Journal of Psychiatry
ISSN: 2378-5756

Harter, J Psychiatry 2017, 20:1
DOI: 10.4172/2378-5756.1000398

Short Communication Open Access

What were You *Thinking?*

Susan Harter*

Department of Psychology, University of Denver, Denver, Colorado, USA

Introduction

Does a parent exist who has not, at some point in time, demanded of their child or adolescent, in exasperation, "*What* were you *thinking?*" This typical parental reaction is based on the firm conviction that, in the face of some seemingly inexplicable behavior, their son or daughter was either *not* thinking at all or was thinking very irrationally! The fallacy of this conclusion lies in the fact that their child *was* thinking, albeit about something far afield from what the parents hoped their child was considering. Cognitive activity in the minds of our children and adolescents is rampant, ongoing, and often rather unrealistic, much to the consternation of those of us in charge of the upbringing and care of our greatest commodity, our children.

Moreover, mental health professionals, for example psychiatrists, psychologists, social workers, family therapists, school counselors, etc., are also often concerned with this very same perplexing question when faced with certain unexplainable behaviors of children and adolescents: "Just what were you thinking?" I hope to convince readers that contemporary cognitive-developmental psychologists can come to the rescue. Let us first give some examples before providing a cognitive-developmental analysis and supportive research evidence.

Consider, by way of illustration, the new teenage driver, giddy with the thought of recently obtaining his or her driver's license, but who is recklessly speeding, only to uncontrollably hit a very sturdy oak tree that felt that it had the legitimate right of way. The parent's car is seriously damaged though injuries to their teen are minimal. What were the very active thought processes of the teenager just prior to this mishap? "I am invincible, I am unique, no accident could possibly happen to *me*!" The contributions of Elkind [1] and others give a clear picture of *adolescent egocentrism* and its many manifestations. Parents may not understand that their adolescent *was* most definitively thinking but at an age-appropriate cognitive level of development, thoughts that do not reflect the more mature reasoning of an adult. (Although parents often do not understand these phenomena, insurance companies know better!) For many parents, the question is rhetorical. That is, they are understandably angry at that moment and do not want to listen to feeble excuses. They are already trying to decide for how long their teenager should be grounded.

The "*What* were you *thinking*?" exhortation occurs at younger ages as well. Consider the 9-year-old, heady with the responsibility of walking home alone from school, not that far away. One sunny springtime school day, the child decides to become adventuresome and take an alternate route home. Surely, he theorizes, he can navigate his way back to their house. However, this decision leads the child into a neighborhood of rather unscrupulous residents where the convoluted streets and unrecognizable buildings confuse the boy who cannot find the way home. Cognitively, children of this age assume that they are surely old enough to figure out how to get home, unlike their younger sister. Frantic parents are now driving up and down the streets calling the child's name. Eventually the scared child is spotted and tearfully but gratefully leaps into the back seat of the car. "*What* were you *thinking?*" screams an equally fearful but now relieved parent.

Five-year-olds can also find themselves in perilous situations. Asked to walk the dog on just their one, well-known neighborhood street, the five-year-old may seize the tantalizing opportunity to cross the street at a dangerous but forbidden intersection, not realizing the potential peril. It is so close to home, just around the corner, so it must be safe, the child reasons. The child is not cognizant of the fact that there is no signal light, merely a four-way stop where the spring foliage has obscured some of the stop signs, making it difficult for drivers to navigate the intersection carefully. Several accidents have been reported here in recent years, unbeknownst to the child. It must be safe, it is in my neighborhood, the five-year old child theorizes, employing the black and white thinking characteristic of that age level. Concerned parents come to the rescue, concluding that the child was not thinking at all when, in fact, cognitively the child had concluded, albeit unrealistically, that it was a reasonable decision.

