Research that Supports Differentiation

Beecher, M., & Sweeny, S. (2008). Closing the achievement gap with curriculum enrichment and differentiation: One school's story. *Journal of Advanced Academics, 19*(3), 502-530. The achievement gap between Caucasian students and low income students of color drastically diminished in math, reading, and writing in this elementary school that used enriched curriculum and differentiation with all students. In addition, achievement gains occurred across student groups and attitudes about school improved as well.

Brighton, C., Hertberg, H., Moon, T., Tomlinson, C., & Callahan, C. (2005). *The feasibility of high-end learning in a diverse middle school.* Research Monograph RM05210. Charlottesville, VA: National Research Center on the Gifted and Talented.
Students in differentiated middle school classrooms showed statistically significant achievement outcomes compared to students in a different treatment group and to students in a control group.

Brimijoin, K. (2001). *Expertise in differentiation: A preservice and inservice teacher make their way.* A dissertation presented to the Curry School of Education, University of Virginia. Charlottesville, VA: University of Virginia.
Evidence of strong achievement gains on a state standards test for students in an effectively differentiated elementary classroom.

Campbell, L. & Campbell, B. (1999). *Multiple intelligences and student achievement: Success stories from six schools.* Alexandria, VA: Association for Supervision and Curriculum Development.
A multiple intelligence focus in instruction leads to increased test scores. Students from varied cultural and economic groups flourish academically in such settings. Student and staff attitudes improve as well.

Dunn, R., & Griggs, S. (1995). *Multiculturalism and learning style: Teaching and counseling adolescents.* Westport, CT: Praeger.
Positive effects occur when instruction is matched to learning styles of students.

Dunn, R. (1996). *How to implement and supervise a learning style program.* Alexandria, VA: Association for Supervision and Curriculum Development.
Individuals vary in preference for conditions of learning. These preferences influence student achievement and attitude toward learning.

Ferrier, Ann M. (2007). *The Effects of Differentiated Instruction on Academic Achievement in a Second-Grade Science Classroom.* Unpublished doctoral dissertation. Walden University
The purpose of this quasi-experimental study was to determine if utilizing differentiated instructional strategies had an impact on student achievement. Analysis of Covariance (ANCOVA) was used to determine the impact instruction using differentiated strategies had on the academic achievement of second-grade students in life science and in physical science. Students in the differentiated instructional classes were found to score significantly greater than their traditionally instructed peers.

Gayfer, M. (1991). *The multi-grade classroom: Myth and reality: A Canadian study.* Toronto: Canadian Education Association.

Students in multi-grade classrooms (where teachers consistently address student readiness) fare better than students in classrooms with a more single-size approach to learning on measures on study habits, social interaction, cooperation, attitude toward schools, and general mental health.

Geisler, J., Hessler, R., Gardner, R., & Lovelace, T. (2009). Differentiated writing interventions for high-achieving urban African American elementary students. *Journal of Advanced Academics, 20*, 214-247.
Five high-achieving urban African American first graders with weak writing profiles had differentiated writing instruction in their regular classroom focused on two strategies, self-counting and synonym lists. The differentiation designed to improve their writing performance and enhance prospects for future academic success. All five students demonstrated improved writing outcomes in terms of both writing output and use of a broader range of words.

Grigorenko, E. and R. J. Sternberg (1997). "Styles of thinking, abilities, and academic performance." *Exceptional Children 63*, 295-312.
Learning profile adds to our understanding of students' performance and should be taken into account in classrooms in terms of both instruction and assessment. Students taught with a learning profile match outperform those taught in a more traditional manner.

Hebert, T. (1993). "Reflections at graduations: The long-term impact of elementary school experiences in creative productivity." *Roeper Review 16*(1), 22-28.
When students are interested in what they study, there is a positive impact on both short-term and long- term learning.

Hellman, D. W. (2007). *Implementing differentiated instruction in urban, Title I schools: Effects of facilitated support groups and program fidelity on student achievement.* Unpublished dissertation: University of South Florida.

