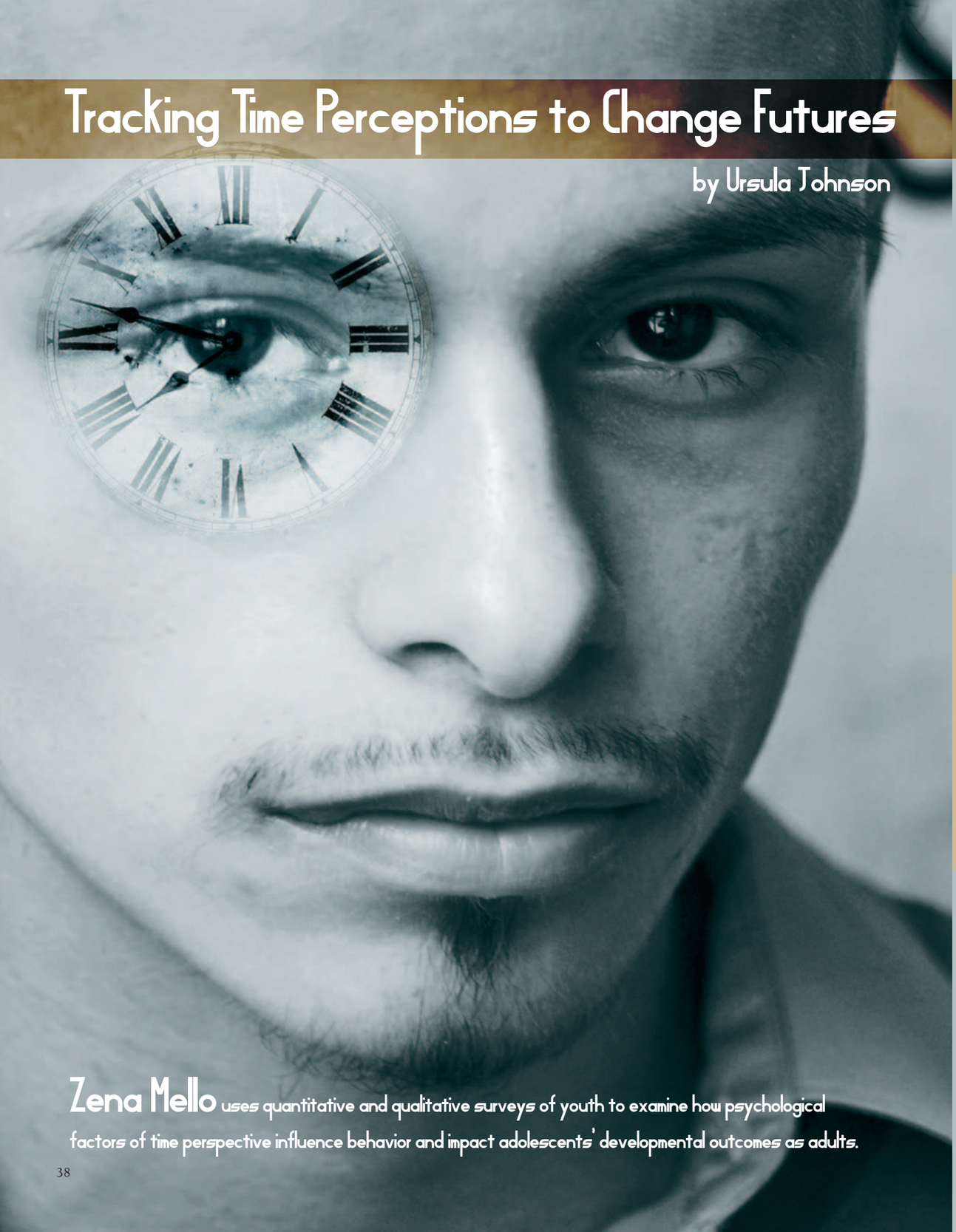
Tracking Time Perceptions to Change Futures

by Ursula Johnson



Zena Mello uses quantitative and qualitative surveys of youth to examine how psychological factors of time perspective influence behavior and impact adolescents' developmental outcomes as adults.