The examples above all represent situations where the child's or adolescent's safety is jeopardized, given their very active but immature thinking. However, there are many other examples that occur on the domestic home front where exasperated parents find themselves demanding of their children "*What* can you possibly have been *thinking*?" A creative four-year-old, who received a set of colorful ink pens for Christmas from relatives, decides to draw a mural in the newly wall-papered kitchen dining annex while the family and visiting relatives are relaxing in front of the cozy living-room fireplace. An exasperated mother, who had purposely decided to improve the kitchen area with new wall paper, given holiday family guests, comes into the kitchen to refresh the drinks and then shrieks "*What* were you *thinking?*". Of course, the beaming four-year-old *was* actively thinking that this would be a two-fold gift, thanking the relatives for the pens and then decorating the kitchen dining area walls for the holidays, something the mother would surely appreciate.

On a snowy day, an eight-year-old invites some friends to the house and after making a snowman; they become bored so they decide to create a different game, a version of baseball target practice. They create snowballs with the goal of throwing them at the house with the expressed and lofty goal of avoiding windows. They theorize that their throwing skills are sufficiently precise. Unfortunately, their intentions fall short of their athletic ability and after several pieces of window glass coming streaming both inside and outside the house, the furious father comes storming out the front door screaming "*What* in the hell were you *thinking?*" Here, we have another example of how cognitions are often unrealistic representations of actual world consequences, though the children clearly were thinking.

***Corresponding author:** Susan Harter, Department of Psychology, University of Denver, Denver, Colorado, USA, E-mail: sharter@du.edu

Received: January 11, 2017; **Accepted:** January 27, 2017; **Published:** January 30, 2017

Citation: Harter S (2017) What were You Thinking? J Psychiatry 20: 398 doi:10.4172/2378-5756.1000398

Adolescence does not automatically constitute an improvement in realistic thinking. Quite the contrary In fact, the amount of time a teenager spends "thinking" about his or her life increases dramatically where introspective, personal fiction trumps reality. Drama takes precedence. Sequestered in one's room after the Christmas gift exchange, a teenager laments the fact that the relatives just don't understand teenagers. The clothes they bought as gifts are atrocious. No self-respecting teen would wear anything like that to school or to the mall one would be humiliated! The obvious solution, the teenager reasons, is to simply burn them in the privacy of one's own room, in the waste basket which is, after all, metal. Lighting a match to the deplorable outfit, flames lead to smoke which is detectable downstairs and the alert mother rushes up and bangs on the teenager's door, clearly alarmed. She bursts into the room, leaps into action, running for water and a home fire extinguisher, and puts out the spreading fire, adding in a tremulous tone of voice, "*What* could you possibly have been *thinking?"* The teen, absorbed in self-consciously charged thinking and emotionally-egocentric conclusions, runs out of the house screaming "you just don't understand!"

Background

From an early age, children are actively constructing vivid theories designed to make sense of the complicated world that confronts them in order to comprehend their personal role. These theories constitute the natural process of what the field has defined as *cognitive development*. Jean Piaget [2] was perhaps our greatest historical contributor. The present chapter relies on much of the work of a contemporary "great" in this field, Kurt Fischer, a colleague, who creatively expanded upon the work of Piaget to bring us numerous insights into "*What* was my child possibly *thinking*?" In point of fact, Fischer developed a comprehensive, 10-stage, neo-Piagetian theory of cognitive development that revolutionized the field [3]. Although Fischer's theory builds upon the earlier contributions of Piaget, it represents a more differentiated and conceptually sophisticated analysis of the stages of cognitive development, one that is also more amenable to empirical research.

Fischer's extensive theorizing and empirical work greatly influenced my own focus as a developmental researcher and a child therapist. My own theorizing and ensuing research has focused on how children at different developmental levels construct an understanding of the self, including their motivations, and their emotions. As Fischer has made clear, children do not merely inhabit themselves, they *construct* themselves. They are actually major theorists at every age, actively creating visions of who they are and why they feel and act as they do. Notably, the internal mental landscape of children changes systematically and dramatically with age, dictating new personal theories of experience at each fork in the expanding cognitive roads that the developing child psychologically navigates. These personal theories have provoked the curiosity of developmentalists. These changes also provoke the interest of parents but often lead to parental perplexity and consternation. "*What* was my child *thinking*?" If mental health professionals become involved, a thoughtful cognitive-developmental analysis can facilitate the distinction between age-appropriate, unrealistic thinking and more serious forms of pathology that are not normative and may require interventions or some form of professional treatment.

