In my remarks today, I'll be focusing primarily on those motivational constructs linked to the middle two questions: Can I succeed? and Do I want to succeed?

The importance of first of these (Can I Succeed?) has been documented repeatedly in motivational research. Lack of confidence undermines achievement and achievement choices in a variety of ways ranging from the adoption of counterproductive face-saving strategies designed to protect one's self-esteem (Covington & Beery, 1976), to increased anxiety in evaluative performance settings, and even to non-participation (see Eccles, 1983; Eccles, 1983; Wigfield & Eccles, 1988 for discussions).

The importance of the second question (Do I want to Succeed?) became clear to me in a discussion I had with my daughter when she was in the third grade. In response to my question "how could you let yourself get such low marks?", she replied first with the comment "but mom, everybody gets these grades." When that didn't appease me, she added "but, I'd have to work harder to get better grades." To which, I replied: "That's right, so why don't you work harder?" Without blinking an eye, she retorted "but mom, what do you want me to do, waste my childhood doing school work?"

Empirical evidence has substantiated the importance of this construct as well, especially as a key influence on academic choice-related decisions like course enrollment and participation in out-of-school related activities (see Eccles, 1983 and Eccles et al, 1984)

A second critical issue revolves around the need for specificity. Evidence in my research and that of others suggests that we must be quite specific when we try to understand motivation. We need specificity in terms of the subject areas being talked about. It is becoming increasingly clear that there is a great deal of within individual variation on measures of motivational constructs as one goes across domains or subject areas and that the predictive power of particular motivational constructs increases as one makes both the domain of the motivational construct and the achievement outcome being predicted more specific.

We also need specificity in terms of the particular motivation-to-behavior link being studied. Varied motivational constructs impact differently on various outcome measures. Let me illustrate this need for specificity with the following analysis. We have tested the impact of
characteristics.

II. I discuss the joint effects of student and classroom goals. II. I discuss the joint effects of student and classroom goals. II. I discuss the joint effects of student and classroom goals. II. I discuss the joint effects of student and classroom goals.

As you know, I'd like to talk about the second level of things you're interested in. I'm interested in the second level of things you're interested in. I'm interested in the second level of things you're interested in. I'm interested in the second level of things you're interested in.

In a way, the second level is where the real action is. In a way, the second level is where the real action is. In a way, the second level is where the real action is. In a way, the second level is where the real action is.

Classroom-Centered Motivation

Classroom-centered motivation is particularly important in motivating students. It is particularly important in motivating students. It is particularly important in motivating students. It is particularly important in motivating students.

� The effects of the second level are complicated. The effects of the second level are complicated. The effects of the second level are complicated. The effects of the second level are complicated.

Case: Girls and Math

In the classroom context, we've seen that boys and girls respond differently to the same instruction. The effects of the second level are complicated. The effects of the second level are complicated. The effects of the second level are complicated. The effects of the second level are complicated.

In the classroom context, we've seen that boys and girls respond differently to the same instruction. The effects of the second level are complicated. The effects of the second level are complicated. The effects of the second level are complicated. The effects of the second level are complicated.
are already familiar with this body of research. It is reviewed extensively in Eccles, 1984. Then I’ll discuss classroom effects.

Self-concept of ability

In general, girls report lower confidence than boys in their academic abilities but this effect is especially marked in math and the physical sciences and for math appears to get more pronounced as the students advance through high school to the critical decision-making points regarding course enrollment. These patterns are well illustrated by the results of our recent studies, as shown in Figure 7 depicting fifth through twelfth grade students’ reports of their math and English ability. As you can see, girls report lower estimates of their math ability than boys beginning at grade 10. But even more importantly, from my perspective, girls report lower estimates of their math ability than of their English ability beginning at grade 8. Both of these differences (sex and subject matter differences) exist despite the fact that there are no significant differences in this population between boys’ and girls’ performance in math and between girls’ performance in math and English.

INSERT FIGURE 7: SEX BY SUBJECT MATTER BY GRADE LEVEL EFFECTS FOR ENGLISH AND MATH.

Subjective task value

In general, girls also rate math and the physical sciences as less interesting, important, and useful than boys and this difference also gets more pronounced as boys and girls advance through secondary school at least for math. Our results for the construct subjective task value are illustrated in Figure 8. They are consistent with the general findings for math and physical science. In addition, and again even more importantly, the difference between math and English for girls gets increasingly larger as the girls move through secondary school.

