.4%	247 <sub>c</sub> (77) 48.5%	222 <sub>b</sub> (-55.8) 26.7%	76.58*
6/7 Grade					
	Family Type				
Flow	Group 1	Group 2	Group 3	Group 4	X <sup>2</sup>
Yes	129 <sub>a</sub> (35.1) 49.8%	120 <sub>b</sub> (0) 36.3%	155 <sub>a</sub> (29.6) 44.8%	206 <sub>b</sub> (-64.7) 27.6%	55.86*
8/9 Grade					
	Family Type				
Flow	Group 1	Group 2	Group 3	Group 4	X <sup>2</sup>
Yes	203 <sub>a</sub> (19.9) 39.0%	123 <sub>b</sub> (-45.4) 25.7%	235 <sub>c</sub> (63.8) 48.3%	233 <sub>b</sub> (-38.3) 30.2%	67.23*

Note \* =  $p \leq .000$

Each subscript letter denotes a subset of Group categories whose column proportions do not differ significantly from each other at the .05 level.



percentage of flow beeps (49.8%) and this percentage differed ( $p < .05$ ) from Groups 2 and 4. The pattern of results for older students resembled the results for females: the  $z$ -tests indicated that Group 3 reported the highest percentage of flow beeps (48.3%) and this percentage differed ( $p < .05$ ) from Groups 2 and 4.

*Undivided interest.* Table 5 reports the results of the Chi-Square tests comparing the four family/classroom groups on reports of undivided interest, a more direct experiential measure of joint affective/cognitive involvement. The overall analysis shows that the groups reported significantly different amounts of flow  $X^2(3, N = 3961) = 94.09$ ,  $p = .000$ . The observed counts of high skill/high challenge (flow) beeps were higher than expected in Groups 1 and 3; the  $z$ -tests comparing column percentages (with Bonferroni corrections) indicated that Groups 1 and 3 differed ( $p < .05$ ) from Groups 2 and 4. Common between these two group-pairings was the classroom context: Groups 1 and 3 contain students who perceived their classrooms -- at the moment of the ESM signal -- as authoritative, or with high levels of support and challenge; those in Groups 2 and 4 saw

**Table 5.** Crosstabulation of Undivided Interest and Family Type

<i>Undivided Interest</i>	<u>Family Type</u>				$X^2$
	Group 1	Group 2	Group 3	Group 4	
Yes	320 <sub>a</sub> (56.8) 40.3%	259 <sub>b</sub> (-11.2) 31.8%	352 <sub>a</sub> (75.9) 42.3%	382 <sub>c</sub> (-121.5) 25.1%	94.09*
No	474 <sub>a</sub> (-56.8) 59.7%	556 <sub>b</sub> (11.2) 68.2%	481 <sub>a</sub> (-75.9) 57.7%	1137 <sub>c</sub> (121.5) 74.9%	

Note \* =  $p \leq .000$

Each subscript letter denotes a subset of Group categories whose column proportions do not differ significantly from each other at the .05 level.

their classrooms as nonauthoritative.

Table 6 repeats the same Chi-Square analyses of flow outcomes separately for males/females and younger (6<sup>th</sup>/7<sup>th</sup>)/older students (8<sup>th</sup>/9<sup>th</sup>). Male students in the four family/classroom groups reported different amounts of flow  $X^2(3, N = 1684) = 63.94, p = .000$ ; so did female students  $X^2(3, N = 2240) = 56.38, p = .000$ ; so did 6<sup>th</sup>- and 7<sup>th</sup>-grade students  $X^2(3, N = 1683) = 34.48, p = .000$ ; and so did 8<sup>th</sup>- and 9<sup>th</sup>-grade students  $X^2(3, N = 2259) = 69.07, p = .000$ . For male students, the *z*-tests comparing column percentages indicated that Group 1 reported the highest percentage of flow beeps (52.8%) and this percentage differed ( $p < .05$ ) from all of the other family/school groups. The next highest percentage of flow occurred in Group 3, which differed ( $p < .05$ ) from Group 4. The pattern for female students was different than for male students. The *z*-tests comparing column percentages indicated that Group 3 reported the highest percentage of flow beeps (42.4%) and this percentage differed ( $p < .05$ ) from all of the other family/school groups. The next highest amount of flow occurred in Group 1, which differed ( $p < .05$ ) from Groups 2 and 4. For younger students the *z*-tests indicated that Groups 1, 2, and 3 reported the highest percentage of flow beeps (38.6%, 37.2%, and 42.5%) and these percentages differed ( $p < .05$ ) from Group 4. The pattern of results for older students resembled the results for females: the *z*-tests indicated that Groups 1 and 3 reported the highest percentages of flow beeps (41.7% and 42.1%) and these percentages differed ( $p < .05$ ) from Groups 2 and 4.