I will describe changes at four levels of development that produce cognitions, emotions, and behaviors that provoke the "*What* were you *thinking*" interrogation by parents or other adults in the child's life such as teachers, coaches, neighbors, ministers, school counselors, and mental health professionals. Often a cognitive-developmental approach can bring relief to parents and other adults in the child's life who come to appreciate the nature of the normal thought processes at various ages. As a result, this understanding can provide more charitable interpretations of the seemingly bizarre behaviors of our children and adolescents.

Many of these developments can be informed by Kurt Fischer's theory [3,4] My own work [5,6] has been enhanced by his many observations. His extensive work on childhood thought and adolescent cognition has been a beacon, illuminating my own understanding of the minds of children and adolescents. I address four developmental levels: Early childhood, middle to late childhood, early adolescence, and middle to late adolescence.

Early Childhood

The fanciful tales and self-descriptions told by young children are often very endearing if not humorous. Because young children do not have the cognitive abilities to distinguish many features of reality from fantasy, they can construct vivid make-believe accounts of their own experiences that defy conventional logic. Their imagination runs wild, normatively, and they delight in sharing their fabrications and fantasies with others. Some children project these onto imaginary companions [7].

Moreover, classic fairy tales epitomize make-believe themes that reinforce the young child's imagination. Peter Pan can fly, scary monsters and wolves attempt to devour unsuspecting children, and unattractive frogs can be transformed into handsome princes.

As Fischer [3] and colleagues [8] have insightfully pointed out beginning several decades ago, the young child's perceptions lack *accuracy*. This can be observed in several domains. For example, in my own work [5,6] we have demonstrated that the young child over-estimates his or her abilities. Thus, self-descriptions are replete with virtuosity; they represent a litany of talents. Young children proudly report that they can climb to the highest rung of the jungle gym, even stand on top. They can run faster than their older sibling or even their father!

From the perspective of Fischer's theory of cognitive development, the young child is in a stage of "all-or-none" thinking, what the lay person refers to as "black and white" thinking, with no intermediate shades of grey. Thus, competencies are typically viewed by young children as all-positive which benevolent parents typically support. Most parents assume or are hopeful that these obvious immature cognitive exaggerations, though often "cute" or humorous, will gradually subside with increasing age.

However, inaccuracies in judging one's capabilities can provide illustrations of situations that provoke parental distress, leading to "*What* were you *thinking*?" moments. For example, the five-year-old may very well try to climb precariously to the highest rung of the jungle gym, only to take a misstep and come tumbling to the graveled ground below. Hopefully, this results only in skinned knees and a teary moment that colorful band aids can mollify. Parents may fear more serious injuries that justify some consternation, revealed in a "*What* were you *thinking?"* experience.

Unfortunately, inaccurate perceptions of virtuosity, coupled with an emulation of Peter Pan, could lead the young child to hurl himself to the driveway from a second story window, in a concerted effort to fly. "*What* were you *thinking?"* asks an exasperated parent as she rushes

to the aid of her fallen child. (Tinker bell, with healing fairy dust, was nowhere in sight!) However, these examples, where the child may put himself or herself in harm's way point out a major role of parenting and the help from other adults in the child's life; they must provide for the child's *safety*. The fanciful thinking of children, as well as adolescents is inevitable, although it changes in nature with development. However, rather than question the child's thinking, out of frustration, fear, and exasperation, even with young children a much better strategy would be to "listen" to the child's seeming "logic" since only by attempting to understand his or her construction of reality can parents and other adults in the child's life begin to gradually scaffold the child's thinking to the next, somewhat more mature level.