INSERT FIGURE 8: SUBJECTIVE TASK VALUE.

Given the importance of these two constructs, one would predict that the girls in this sample would be less likely to continue taking math in high school than the boys; this is exactly what happened in our longitudinal follow-up. What could accounting for the increasingly less positive view females have of mathematics as they move through secondary school. To answer this question, I’ll focus on classroom effects on motivation.

Girls and math: Girl friendly classrooms

How might classrooms be contributing to these differences? Are there general classroom climate variables that either have different impacts, on the average, on boys and girls? (That is, that affect the motivation of boys and girls differently?) Or that seem especially detrimental, or facilitative, of girls’ motivation to study math?

My thinking about these questions has been greatly influenced by the work of Pat Casserly (1980) and Jane Kahle (1984). They have studied math and science teachers who have an especially good track record in encouraging girls to continue their studies of math and science. Several distinguishing characteristics emerge with great regularity in this type of work. These are summarized on Figure 9 and listed below:

1. Effective teachers are more likely to use cooperative or individualized learning strategies than to rely solely on public drill and seat work.
2. Effective teachers are less likely to use competitive motivational strategies than non-effective teachers.
3. They use more hands-on learning opportunities.
4. They use practical problems with the possibility for creative solution e.g. build a bridge, and allow students to work in teams in solving these problems.
5. They engage in a great deal of active career and educational guidance in the classroom, stressing the importance and the usefulness of math and science for students in other courses and for their future employment opportunities.
6. They insist on full class participation; no one is allowed to "drop out" and no-one is allowed to dominate class discussion or laboratory equipment.

INSERT FIGURE 9: EFFECTIVE CLASSROOMS
In this study, we identified differences in classroom environments and found that students in classrooms with more positive attitudes toward computing and more supportive teachers reported higher self-efficacy and better achievement in computing. These findings are consistent with previous research indicating that a positive classroom environment can enhance student motivation and success in computing.

The results of this study suggest that fostering a supportive classroom environment is crucial for promoting student interest in computing. Teachers and educators can contribute to creating such environments by providing a positive learning experience, encouraging active participation, and fostering a culture of collaboration and support. By doing so, they can help students develop the skills and confidence needed for success in computing and related fields.

In conclusion, the importance of a supportive classroom environment cannot be overstated. Educators should strive to create classrooms where students feel welcomed, encouraged, and supported. This will not only benefit individual students but also contribute to the overall success and diversity of the computing workforce.
We see here a good example of the interaction of a particular student characteristic (gender) and classroom environments in their influence on motivation. Girls' and boys' motivation seems to be optimized by different room characteristics. Similar effects have been reported by Fennema and Petersen in their study of math skill acquisition. They assessed cognitive skills in math at the beginning of the school year and again at the end of the school year. Gain scores were created. They had observations of classroom climate and related these to the gain scores of boys and girls separately. Like our findings, girls' gain scores were negatively affected by the extent of competitive and competitive motivational strategies and positively affected by the extent of cooperative learning opportunities. Boys' gain scores, in contrast, were positively affected by competition and negatively affected by cooperatively learning strategies (Fennema & Petersen, 1985).

Student and Classroom Environment Interactions, Case 2: Junior High School Transition Effects.

Let me now turn to my second set of case studies illustrating the importance of the person by situation perspective in understanding motivation. In this set of studies, I focus on the relationships between developmental changes in motivation, interest, and self-perception and structural changes students often confront when they move into a traditional junior high school.

Several investigators suggest that there are general developmental declines in such motivational constructs as: interest in school (Epstein & McPartland, 1976); intrinsic motivation (Harter, 1980); and self-concepts (Eccles et al., 1984 and Simmons). We have outlined these general declines in Eccles, Midgley, and Adler, 1984 and Eccles and Midgley, 1988. The major changes are listed on Figure 14. Some of these changes vary across subject areas. For example, Figure 15 illustrates the changes in fifth through twelfth grade students' ratings of their own ability, of the value they attach to the subject area, and of their perceptions of the difficulty of the subject area for both math and English. As you can see, the general decline in these motivational attitudes is only characteristic of math.

