



Center for Developmental Science

The Center for Developmental Science (CDS) is a multi-disciplinary, inter-institutional community of scientists engaged in the advanced study of human development. Guided by the principles of Developmental Science, we recognize the complexity of developmental processes that underlie adjustment, health, and well-being across the phases of life. Through our unique training and research mission, we pursue innovative methods to investigate the biological, cognitive, affective, and social systems that characterize the development of people in contexts, ranging from families to cultures.

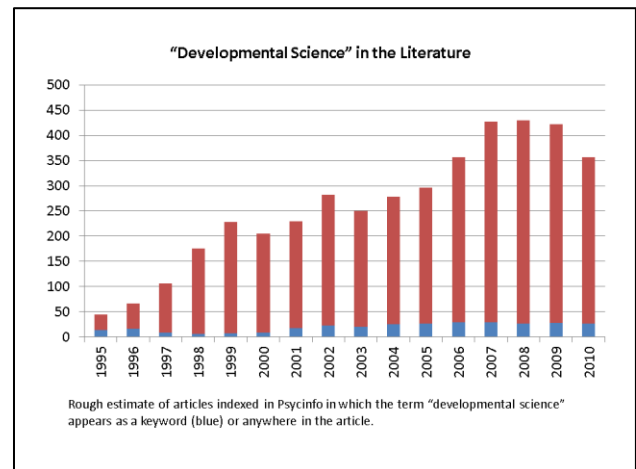
Mission Statement crafted by CDS Steering Committee 2011-2012

The Center for Developmental Science (CDS) was established by the Governing Board of the University of North Carolina in 1994 and was originally funded by a National Institute on Mental Health initiative to support new behavioral research centers. The foundation of the CDS, however, predates the center and was first embodied in the Carolina Consortium on Human Development, established in 1987 by faculty and researchers from three neighboring universities to promote the interdisciplinary study of developmental theory and longitudinal methods. The aim was to transcend the limitations of institutional and disciplinary divisions in order to facilitate scholarship and collaboration among faculty and young scientists.



Since that time, the CDS has grown into a strong community of scientists drawn from faculty affiliated with over a dozen disciplines from seven local institutions. Although the CDS remains the home of Developmental Science, a more dynamic, multi-disciplinary view of human development than offered by such fields as

traditional developmental psychology, the field of Developmental Science has now become mainstream.



References to "developmental science" as an explanatory framework for understanding child, youth and adult development have skyrocketed in the academic literature, well-regarded professional journals are now devoted to the field, and training programs at major universities now offer graduate education in Developmental Science.

The mission of the CDS equally emphasizes research and training, with the goal of connecting the empirical study of human development with real-world problems and potential solutions.

Our Community

Although the Center for Developmental Science physically occupies leased offices in the Top of the Hill Building at 100 E. Franklin Street, the CDS community spans UNC's north and south campuses and six local institutions. In any given year, our community is comprised of more than 150 faculty, research scientists, trainees, staff, undergraduates, graduate students, and postdoctoral fellows.



The CDS Faculty/CCHD Mentor Faculty includes nearly 100 junior to senior scientists who specialize in such fields as developmental psychology, sociology, public health, nursing, anthropology, behavioral genetics, neuroscience, clinical psychology, public policy, developmental psychobiology, education, epidemiology, pediatrics, and quantitative methodology. These faculty hold tenured or tenure-track appointments at North Carolina Central University, North Carolina State University, University of North Carolina at Greensboro, Duke University, Meredith College, Wake Forest University, and the University of North Carolina at Chapel Hill.

CDS Research Scientists have EPA non-faculty appointments at UNC and typically hold a secondary UNC-CH faculty appointment in an academic department. Salaries for these positions are funded by direct costs on external grants or from internal sources for administrative assignments within the CDS.

The CDS Affiliated Faculty includes any faculty member who is not primarily employed by one of our constituent universities but who wishes to maintain an affiliation with the Center. This faculty typically includes former CDS faculty who continue to collaborate with other members of the CDS community and research faculty who serve as off-site mentors or supervisors for our trainees.

Undergraduate and graduate students as well as postdoctoral students participate in the activities of the CDS as work-study students, volunteers, research staff, graduate research assistants, trainees, or students who are enrolled in independent study courses (e.g., Psychology 395), honors thesis programs, or graduate seminars conducted through the CDS (including the seminar connected with our weekly consortium series). In the last year, over 80 students were actively involved with research at the CDS with 37% of these students identified as ethnic minority.



