

Research Highlights

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RESEARCH HIGHLIGHTS

Susan Campbell

The NICHD Study of Early Child Care and Youth Development is a multisite study of children's development in family, child care, school, and peer contexts and the University of Pittsburgh is one of 10 study sites. Primary analyses have focused on a range of questions on the effects of early child care on children's academic and social outcomes and are documented in numerous papers and a recent book. Secondary data analyses by Campbell and her colleagues have focused on children's adjustment over time. For example, Campbell and von Stauffenberg (in press) reported that the quality of the home environment and parental stimulation and responsiveness predicted children's behavioral readiness for first grade, over and above demographic variables and maternal depression, and that positive parenting served as buffer for children who were impulsive and poorly regulated at 54 months. In another paper, Campbell et al. (2006) reported links between different patterns (stable or decreasing) and levels (high, moderate, low) of aggression across childhood and children's later adjustment. Different trajectories of aggressive behavior predicted different problem outcomes in elementary school. For example, high stable aggression is associated with predelinquent behaviors at age 12; moderate stable aggression is associated with inattention and poor regulatory skills; low stable aggression appears to be a risk factor for some social problems with peers, whereas even moderate aggression that decreases sharply by school entry is not associated with later indices of poor adjustment.

Micheline Chi

Title: Vicarious Learning from Observing and Overhearing Tutorial Dialogues

We designed a novel environment in which pairs of students observe and overhear tutorial dialogues of problem solving (that is, dialogue between a tutor and a tutee). It turns out that by observing the equations written on the board and overhearing the dialogues that ensued between the tutor and the tutee, the observers can learn just as well as the tutees, but only if they work collaboratively in pairs. This is because working together make the observing students more active. Such results mean that one can scale-up the benefit of tutoring without the resources of having 1-1 tutoring. It also means that we can apply materials created in this methodology (e.g., video streams) for both on-line learning and classroom learning.

Julie Fiez

- A new imaging study demonstrates that the neural circuitry involved in



responding to unexpected monetary gains and losses overlaps with the circuitry that is active when highly motivated learners are given feedback about their performance on a cognitive task. The findings provide a novel link between work on reward and addiction with research in the area of human learning and memory. The findings have the potential to enhance intervention studies aimed at the development of robust learning in math and language and they reveal a new perspective on the balance between conscious and unconscious influences on human behavior.

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Thomas Kamarck

We presented data at the American Psychosomatic Society this year providing some evidence for a synergistic effect of two types of emotional dispositions on risk for cardiovascular disease (CVD). In the context of two separate literatures, previous investigations have suggested that (a) individuals with chronically high levels of depressive symptomatology and that (b) individuals who are chronically hostile or angry may be at increased risk for CVD. Both of these dispositions have also been found to be associated with increased levels of inflammatory markers (for example, c-reactive protein), which is one of the proposed mechanisms by which psychosocial factors may enhance disease risk. Few investigations have examined the independent or joint contribution of these two traits. In a sample of 341 healthy older adults, we showed a significant synergistic influence of depression and hostility in terms of their association with interleukin-6 and c-reactive protein. For each of these inflammatory measures, there was a stronger association between hostility and inflammation among those reporting depressive symptoms than among those who were depression-free. Our findings can assist us in drawing associations between two independent literatures, and in further understanding some of the potential mechanisms linking psychosocial processes and disease risk.

William Klein

- Informing people that their risk of getting colorectal cancer is higher than that of age- and sex-matched peers leads them to feel at high risk and to express greater interest in colorectal cancer screening.
- Perceptions of comparative risk (risk relative to similar others) are as predictive of cancer worry as perceptions of absolute risk among men, but are less predictive for women.
- Having people reflect on cherished values or sources of pride reduces memory for threatening health risk information.
- Unrealistic optimism about the chances of having unplanned sex is associated with *more* rather than less subsequent alcohol use, suggesting that biased perceptions of risk are harmful. In another study, smokers who were unrealistically optimistic about their chances of getting lung cancer endorsed more myths related to smoking (e.g., that



vitamin use offsets the effects of smoking).

- Perceptions of ambiguity regarding health recommendations (e.g., cancer screening) are associated with higher risk perceptions and higher worry as well as lower perceptions of preventability.