Rachel grew up in poverty. Her mother struggled to support the family after divorcing Rachel's father, a drug addict. Rachel, the eldest of four children, recalls her adolescence as extremely unstable. Her mother was in an abusive relationship; Rachel and her siblings were exposed daily to substance abuse; the family was sometimes homeless; and Rachel attended a dozen schools before she was 17 years old. Rachel graduated from high school 2 years late and had no sense of direction. "I had been so busy surviving that I never thought beyond the day in front of me–I didn't know how." Getting support was difficult, "because I wasn't an adult, but I wasn't a child." An aunt encouraged Rachel to enroll in classes at a community college, "she thought I would be eligible for grant money. So I enrolled." That advice led Rachel to higher education, which she credits as, "life changing."

Select one response for each question.	Never	Almost Never	Some-times	Fairly Often	Often
1. How often do you think about the past?	O	O	O	O	O
2. How often do you think about the present?	O	O	O	O	O
3. How often do you think about the future?	O	O	O	O	O

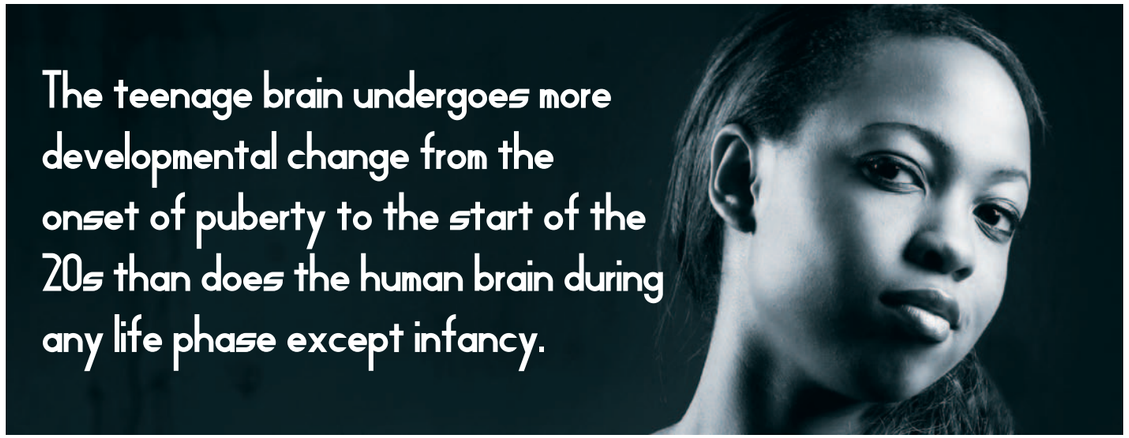
Today, Rachel is close to graduating from SF State University, and she has good reason to be optimistic about her future. But she is the exception: Social science researchers have established that at-risk youth--minority adolescents and teens raised in poverty, tend to have lower educational achievement, higher teen pregnancy rates, poor employment outlook, poor health—including substance abuse issues—and often remain in a cycle of poverty. In the US, high school dropout rates have declined, however, dropout rates for children living in poverty have increased. A startling 60-70% of students in low-income school districts fail to graduate from high school.

Dr. Zena Mello, an expert in adolescent psychology, hopes her research will help at-risk youth break these patterns and establish better futures. Mello, newly hired to teach and research developmental psychology at San Francisco State University, specializes in "Time Perspective Theory," the study of how people view time and perceive life events. Mello uses quantitative and qualitative surveys of youth to examine how psychological factors of time perspective influence behavior and impact adolescents' developmental outcomes as adults. After nearly 20 years in academia, Mello is now at the forefront of time perspective research. Mello's research, and the measurement tools she created for it, has the potential to be used to create prevention and intervention programs for educators, psychologists, and social workers to guide at-risk youth like Rachel. These interventions could break the cycle of poverty and equip at-risk youth with the life skills for work and education. They could enter adulthood with the tools for success.

In her office in the Ethnic Studies and Psychology building on the SF State campus, Mello analyzes data from around the world. For hours each week, she examines responses from adolescents in the U.S., Nigeria, Japan, and many other countries. She vigorously researches one of the most interesting—and sometimes most vexing–subjects on earth: adolescents.

The day I visited Dr. Mello in her office; the dark-eyed, brunette with curly hair was surrounded by tall stacks of boxes, some piled next to a wall full of empty shelves. Is she coming or going, I wondered. Seeing my expression, she laughs and waves me in, "It's kind of become a joke now, so I don't know what will happen when they're all gone." Since Mello arrived at SF State in August 2013, she's been too busy to empty more than a box every few weeks. She's been starting up her lab, working on several scientific papers, and teaching several psychology classes a week for undergraduate and graduate students.