The examples provided above document the major point of this article. As Fischer has argued, even very young children's minds are extremely fertile with their own age-appropriate theories of the world they actively inhabit and their current place in it. They are clearly *thinking* all of the time. Their young minds are not devoid of thought, as some adults assume. Quite the opposite they are rich repositories of theories that will fiercely be defended. As a result, such thoughts can produce behaviors that sometimes put the child at peril, primarily because their inaccurate, but age-appropriate thinking is so vivid.

The cognitive inability to come to logical conclusions about the consequences of their very active theorizing conspires with their penchant for make-believe, to provide other examples of the "*What* were you *thinking*?" response of parents. A four-year-old boy was observed to engage in a very industrious project in his bedroom, during the mandated "quiet" time. His parents were outside doing yard work. He amassed as many of the brand new dining room chairs as he could maneuver and tried valiantly to nail them to the frame of his bed.

In consternation, when his parents entered the room, they realized that the time had been anything but "quiet." "*What* were you *thinking?*" boomed the father, barely containing his anger, as he assesses the damage to the new chairs. His young son, visibly shaken, manages to muster only a very small voice, as he tries to explain: "There are scary monsters under my bed at night and I wanted to build a fort around my bed to keep them in, so they wouldn't get me." From the perspective of four-year-old thinking, this seems like very logical reasoning. Clearly this young boy had been thinking, planning, and acting with intent, based on his own age-appropriate logic. Moreover, he was not merely thinking, he was scared, *all*-scared. Monsters, real or imagined, do evoke considerable fear. Thus, children apply the same all-or-none process, not only to their thought or cognitions but to their emotional life, as well. As adults, we must appreciate the fact that their immature reasoning is deeply intertwined with young children's black-and-white emotional reactions.

Fischer and colleagues have described this phenomenon [9,10] charting the interface of cognitive and emotional development across childhood and adolescence. Our own work has specifically documented children's understanding of single and multiple emotions [1,7,9-11]. Most young children can verbalize their rudimentary understanding of four basic emotions: Happy, sad, mad, and scared. Our research clearly demonstrates that they also apply all-or-none, black-and-white thinking to their emotions. Thus, events provoke intense reactions where one is all happy, all sad, all mad, or all scared. The predominant emotion psychologically crowds out the possibility of other emotions. The result of this developmental phenomenon is that the emotional experience of a single emotion is far more intense than if more than one emotion is provoked, particularly the combination of a positive and negative emotion. However, the limitations of early childhood prevent young children from appreciating that they can have more than one emotion at any given point in time.

I first came to this realization in the play therapy room with a 6-year old girl who had been referred to our psychiatric clinic at the Yale Child Study Center. Her pediatrician was concerned that her dysfunctional family might have contributed to a range of what he considered "symptoms", including her pervasive all-or-none thinking in several domains. One example was in school, where she felt that she was "all dumb," that there wasn't a smart bone in her body. A second illustration was her claim that she was "all sad" because a favored aunt had moved away and she could no longer garner any positive feelings for this relative whom she felt had deserted her. Plus, she was "all mad" at her mother who could not fix the many problems in the family, including an abusive dad and husband. The pediatrician, with little training in the psychological thinking of young children, felt that the child was probably disturbed and in need of treatment. Thus, she ended up as a patient of mine where I saw her in weekly play therapy. The details of this case have been documented in a published article that also suggests a drawing technique that helped this child to come to realize that she was not "all dumb" in school, not "all sad" about her aunt's leaving, and not "all mad" at her mother, who was doing the best she could, given a very complicated family situation [9].