This study presents the results of a mixed methodology study that investigated the effects of facilitated teacher support groups and differentiated instruction on student achievement at two urban, Title I middle schools. The researcher developed and field-tested the Differentiated Instruction: Fidelity Implementation Tool (DI: FIT) during the first year. At each of the two school sites, 13 to 15 teachers were selected to participate in the treatment group and 13 to 14 teachers in the control group. The effects of teacher use of differentiated instruction with fidelity on the reading and mathematics achievement scores of approximately 906 students were assessed using ANOVA procedures and effect sizes were calculated. Both the reading and mathematics achievement change scores and the difference in the teacher fidelity observation scores by treatment group were statistically significant. A clear relationship also existed between the teachers' mean implementation fidelity scores and the student achievement scores.

Lou, Y., P. Abrami, et al. (1996). "Within-class grouping: A meta-analysis." *Review of Educational Research, 66*, 423-428.
Students in small within-class learning groups achieve significantly more than students not learning in small groups. They also have more positive attitudes about learning and score stronger on self-concept measures. Student gains are greatest when instructional materials

are varied by need for different instructional groups rather than using the same materials for all groups.

Marulanda, M., Giraldo, P., & Lopez, L. (2006). *Differentiated instruction for bilingual learners*. Presentation at Annual Conference of the Association for Supervision and Curriculum Development, San Francisco.
First grade children in Colombia whose reading instruction utilized the model of differentiating content, process, and product in response to student readiness, interest, and learning profile over a four month period had fewer oral reading errors, higher comprehension scores, fewer students scoring below grade level, and more students scoring above grade level than control students.

Rasmussen, F. (2006). *Differentiated instruction as a means for improving achievement as measured by the American College Testing (ACT).* A dissertation submitted to the Loyola University of Chicago School of Education.
Students in a Chicago high school receiving more instruction from a differentiated instructional methodology outperformed students receiving less instruction from a differentiated methodology on ACT English, ACT Mathematics, ACT Reading, and ACT Composite

Renninger, K. (1990). "Children's play interests, representations, and activity." In R. Fivush and J. Hudson, *Knowing and remembering in young children.* Cambridge, MA: Cambridge University. Emory Cognition Series, Vol. 3, 127-165.
When students are interested in what they study, there is an impact on both short-term and long- term learning.

Sternberg, R. J. (1997). "What does it mean to be smart?" *Educational Leadership 55*(7), 20-24.
When students are matched to instruction suited to their learning preferences, they achieve significantly better than comparable students whose instruction is not matched to their learning preferences.

Sternberg, R., Torff, B., & Grigorenko, E. (1998). Teaching triarchically improves student achievement. *Journal of Educational Psychology, 90*, 374-384.
Students who learned and expressed learning in preferred learning modes outperformed students who did not have that opportunity.

Stronge, J. (2002). *Qualities of effective teachers*. Alexandria, VA, Association for Supervision and Curriculum Development.
A summary of research shows that effective teachers in contemporary classrooms develop classroom routines that attend to rather than ignore learner variance.

Sullivan, M. (1996). "A meta-analysis of experimental research studies based on the Dunn and Dunn learning styles model and its relationship to academic achievement." *National Forum of Applied Educational Research Journal 10*(1).
Addressing a student's learning style through flexible teaching to address learning style results in improved achievement and attitude gains in students from a wide range of cultural groups.

Tieso, C. (2002). *The effects of grouping and curricular practices on intermediate students'*

math achievement. Hartford, CT: National Research Center on the Gifted and Talented, University of Connecticut.
Achievement gains are found across economic and achievement levels through pre/post-test results for students in effectively differentiated classrooms.

Tomlinson, C. A., C. Callahan, et al. (1997). "Challenging expectations: Case studies of high-potential, culturally diverse young children." *Gifted Child Quarterly 41*(2), 5-17.
Teachers who develop primary grade classrooms with a multiple-intelligence focus demonstrate more flexibility in teaching and more student-centered instruction. These teachers developed more positive mindsets about students from low income and/or minority backgrounds.

Tomlinson, C., Brimijoin, K., & Narvaez, L (2008). *The differentiated school: Making revolutionary changes in teaching and learning.* Alexandria, VA: Association for Supervision and Curriculum Development.
Multi-year studies in an elementary school and a high school indicate positive and sustained achievement gains for students in all segments of the achievement spectrum and in a range of subject areas as a result of differentiated instruction. In the high school, the student dropout rate has also fallen sharply and student participation in Advanced Placement courses has risen by almost half, with AP exam scores holding steady or rising despite the increased enrollment. In both sites, a school-wide emphasis on differentiation has continued for at least seven years and achievement gains have continued over that time span.