Heralding from the University of Colorado, Colorado Springs (UCCS), Mello joined the S.F. State's Department of Psychology as an assistant professor. Mello raves about SF State. "I love the school, I love the students, I love the faculty–I love everything. I love how happy everyone is to be here–'Wow, we're at San Francisco State. What are we going to learn today?'" The university's focus, she goes on, is "on social justice. The college mission, the department mission, the student body's ethnic and economic diversity–it was consistent with my research program, my teaching. In every way I was aligned with what everyone was doing here already."



Mello started her educational journey not far from San Francisco. She grew up with her twin brother (who is now an artist) in Santa Rosa, about an hour north of San Francisco. Mello says she was destined to be a teacher. As a child, she told her "Vovó," (grandmother in Portuguese); "I love school so much, that I want to be in school for the rest of my life!" Growing up, her family's less than ideal financial circumstances gave her an affinity for those in poverty, she dreamed of eventually operating a group home for needy youth. She gestures as though holding a sign, reminiscing, "It was going to be called the 'Mello House'–I already had the logo."

To realize her dream, Mello graduated from Nonesuch, an alternative high school, attended Santa Rosa Junior College, and then the University of California, Santa Cruz (UCSC). The first in her family to attend college, she completed her B.A. in Psychology and still in Santa Cruz, began to research at-risk youth.

After UCSC, Mello attended The Pennsylvania State University's Department of Human Development and Family Studies. She graduated in 2005 with both a master's and a doctoral degree. It was there she began to study in-depth the relationship that minority adolescents–specifically African American males–have with time and how their perceptions factor into their experiences and future achievements. Mello recalls an early finding from a study on African American males. A survey question asked: "How likely is it that you'll be alive in 10 years?" In response, she says with tangible sadness, "Twenty-five percent of the them chose, 'Highly unlikely.' Imagine how little you commit [to] everyday challenges if you don't think you're going to be alive!"

Time theory was first created the 1920s, but the field didn't gain momentum until the 1990s when psychologist Phillip Zimbardo, of Stanford University, created the Zimbardo Time Perspective Inventory (ZTPI), which measures human behavior based on an individual's perception of their past, present, and future. The ZTPI was one of the only reliable time theory measurements available when Mello attempted to use it for her research on adolescents. She found the ZTPI survey's questions about the future focused on short-term deferred gratification, and temporary, hedonistic pleasures. Most importantly, Zimbardo created the measure to be used with adults, although adolescents are an important age group to in which to examine risk-taking and other behaviors.

Mello realized the void in adolescent time perspective research. She recalls thinking, "Time is important, and we don't have a theory about it. I need to figure out how to measure it reliably." Developing that tool, the Adolescent Time Inventory (ATI), is the product of her work as a postdoctoral fellow at UC Berkeley, where she was awarded a prestigious grant to complete her research in collaboration with respected scholar Dr. Frank Worrell.

The ATI gives researchers a way to quantify adolescents' thoughts and attitudes about time periods in their lives: past, present, and future. Thoughts include the orientation toward and relationship among the time periods, whereas attitudes refer to positive and negative feelings. Researchers can then score these items and investigate relationships with demographic factors such as age, income, gender,

and racial/ethnic group membership, then research the effects of these time relationships on developmental, psychological, and academic outcomes. Dr. Mello and colleagues have published a series of articles demonstrating that the ATI is a valid and reliable measure of time perspective in adolescence. Mello believes it can predict many adolescent behaviors including substance use, sexual activity, and physical health.

At Berkeley, Mello had a breakthrough in her research when she was investigating how a survey with circles labeled the past, the present, and the future could encompass how adolescents' thought about time. Instead of having respondents select the pre-identified circles on the survey, she allotted a space for them to draw their own circle, which said, if none of this fits how you think of time, then draw your own. About 25% drew different configurations; She grabs a piece of paper. "I'm going to show you what they drew. These kids are quite different than everybody else," she draws a pattern of two separate circles, "they are more likely to do drugs, they see their past as influencing their life now." She goes on, maybe they do drugs because, "they want to get rid of their past?"