Some of these changes are especially marked at the junior high school transition. For example, our data (see Figure 15) indicates a marked discontinuity in the rate of change in attitudes toward math between grades six and seven. Similar discontinuities are evident in the work of Harter (1980) and Simmons and her colleagues (e.g. Simmons and Blyth, 1987). Figure 16 illustrates the decline in intrinsic motivation reported by Harter (1980). As you can see, there is a sharp drop in students' preference for challenge and their preference for independent mastery as they move from the sixth to the seventh grade.

Figure 17, taken from Simmons and Blyth, 1987, illustrates the junior high transition effect on girls even more dramatically. Simmons and Blyth (1987) compared children moving from sixth to seventh grade in a K-8 system to children making the same transition in a K-6, 7-9, 10-12 school system. Girls moving into a traditional junior high school show a more marked decline in their self-esteem than girls who remain in the same school building. Several other studies, including Harter, 1982 and Connell, 1984, report declines that seem to be associated with the junior high school transition. The findings regarding this transition are summarized on Figure 14 and in Eccles and Midgley, 1988. The bulk of studies indicate that something unique may be going on during early adolescence and that it interacts with the nature of school transitions in affecting the motivation of early adolescents.

Several investigators have suggested just such a link between these motivational declines and the junior high school transition. These investigators suggest that the school transition is causally related to changes in early adolescents' motives, beliefs, values, and behaviors (Blyth, Simmons, & Carlton-Ford, 1983; Eccles, Midgley, & Adler, 1984; Eccles & Midgley, 1988; Simmons & Blyth, 1987). Several important questions have been raised. Does the transition have a negative impact on early adolescent development? What are the mediators between the transition and changes in beliefs and behaviors? Are some early adolescents more vulnerable to transition effects than others? What are the long term consequences of the transition effects? Is a school transition at this stage of life inevitably detrimental for some groups of children? On the one hand, cumulative stress theory (see Simmons &
The insertion into junior high school institutions and curricular structures may contribute to the overall change in educational and development environments. Current education reform efforts aim at promoting more meaningful and authentic learning experiences. These changes are reflected in the integration of a more student-centered approach, fostering critical thinking, and emphasizing collaborative learning environments. Furthermore, these initiatives underscore the importance of preparing students for the 21st-century workforce.

In the educational environment, there is a heightened emphasis on fostering a positive and supportive learning atmosphere. This is exemplified by the implementation of innovative teaching strategies, such as project-based learning and peer assessment, which encourage active participation and personalized feedback. Additionally, the incorporation of technology in the classroom has transformed traditional teaching methods, offering students access to a wealth of resources and tools to enhance their learning experience.

The transition into junior high school marks a critical phase in a student's academic journey. It is during this time that foundational skills are developed, setting the stage for future academic success. Therefore, it is imperative to ensure that the educational environment is aligned with the evolving needs of students, fostering a learning culture that is both stimulating and supportive.

As we move forward, it is essential to continue evaluating and refining our educational practices to better meet the challenges of the modern world. This involves not only adapting to technological advancements but also incorporating pedagogical strategies that prepare students for the complexities of the future. By doing so, we can ensure that our educational systems remain effective and relevant, preparing students to navigate the ever-evolving landscape of education.
14%, due mostly to family moves. The sample was drawn from 12 school districts. A total of 107 sixth grade teachers, and 64 junior high school teachers participated. (Average participation rate of teachers was about 95%). Data were collected in the fall and spring of each year. Student data was gathered by questionnaire in math class; teacher data was collected either during class or by follow-up questionnaire.

I will focus first on the differences we are finding in the behaviors and beliefs of teachers across this transition and will then discuss their impact on the students in our sample. Based on the nature of the decline in student attitudes, cultural stereotypes regarding early adolescence, organizational theory, and existing studies, we predicted the following types of changes in teacher beliefs and behaviors:

1. Increase in control concerns and control practices
2. Decrease in trust and autonomy
3. Decrease in teacher efficacy beliefs
4. Increase in practices that focus children's attention on ability assessment, such as ability grouping, social comparison, whole class instruction, performance rather than effort based grading systems.

In other words, since the transition to junior high school involves a move from a small, informal, relatively homogeneous school to a more bureaucratic organization, it would involve the disruption of peer networks, and an increase in the distance between teachers and students. These changes, in turn, should increase the frequency of teacher control, and decrease the students' sense of control and familiarity with their teachers. In addition, since the junior high school is often seen as a time to get serious about instruction and about performance evaluation, the transition to junior high school should increase the frequency of certain practices, such as ability grouping and grading on the curve, that accentuate the importance of ability as a sorting characteristic.