**Table 6.** Crosstabulations of Undivided Interest and Family Type by Gender and Age

Male					
<i>Undivided Interest</i>	<u>Family Type</u>				X <sup>2</sup>
	Group 1	Group 2	Group 3	Group 4	
Yes	171 <sub>a</sub> (51.3) 52.8%	129 <sub>b</sub> (-4.7) 35.6%	136 <sub>b</sub> (16.3) 42.0%	186 <sub>c</sub> (-62.9) 27.6%	63.94*
Female					
<i>Undivided Interest</i>	<u>Family Type</u>				X <sup>2</sup>
	Group 1	Group 2	Group 3	Group 4	
Yes	147 <sub>a</sub> (7.5) 31.9%	120 <sub>a,b</sub> (-12.6) 27.4%	216 <sub>c</sub> (61.9) 42.4%	195 <sub>b</sub> (-56.8) 23.4%	56.38*
6/7 Grade					
<i>Undivided Interest</i>	<u>Family Type</u>				X <sup>2</sup>
	Group 1	Group 2	Group 3	Group 4	
Yes	100 <sub>a</sub> (12.7) 38.6%	123 <sub>a</sub> (11.5) 37.2%	147 <sub>a</sub> (30.4) 42.5%	197 <sub>b</sub> (-54.7) 26.4%	34.48*
8/9 Grade					
<i>Undivided Interest</i>	<u>Family Type</u>				X <sup>2</sup>
	Group 1	Group 2	Group 3	Group 4	
Yes	217 <sub>a</sub> (45.6) 41.7%	136 <sub>b</sub> (-21.5) 28.4%	205 <sub>a</sub> (44.8) 42.1%	185 <sub>b</sub> (-68.9) 24.0%	69.07*

Note \* =  $p \leq .000$

Each subscript letter denotes a subset of Group categories whose column proportions do not differ significantly from each other at the .05 level.

## DISCUSSION

Hypothesis 1 was based on attachment theory and other parenting models; it predicted that students who perceive their families as authoritative would be more likely to perceive authoritative conditions in the classroom. This finding was consistent across age and gender. Attachment theory describes how experience in the parent-child relationship leads to the development of internal working models through which one perceives relationships in other contexts (Crittenden, 1990; Zimmermann, 1999). One plausible explanation of the findings is that forming an authoritative working model in an authoritative home leads to an expectation of an authoritative environment at school. It may be that students were better able to perceive supportive and challenging interactions based on their own experience in the home. Or perhaps the students gave teachers the benefit of the doubt, even when conditions were not authoritative, because of their positive expectations about the adult mentors in their lives. Attachment theory would also suggest that students may have internalized some of the supportive and challenging messages they received at home and were capable of self-regulating their reactions to conditions in the classroom. In other words, even in the absence of overt support, students from authoritative homes may have been able to feel a sense of calm in the face of stress felt in the classroom.