Robert McCall

Project Summary of the St. Petersburg – USA Orphanage Project

The project took advantage of orphanages mainly in St. Petersburg, Russian Federation that were primarily deficient in the social-emotional-relationship experiences provided children, while the medical care, nutrition, safety, toys, and equipment were acceptable. Thus, conclusions could focus more specifically on children's early social, emotional, and relationship experiences. The project used three strategies: (1) to document that children living in orphanages that are deficient primarily with respect to the social-emotional-relationship environment are delayed in all aspects of development; (2) to demonstrate that children who are adopted from such orphanages into highly advantaged USA families show the same persistent high rates of specific extreme behaviors as do children who have experiences global and more severely deficient orphanages; and (3) to implement interventions in a quasi-experimental fashion that improve the social-emotional-relationship experiences of orphanage children and to show they in turn produce substantial improvement in all major domains of children's development.

Results from these three strategies converge on the conclusion that early social-emotional-relationship experiences are likely a crucial contributor to typical physical, social, emotional, motor, communication, and cognitive development of young children. Deficiencies in this regard may be the major corrosive element of early orphanage environments, relating to higher rates of extreme social, attention, and thought behaviors even after children are adopted into highly-advantaged homes. Moreover, the intervention study demonstrated that promotion warm, caring, sensitive, responsive caregiver-child relationships can be implemented and maintained in orphanages, and Training plus Structural Changes are more effective than Training alone in producing substantial improvements in children's development in every major domain. Such interventions can be implemented at moderate cost and maintained without additional funds.

Finally, in the USA, training programs for early childhood care personnel tend to emphasize skill building rather than social-emotional relationships, and early childhood care and education services tend not to have the elements of the Structural Change intervention. In view of the results of this project, consideration might be given to assigning greater emphasis to social-emotional relationships in such programming.

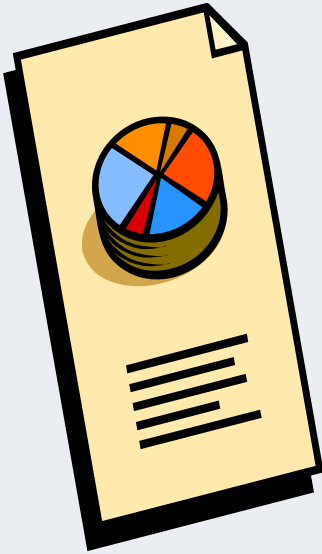
Daniel Shaw

Below is a summary of findings from a recent paper that appeared in the *Journal of Consulting and Clinical Psychology*. It was the lead paper for the journal's February, 2006 issue.

Title: Randomized Trial of a Family-Centered Approach to the Prevention of Early Conduct Problems: Two-year Effects of the Family Check Up in Early Childhood

Despite research research indicating that one of the pivotal times for identifying pathways to early conduct problems is the toddler period, few family-based preventive interventions have been specifically designed to modify child disruptive behavior during this age period. We tested the effectiveness of the Family Check Up in sustaining maternal involvement and preventing the exacerbation of child conduct problems among 120 at-risk,





toddler-age boys, half of whom were randomly assigned to a treatment condition. The intervention was associated with reductions in disruptive behavior and greater maternal involvement, and was particularly effective for children at greater risk for a persistent trajectory of conduct problems.

Saul Shiffman

In the first study of its kind, Saul Shiffman has discovered that people who are trying to quit smoking by wearing the nicotine patch are less likely to spiral into a total relapse if they keep wearing the patch, even if they've "cheated" and had a cigarette. The groundbreaking study titled "Analyzing Milestones in Smoking Cessation: Illustration in a Nicotine Patch Trial in Adult Smokers" was published May 2 in the *Journal of Consulting and Clinical Psychology*.

Natasha Tokowicz

Bilinguals often report that "translation equivalents" don't have exactly the same meaning in two languages. This anecdotal evidence was explored in a psycholinguistic study conducted in collaboration with Anat Prior of CMU and Judith Kroll at Penn State. We found that in a bilingual single-word translation task, our new factor, meaning similarity, predicts performance above and beyond the effects of several established variables. In particular, the more similar translations seem to bilinguals (as determined in a rating task completed by a separate group of participants), the faster a translation was given. Thus, language processing is influenced by the fact that bilinguals know when "translation equivalents" don't have identical meanings across languages. Furthermore, another new factor, translation probability, also influenced translation above and beyond established variables for words that had more than one possible translation. In particular, the higher the probability a translation was given in response to a particular word, the faster it was translated by a separate group of bilingual participants. These findings suggest that bilinguals are sensitive to nuances in meaning across languages, and perhaps that it is not possible to express exactly the same meaning in two languages.