The results from an analysis by Midgely, Feldlaufer, and Eccles (1987). As predicted, seventh grade teachers report more need to control their students than sixth grade teachers on items such as 'it is often necessary to remind students that their status in school differs from that of teachers' and 'students often misbehave in order to make teachers look bad'. Similarly, as predicted, seventh grade teachers rate students as less trustworthy that sixth grade teachers on items such as 'Most students will waste free time if not given something to do' and 'students can be trusted to work together without supervision'. Finally, again as predicted, seventh grade teachers feel less efficacious than sixth grade teachers, despite the fact that seventh grade teachers are more likely to teaching their speciality.

Similar patterns emerged on students' and observers' view of the warmth of the relationship between students and teachers. Seventh grade teachers were seen as less fair and less friendly by both groups (Feldlaufer, Midgely, & Eccles, 1987).

The results for changes in ability-focusing experiences is illustrated in Figure 22. Rosenholtz and Simpson (1984) have suggested that whole class instruction makes ability comparisons easier and more salient; conversely, cooperative and/or individualized instruction should decrease competition and social comparison amongst the students. We have compared teacher, student, and observer reports of instructional management. All three sources report an increase in whole class instruction, a decrease in individualized and cooperative structure, and an increase in social comparison interest among students. The teachers' reports are illustrated in Figure 22.

**INSERT FIGURE 22: CLASSROOM ENVIRONMENT DIFFERENCES**

**Implications for Student Motivation**

We are just beginning to look at the impact of these grade-level shifts in teacher beliefs and behaviors on children's self-perceptions. I am going to focus on two of these changes: Changes in autonomy and control and changes in teachers' feelings of efficacy.

**Autonomy and decision making**
SUMMARY AND CONCLUSIONS

Expectations for their own performance are the antecedents of the motivational part of math attitude and of their children's performances. This section is well illustrated in Figures 7 and 2b depicting the percentage of children who moved into higher teacher expectancies in the second section and are expected to have high math in a less maththetical characteristic than those who moved in a lower math performance. More difficult, developed lower expectations for their own performance. The children in Figures 2b who are low teacher expectancies, came to see math as a way to a low teacher expectancies. Figure 1 in the analysis shows the child who moved from a low to a high teacher expectancies.

INSERT FIGURES 27 AND 28. TEACHER EXPECTANCY EFFECTS

In the second section of Figure 27, the percentage of children moved from high teacher expectancies to low teacher expectancies is shown. Figure 28 shows the percentage of children moved from low teacher expectancies to high teacher expectancies. In both cases, the percentage of children who moved is low. This suggests that there is a high percentage of children who remain in the same teacher expectancy level. The percentage of children who moved from high teacher expectancies to low teacher expectancies is low, as well as the percentage of children who moved from low teacher expectancies to high teacher expectancies. This suggests that the children in this study have a high percentage of children who remain in the same teacher expectancy level. The percentage of children who moved is low, as well as the percentage of children who moved from low teacher expectancies to high teacher expectancies. This suggests that the children in this study have a high percentage of children who remain in the same teacher expectancy level.
2. Understanding motivation depends on our understanding of the interaction between students’ characteristics and the characteristics of the educational environments they inhabit and/or confront.

3. Some "motivational problems" result from the mismatch between the individuals' characteristics and needs, and the characteristics of particular educational environments they inhabit. I provided examples of this process in two arenas: sex differences in the motivation to study math and science and the developmental declines in motivation associated with the transition to junior high school. In addition, I presented preliminary evidence of the negative impact of the mismatch on individuals' motivation.

I would like to close with one additional point: These "motivational problems" are amenable to educational intervention. There are concrete examples of the success of educational interventions for both of these motivational arenas. The success of these interventions stems, in part, I believe, from their impact on the degree of perceived mismatch between the needs of the individual students and the educational environments they find themselves in.