Only partial support was found for hypothesis 2 stating that the authoritative (home)/authoritative (classroom) combination would lead to the highest amount of flow

experience and undivided interest for students. Male students experienced flow and undivided interest at significantly higher levels when both family and classroom were perceived as authoritative. A possible reason for the strong gender difference could be found in research showing females' greater attunement to their social surroundings in Junior High (Johnson, Crosnoe & Thaden, 2006; Smerdon, 1999). Female students' openness and ability to read social cues may make them especially sensitive to teachers' implicit and explicit behaviors in the classroom, even overriding the expectations they bring from their experience in the family. Males are also strongly influenced by their perceptions of teachers; however, they seem to thrive when their perceptions of home and school are in synchrony. Since none of the classroom measures provide an objective view of support and challenge, it is impossible to know how accurately males and females are interpreting the actions of their teachers. It is interesting to note, however, if females are more accurate observers of classroom social cues, it may, at times, make them more vulnerable to nonoptimal conditions in the classroom. At other times, however, they may be better able to take advantage of authoritative conditions. More research is needed on this interesting gender difference.

Differences existed between older and younger students as well. Younger students' reports showed that both the classroom and the family have a significant impact on optimal classroom experience. Looking particularly at their reporting of undivided interest, it can be seen that as long as some authoritative element is present, undivided interest is more likely to occur. Older students seemed to resemble the pattern of experience found in females, particularly on the flow measure, and reported significantly greater effects for the authoritative classrooms. One explanation for this could be older

students' increased independence from family (Bulcroft, Carmody & Bulcroft, 1996). Perhaps older students seek to exercise their greater independence by focusing on their own actions within their immediate environment. Evaluating students in high school to see if this pattern of greater classroom impact continues would be enlightening.

The results in the present study make a strong case for the importance of how students perceive their teachers; teachers seen as supportive and challenging have a strong impact on student experience. However, the importance of the family is also illustrated by the results. The more experiential measure of undivided interest suggests that students in Group 2 reported a significant positive difference in their experience of undivided interest than those in Group 4. In other words, the findings in Tables 5 and 6 suggest that an authoritative family environment helps create a buffer for students who find themselves in a nonauthoritative environment. When students perceived their classrooms as nonauthoritative, coming from an authoritative family allowed them to still feel interested in the moment and focused on goals that were important to them.

### Limitations

A few limitations of this study are worth addressing. First, the measures of family context and school context were very different. The family measure was a global assessment of support and challenge in the context as a whole. The measure of the classroom environment used the ESM to take an immediate snapshot of support and challenge in the classroom. For future research, it would be worthwhile to have similar measures in both contexts (e.g., an immediate and a global measure of support and challenge in the home and at school). Second, it would also be interesting to utilize a

more objective measure of the classroom allowing for student interpretations to be compared to expert raters. Although it may be the case that student observations of a school context are what matter most to student experience, an objective measure would provide useful comparative information, especially in relation to the gender differences observed in the study. Third, the generalizability of the findings is perhaps limited by the demographics of the students as well as the context of the Montessori classrooms. It would be interesting to check whether the findings obtained in this study would hold in public schools that less often subscribe to authoritative teaching philosophies that allow student self-direction and exploration. Finally, the use of logistic regression in the present study (i.e., a logical next step before publication) would provide the ability to sort out the relative influences of family and classroom while controlling for important background variables like SES, ethnicity, and parental education (Bingham & Okagaki, 2012; Marks 2000).

### Implications

Several studies have shown the effects of the home and school contexts on students' quality of experience (Larson & Richards, 1991; Rathunde, 1996, 2001; Schweinle et al., 2006, 2008; Steinberg et al., 1989, 1991, 1992; Wentzel, 2002). Few studies, if any, have tried to understand the *combined* effect of home and classroom. The findings from this study show the immediate impact of the classroom context on optimal experience to be profound. Even if a student is from a home they perceive to be nonauthoritative, optimal experience can still be attained if that student perceives their teacher as supportive and challenging. One of the most important implications of the

present study is that if teachers can make their classroom environments feel more authoritative to students, they can help them overcome the boredom and anxiety that often undermine learning, even when students come from nonoptimal home environments (i.e., those that are permissive, authoritarian, or uninvolved).