Preliminary research shows that adolescents who have a balanced view of time tend to do better. Particularly when, as Mello states in one of her publications: "individuals understand that prior experience (the past) contribute to today's behavior (the present), and in turn, may affect tomorrow (the future)." When an individual places too much importance on one phase, (like the kids who drew separate circles) it can affect how they cope with life as they mature into adults.

Now that the ATI has been validated and published, researchers can establish relationships between time and adolescent issues society cares about; subjects like: drugs, sexuality, physical activity, and identity issues. Mello has given blanket permission for researchers to use the ATI to collect data, resulting in published papers with collaborators worldwide. The studies are on multitude of issues affecting adolescents, across contexts. For example, in Germany researchers focus on educational outcomes, in Italy they focus on identity, substance abuse, and physical activity; in Ireland they focus on smoking cessation; and in Nigeria they focus on sex. So although Mello's primary research focus is on at-risk-youth, primarily those from a minority or a low-income background, the ATI can be applied to many different adolescent issues.

The international scientific community has also been interested in her work. Dr. Mello presented her research at the first-ever conference on time theory last year in Portugal. Mello led a symposium on various studies, which excited even more interest in the ATI, attracting potential new collaborators in Spain, Peru, and Portugal, and New Zealand. Together, the researchers can further establish the reliability of the ATI as a tool for developmental psychologists.

Adolescents are fascinating people. Biologists and psychologists have uncovered surprising information in the past decade: The teenage brain undergoes more developmental change from the on-set of puberty to the start of the 20s than does the human brain during

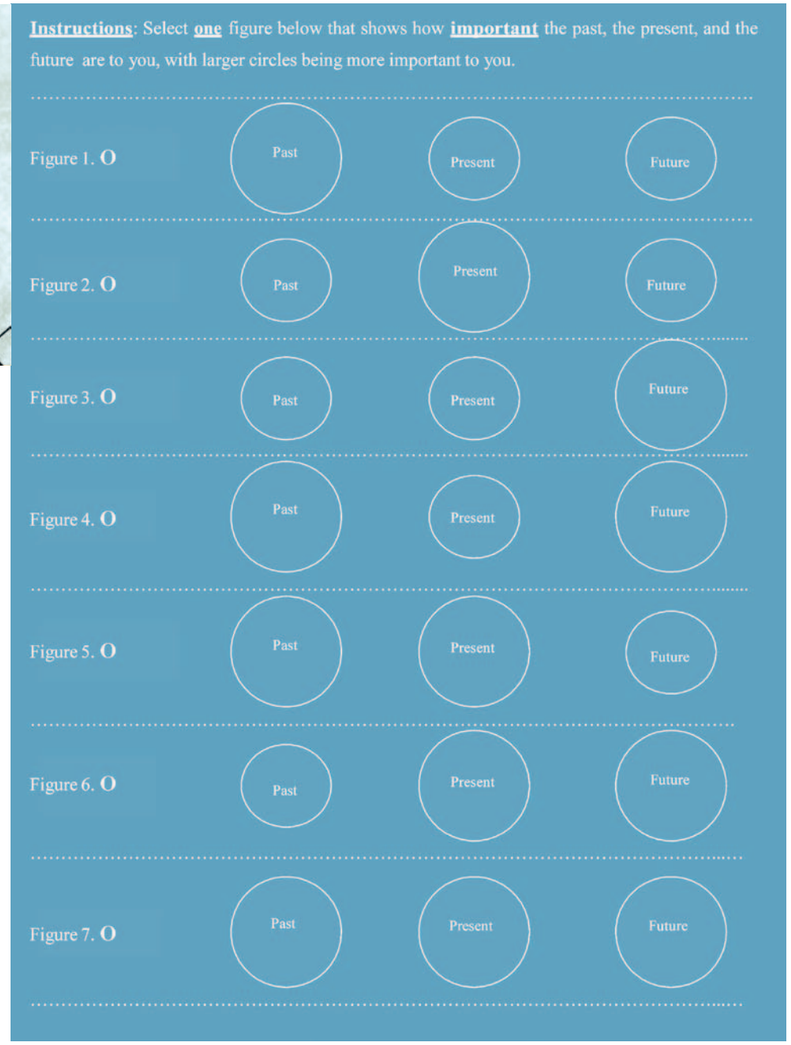
Dr. Zena Mello
Department of Psychology

any life phase except infancy. Adolescence is almost universally challenging, for the teens themselves and for many around them. At best, it is a time when youth develop their identity and, ideally, start imagining their futures. At worst it can be a time when bad decisions can result in lifelong implications. Most make it through this period unscathed, but for ethnic minorities and at-risk youth raised in poverty, transitioning to adulthood can be complicated by stereotyping and economic challenges.