REFERENCES


Figure 3

Strategies
- Cognitive Strategies
  - Resource Management
  - Motivated Learning
  - Adaptive Learning
- Perceived Task Difficulty
- Self-Monitoring/Self-Hand-Seeking Strategies
- Learning Strategies
- Autonomous Learning
- Task Goals
- Anxiety
- Attention
- Executive Strategies
- Self/EGO Focus
- Task Focus/Mastery

Costs
- Extrinsic Rewards
- Perceived Task Difficulty
- Alternatives
- Loss of Value
- Conflicting Goals
- Cost of Failure
- Cost of Success
- Value
- Utility
- Intrinsic/Extrinsic
- Attainment Value
- Expectation Value
- Incentive Value
- Efficiency/hollage

Motivation
- Effort
- Self-Worth
- Performance Goals
- Learned Helplessness
- Learned Helplessness
- High Expectation for Success
- Ability
- High Expectation for Success
- Ability
- Effort
- Self-Concept
- State
- State
- State

AND WHY?
DO I WANT TO SUCCEED?
WHAT DO I NEED TO DO?
Figure 4

Sex of Student

Subjective Value of Math

Self-Concept of Math Ability

Enrollment in Twelfth-Grade Mathematics

R² = 18

Figure 5

MATH GRADE: 0

MATH GRADE: 2

ACT: Q

R² = 23%

R² = 16%

MATH SELF-CONCEPT: 1

MATH VALUE: 1

SUBJECTIVE MATH VALUE: 1

R² = 5%

R² = 9%

COURSE PLANS: 2

N = 274

SEX

.22

.44

.20

.26

.19

.16

.23
Characteristics of Effective Classrooms

- Frequent Use of Cooperative Learning Opportunities
- Frequent Use of Individualized Learning Opportunities
- Infrequent Use of Competitive Motivational Strategies
- Frequent Use of Hands-On Learning Opportunities
- Frequent Use of Practical Problems as Assignments
- Active Career and Educational Guidance Aimed at Broadening Students' View of Math and Physical Sciences
- Frequent Use of Strategies Designed to Create Full Class Participation
Figure 16

Figure 17 Mean Self-Esteem From Grade 6 to Grade 10 by School Type for Each Sex Separately

The symbol \( \text{\textcopyright} \) indicates a year of transition for the Jr. High Cohort; \( \text{\textcopyright} \) indicates a year of transition for the E-8 Cohort.

MALES
Self-Esteem

FEMALES
Self-Esteem

Note: Although the study is longitudinal, there is a decreasing \( N \) for each grade level due to sample loss.
Required of Students

- Initial decrease in the cogitative level of the tests
- Decrease in teacher's sense of efficacy
- Decrease in student autonomy
- Classroom decision-taking
- Decrease in opportunity for student participation in
- Decrease in teachers' trust of students
- Increase in teacher concern with content
- Competitive motivational strategies
- Normative performance-based grading practices
- Where class instruction
- Ability grouping
- Attention on ability assessment
- Increase in practice liking to focus students'
- Lower average grades
- More rigorous grading practices resulting in
- Increase in extrinsic motivational strategies

Classroom-Specific Changes

Junior High School Transition

Associated with

Environmental Changes

Reduced Family Involvement

Exposure to Broader Range of Individuals

Disruption of Peership Networks

Increased Student Lead for Teachers

Greater Autonomy

Halting Teachers

Departmentalized Instruction

Have to Regret, More Bureaucratic Instruction

General Changes

Junior High School Transition

Associated with

Environmental Changes
DEVELOPMENTAL CHARACTERISTICS OF EARLY ADOLESCENTS

Increased Desire for Autonomy

Increased Salience of Identity Issues

Continuing Need for Safe Environment in which to explore Autonomy and Identity

Increased Peer Orientation

Increased Importance of Heterosexuality

Increased Self-Focus and Self-Consciousness

Increased Cognitive Capacity with Movement toward Formal Operational Thought

Physical and Hormonal Changes Associated with Pubertal Development

Figure 20

Figure 21

Teacher Beliefs

Mean Rating

<table>
<thead>
<tr>
<th></th>
<th>Trust</th>
<th>Control</th>
<th>Efficacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sixth Grade</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seventh Grade</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Fig. 3. Students - Year 1 versus Year 2 Actual Decision-Making

Note. N = 2210

Fig. 2. Student Actual versus Preferred Decision-Making

Note. N = 2210
PERCEIVED EXPECTANCIES IN MATHEMATICS

Change in Teacher Efficacy

- Low/Low
- Low/High
- High/Low
- High/High

Mean: 5.5

N=1591

Wave 1 2 3 4