Finally, the study has some important implications for thinking about individual student differences. The fact that males and females differed in terms of how the combination of home and school affected their experience suggests the importance of considering the goodness-of-fit of a person in context. Future research should explore the relative costs and benefits that may result from the different male and female patterns observed here and how best teachers might meet the needs of different genders in the classroom. In addition to gender, other student differences might also be considered in terms of goodness-of-fit. For example, would a student from an authoritarian classroom experience flow more in a permissive classroom due to the increased support that permissive environment provides? How would a student from a permissive home environment react in an authoritarian classroom? Considering this study's findings in support of the significance the classroom has on student experience, answers to questions like these might have implications for improving a student's educational experience by allowing an educational environment to adjust and compensate for differing student backgrounds and expectations.



## APPENDIX A

### FAMILY CONTEXT MEASURE

**9-1. In my family:**

(CIRCLE ALL THAT APPLY)

- a. It is difficult to relax and be myself..... 1
- b. Others notice when I'm feeling down,  
even if I don't say anything..... 1
- c. I feel appreciated for who I am..... 1
- d. If I have a problem, I get special attention and help.....1
- e. I do things I like to do without feeling embarrassed..... 1
- f. The only time I'm noticed is when there is a problem..... 1
- g. I am made to feel special on birthdays and holidays..... 1
- h. No matter what happens, I know I'll be loved and accepted.. 1

**9-2. In my family:**

(CIRCLE ALL THAT APPLY)

- a. We enjoy having dinner together and talking..... 1
- b. Day-to-day life is disorganized and unpredictable..... 1
- c. We compromise when our schedules conflict..... 1
- d. We are willing to help each other out  
when something needs to be done..... 1
- e. There are many fights and arguments..... 1
- f. Others can't be counted on..... 1
- g. We try not to offend and hurt each others' feelings..... 1
- h. Our home is full of things that hold special memories..... 1

**9-3. In my family:****(CIRCLE ALL THAT APPLY)**

- a. We enjoy playing competitive games..... 1
- b. We have few interests and hobbies outside of the home..... 1
- c. We express our opinions about current events,  
even when they differ..... 1
- d. We ask each others' ideas before making  
important decisions..... 1
- e. Others lack ambition and self-discipline..... 1
- f. It's important to be self-confident and  
independent to earn respect..... 1
- g. Others expect to be good at what they do..... 1
- h. Individual accomplishments are noticed..... 1

**9-4. In my family:****(CIRCLE ALL THAT APPLY)**

- a. It's hard to find privacy when I need to  
concentrate and finish some work..... 1
- b. I'm given responsibility for making important  
decisions affecting my life..... 1
- c. I'm expected to do my best..... 1
- d. I try to make other family members proud..... 1
- e. I'm encouraged to get involved in  
extracurricular activities..... 1
- f. I don't care if others think I'm "soft" or lazy..... 1
- g. I'm respected for being a hard worker..... 1
- h. I'm expected to use my time wisely..... 1

APPENDIX B

ESM CLASSROOM MEASURE

**As you were beeped . . .**

What was the main thing you were doing? \_\_\_\_\_

Where were you? \_\_\_\_\_

**“Right now” in this place -- do you feel:**

(Circle one)

Supported by others to be yourself and do the things you like to do? YES NO

Challenged by others to be at your best and show your full potential? YES NO

*Select the one description that best explains your experience while doing this activity:*

- I felt involved while doing it but did **not** think the activity was relevant for my life
- I thought the activity was relevant for my life but did **not** feel involved while doing it
- I felt involved while doing it **and** thought the activity was relevant to my life
- I did not think the activity was relevant and I did not feel involved while doing it

**How did you feel about the main thing you were doing when you were beeped:**

	Not at all					Very Much				
Did you enjoy what you were doing?	0	1	2	3	4	5	6	7	8	9
Was this activity important to you?	0	1	2	3	4	5	6	7	8	9
Did you wish you had been doing something else?	0	1	2	3	4	5	6	7	8	9

Was this activity interesting?	0	1	2	3	4	5	6	7	8	9
How important was it in relation to your future goals?	0	1	2	3	4	5	6	7	8	9
How challenging was the activity?	0	1	2	3	4	5	6	7	8	9

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