Collecting data on adolescents presents many challenges, the most important being access. Adolescents are legal minors until the age of 18; the most efficient place to collect data is at schools, where they congregate. Mello's ideal study would involve taking surveys at the same school every year and surveying adolescents over many years. Mello is cultivating relationships with local principals to accomplish this goal.

Why study adolescents? "I find them [adolescents] so fascinating, they're socially relevant," Mello goes on, "for intervention, it's a wonderful age period. She leans forward in her chair, "Whenever I tell people that I study adolescents, people give me these crazy facial expressions." Her face contorts into a mock sneer. "People have all these ideas about adolescents–and many are not true." Mello adds that most adolescents get along with their parents well. "So I think they get a bad rap."

Looking to the future, Mello hopes her research will be applied. She hopes to work with curriculum developers to create an after-school program where teachers use surveys based on the ATI to help adolescents to think about time in the healthiest way possible. "There has been an afterschool program that targeted future expectations, and that was successful." Students in the program did creative activities like collaging activities about their future. The students in the control group performed better academically and socially than their peers who didn't participate in the program, "so we consider that experiment a success."



Page 39: Items assessing Time Frequency [Mello & Worrell, 2007]"

Above: Time Orientation scale from the Adolescent Time Inventory [Mello & Worrell, 2007].

For now, Mello, after many years focusing on her research, is investing a lot in her teaching; "I tell myself I'm building a foundation, building a lab." She recounts her first day of instruction at SF State where she announced to her class that it was her first day at the school, doing her dream job. "The students clapped for me and that felt really wonderful," she says, "I want to be here forever." ❖

Thoughts About the Past, the Present, and the Future Predict Adolescent Behaviors

by Dr. Zena R. Mello

The Time Lab investigates the theory, measurement, and application of time perspective (TP). TP refers to individuals' thoughts and feelings about the past, the present, and the future. Dr. Mello has developed a theory that operationalizes TP, describes how it differs across individuals, and outlines how this variation is related to behaviors. The central idea is that TP leads one to make decisions that, in turn, affect our life.

Dr. Mello has developed the Adolescent Time Inventory (ATI) to examine TP in people aged 10 to 18. She chose this age group because adolescence is an especially important period of the life-span to study TP. Individuals have the capacity to think in new and more complex ways than compared to childhood. It also is a stage of life that is fruitful for intervention. Her research has shown that adolescents differ from one another in how they think and feel about time periods, and that such differences predict important indicators of wellbeing. She has demonstrated that adolescents who are oriented towards all three time periods have higher academic achievement and self-esteem, and less risky-behaviors than those who focus only on the future or the present.

Dr. Mello's theory and measurement strategy has been applied internationally. She is currently involved in collaborations with scholars in America, China, Germany, Ireland, Italy, Japan, Nigeria, and Peru. These research projects will determine how much TP is associated with individual adolescents or with nations, and if TP differs in its relationship with health across these countries. Already, preliminary evidence indicates that Nigerian youth think more about the future than Americans, and that the relationship between TP and risky-behaviors are mostly similar between German and American adolescents. For example, adolescents who have more positive and less negative attitudes toward the past, the present, and the future also have less problem behaviors, such as conflict with peers or parents and getting into trouble with the police.

Future projects include designing an adult version of the ATI and investigating how TP predicts physical outcomes and academic achievement. Ultimately, Dr. Mello will work with teachers and prevention scientists to develop curricula and programs for individuals to learn to have the healthiest TP possible. ❖

Above left: Erica Beth Walker [Undergraduate Research Assistant], Dr. Mello, & Christina Marguez [Graduate Student Research Assistant] examine the Adolescent Time Inventory [Mello & Worrell, 2007].

Below left: Victoria Paoloni [Undergraduate Research Assistant] describes the Time Relation Scale [Mello & Worrell, 2007].