Our Research Mission

Developmental studies spanning from infancy to adulthood comprise the research portfolio of the CDS. These studies share an emphasis on understanding the processes that underlie child development as it occurs across multiple levels of analysis both within the child (e.g., genetic, physiological, neurological, affective, cognitive and behavioral) as well as at the intersection of children and their surrounding contexts (e.g., peers, families, schools, cultures). Over the last five years, research at the CDS has focused on applied outcomes in education, health, psychological adjustment, and risk behaviors as well as on understanding basic development processes such as family functioning, children's memory development, and self-regulation in early childhood. Examples of current research studies at the CDS include the following.

Supporting Early Adolescents' Learning and Social Success (SEALS)

Jill Hamm (co-PI), School of Education & Tom Farmer (co-PI), CDS Affiliate Faculty, School of Education (VCU)



With funding from the Institute of Education Sciences, this research project evaluates a universal intervention program that is aimed at creating classroom instructional contexts and school social communities that promote the adaptation of students during the first year of middle school. Building from developmental research showing that early adolescent adjustment problems reflect correlated academic, behavioral, and social risks, Project SEALS is designed to systematically address each of these domains. The goal of Project SEALS is to evaluate a professional development intervention program designed to help 6th grade teachers create classroom instructional contexts and school social communities that promote the adaptation of students in the transition to 6th grade.

The Durham Child Health and Development Study (DCHD)

Martha Cox & Peter Ornstein (co-PIs),
Department of Psychology



With support from the National Science Foundation, this multi-investigator team illustrates the benefits of a multi-level approach – from genes to environments – for understanding development. In this unique longitudinal and mixed-method study, a broad sample of 200 infants born in 2002-2003 was recruited and studied (along with their families) at up to 10 assessment occasions between 3 months of age and 2nd grade. This study has spawned collateral grants that provide qualitative approaches to understanding the experiences of these children and their families as well as quantitative studies of the child care environment, key indices of cognitive functioning, and emotion socialization and understanding just before the point of school entry. Health outcomes related to immune functioning and genetic expression, in relation to their early environment, will be assessed when children are in the 5th grade. Key findings from this project show the complex interactions among biological and environmental experiences in developing young children.

Genetic Risk, Pathways to Adulthood, and Health Inequalities

Michael Shanahan (PI), Department of Sociology

With funding from the National Institutes of Health, this research project examines the ways in which genetic factors influence a cascade of behaviors and social events that ultimately create health inequalities in young adulthood. These health inequities in turn have implications for educational processes and attainment, social

integration into young adult roles, and health-related behaviors. In this project, the potential for various forms of social capital and control to attenuate pathways of risk for adult outcome is examined. Of interest are mediational social processes by which neurogenetic factors, educational processes, and social roles are associated with inequalities in health as well as the gene-environment interactions according to which social capital and control promote well-being in young adulthood despite genetic risk factors. Findings will shed light on how early health inequalities reflect the longitudinal interplay of genetic and social factors.

Developing a Teacher-Based Intervention Involving Memory-Relevant Language during Instruction

Peter Ornstein (co-PI), Department of Psychology & Jennifer Coffman (co-PI), Ctr for Developmental Science



With support from the Institute of Education Sciences, this innovative research project involves the development of an intervention for first-grade teachers that will enhance children's memory and academic skills. Students' basic memory and cognition are critical for success in school across math, reading, science, and other educational domains. Strategies for remembering are essential for academic success and teachers can be trained to use instructional practices that facilitate children's memory and, in turn, academic achievement. This research involves a series of studies in after-school programs in which researchers simulate classroom instruction through exciting educational experiences (*Legos and Engineering or Reporting the News*) to identify successful instructional practices. This information will then be used to develop and pilot test an

intervention in local first-grade classrooms that is designed to improve both teachers' instructional techniques and their students' memory and academic performance.

Raising Grateful Children

Andrea Hussong, UNC-CH, Jennifer Coffman, UNC-CH, Phil Costanzo, Duke University, Amy Halberstadt, NCSU, Irina Mokrova, UNC-CH

With funding from the Templeton Foundation and the Greater Good Center at UC Berkeley, this project seeks to define gratitude in childhood and to examine the role that parents can play in fostering the development of children's gratitude. Through focus groups with 1st-3rd graders and their parents, they will learn how parents and children recognize experiences and expressions of gratitude in young children and what parents do to foster gratitude and counter entitlement. Based on thematic analysis of these groups, they will create much needed developmentally appropriate, reliable and valid measures of gratitude for young children and the socialization of gratitude in children based on self-report, parent-report and behavioral observations. In the next phase of the study, they will use these measures to assess gratitude in 6 to 9 year olds and their parents as they visit the lab to examine the association between gratitude and children's positive outcomes. Together these data promise to bring newfound understanding to the role that parents can play in the development of children's gratitude and further, to generally inform programs targeting character building and prosocial development in children.

Research Services

The CDS provides a range of services for its investigators. Grants management, accounting, human resources, IT, and funding policy compliance services are coordinated for CDS-sponsored projects through our business offices. An onsite statistical consultant and IRB

coordinator offer expertise for grant development and implementation and pre-submission review of applications is available.

CDS OBSERVES is a new service core through the CDS offering observational coding services for research projects both external and internal to UNC-CH. This fee-for-services unit provides support for planning, adaptation, data collection, coding, and data preparation and analysis of parent-child interactions and emotion in young children.

Funding Profile

During FY 2011-2012, the CDS grant portfolio included awards from NSF, NIH, DOE/IES, and private foundations. During this period, the Center managed 12 research awards that generated \$1,867,768 in direct expenditures plus \$609,771 in indirect costs. From June 2012 through June 2013, 20 applications were submitted for research funding, 7 applications were awarded, and 5 are still pending.

Our Training Mission

Carolina Consortium on Human Development (CCHD)

Andrea Hussong (PI), Martha Cox, Peter Ornstein, and Michael Shanahan (Co-Directors), Jennifer Coffman (Assistant Director for Training & Research)

The Carolina Consortium on Human Development (CCHD) is a faculty-initiated forum that was originally designed to cross the usual institutional and disciplinary boundaries to encourage the study of human development. The CCHD seeks to train productive researchers and creative scientists in a transdisciplinary program that is unique in its focus and breadth. Funded by a T32 Training Grant from the National Institute on Child Health and Development since 1988, the CCHD sponsors 5 predoctoral and 5 postdoctoral fellows who are trained and work with CDS faculty mentors. Since its inception, a total of 58 postdoctoral

and 78 predoctoral fellows have completed the program and now hold positions as tenured/tenure-track faculty, program officers at NIH, and researchers who work in academia, private research firms, industry, and non-profit organizations. In connection with the CCHD program, we also offer training opportunities for students affiliated with CDS faculty through our weekly Monday consortia series, professional development classes, and involvement in a variety of research projects. CDS faculty members are encouraged to attend the weekly consortia series, talks, and workshops that are offered through the CDS. Recruitment for the fellowships begins every fall for the postdoctoral scholars and every spring for the predoctoral scholars. Information on the application process is available at the CDS website (cds.unc.edu).

Faculty Development Programs

We are committed to the development of junior faculty from both within UNC and across our institutional affiliates. Examples of programs that support the development of junior faculty are:

- inclusion of junior faculty in large, multi-disciplinary research initiatives,
- a summer mentored grant writing program for new investigators,
- participation in faculty interest groups focused on thematic interests,
- and opportunities to chair CCHD consortia series.

Emphasis on Training Ethnic Minority Students and Faculty

The CDS strives to build and sustain an inclusive community and to foster a welcoming climate that values and respects all members in the community. The CDS affirms the University's commitment to diversity as a critical element of

academic and research excellence. Specific activities reflecting this value include:

- continued efforts to recruit and retain an ethnically diverse group of trainees and faculty within the CDS community,
- sponsoring a group that offers a venue for mentoring ethnic minority junior faculty and postdoctoral fellows in professional development issues,
- a graduate school preparation event for ethnic minority students from local institutions,
- and hosting training seminars such as our spring CCHD proseminar series on *Developmental Mechanisms in Racial and Ethnic Minority Children and Youth*.



Our Future

We are fortunate to have founding members in the CDS community who provide senior leadership, as well as mid-level or junior faculty and research scientists who are actively involved in our research and training missions. Having established Developmental Science as a leading and cutting-edge approach to the study of human development, our mission is:

- to use this framework to understand pressing issues in child, youth, and family development in the world today,
- to develop interventions and policies based on this science that lead to the betterment of children's lives,

- to enhance our scientific tools that test evolving theories based on the principles of Developmental Science,
- and to train the next generation of Developmental Scientists to work at the intersection of traditional disciplinary boundaries.

Pursuing this mission in times of financial constraint is a challenge we share with the broader research community. To meet that challenge, our short-term goals are:

- to reduce infrastructure costs through service sharing and technological streamlining,
- to aggressively pursue traditional funding mechanisms and to seek new funding partners,
- to maintain active faculty engagement by supporting new investigators and large program project initiatives,
- and to initiate novel training opportunities that enhance the skills of CDS researchers, disseminate the tools of Developmental Science, and increase the appreciated value of Developmental Science in the broader funding landscape.

CDS Contact Information

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