However, with support in therapy, this girl was able to developmentally advance in her thinking about emotions, I came to the tentative conclusion that her all-or-none thinking was not primarily a psychiatric problem. Rather, it was developmentally-determined, although somewhat exacerbated and delayed by a dysfunctional home situation where there was little support for more advanced thinking about her emotions. However, this assumption needed empirical evidence in the form of a normative developmental study which is precisely what we next undertook [7,9-11]. This study documented a systematic 5-stage sequence demonstrating how children's thinking about single and multiple emotions evolves over the ages of 4 to 12. We interpreted this sequence in terms of Fischer's theory of cognitive development. For example, we documented the cognitive-developmental reasons for why children's ability to acknowledge that they can experience two emotions at the same time, one positive and one negative, comes later toward the end of middle childhood. I will track some of the highlights of this progression as we continue to explore several levels of development in childhood and adolescence. Fischer's insights have guided me to an understanding of how cognitive development informs our interpretation of changes in children's inner emotional life, which becomes increasingly complex. Thus, adult reactions such as "*What* were you *thinking?*" also extend to the question of "*What* were you *feeling?*" That is, we must extend our inquiry to an appreciation for how a child's level of cognitive development, as articulated by Fischer, will impact not only children's understanding of their emotions but the intensity of these affective reactions, whether at home, in school, or in the therapy room.

Young children's demonstrations of their all-or-nothing thinking about their emotions can also be observed in public places, often to the chagrin of parents. Consider, as another illustration, the supermarket tantrum in the cereal aisle. After the young child's valiant attempt to climb the shelves fails when he or she cannot reach the fruit loops on the top shelf, there are the shrieks of total frustration, which cannot be tempered, the child is uncontrollably mad, *all* mad. The child's affective reaction represents an illustration of how all-or-none thinking also applies to emotions leading to his or her strong emotional response which cannot be mollified, much to the embarrassment of the mother,

given disapproving onlookers. Even the "Wait till I tell your father when we get home" threat is ineffective. As parents, we would do well to understand these phenomena rather than angrily putting the child through the third degree, demanding, "*What* could you possibly have been *thinking?*" Because ironically, a child cannot think about its own thinking when so emotionally upset. Calming them emotionally should be the immediate reaction. In addition, in a calmer state at home, a more fruitful discussion of what they were thinking, where parents listen instead of criticize, will be more productive.

Parents and mental health professionals should also appreciate that a young child's level of cognitive development will also influence how he or she interprets *parental* emotions. The same all-or-none thinking is displayed by the child. I once was talking to a four-year-old who told me about an instance in which he had misbehaved. He vividly described his mother as "all mad" and that he was "all scared" as a result. He then added an interesting perspective. He told me that when his mother was "all mad" she grew "much bigger!" It is likely that this perception was exacerbated by his reaction of total fear.

Combining Developmental and Clinical Approaches

As demonstrated in the case of the 6-year old who exhibited all-or-none thinking and was referred for therapy, the relationship between children's cognitive-developmental level of thinking and their emotional reactions can also be observed when there are seeming clinical symptoms. Here is a second case example. In my clinical work with children at the Yale Child Study Center, I was also asked to evaluate a four-year-old girl who had suddenly become severely constipated for several days. It was compromising her medically, and we needed a relatively quick answer. Laxatives, a temporary solution, were not the appropriate treatment. She resisted them valiantly, since they led to uncontrollable and embarrassing diarrhea. Her preschool teachers were also very concerned because she refused to use the bathroom at school.

The girl came from a loving home where both parents were very caring toward their daughter. The new event in their lives, when I met the four-year-old girl, was that the mother was about eight months pregnant with a boy. She talked lovingly to her daughter about how the girl would soon have a baby brother who was now growing inside mommy's tummy. She encouraged her daughter to feel mommy's stomach when the fetus started kicking. Wanting to be what she thought was a good female role model the mother told her daughter that "someday you will have a baby too."

I spent concentrated time with this young girl in a play therapy room of our clinic. My own approach with children was to move beyond initial interpretations about their play and to encourage them to verbalize their thoughts and feelings, as they have affected their real life [13]. After the fourth week, there was a major break-through. We were engaged in doll play and she had tentatively placed the girl doll at the bathroom door. Then she blurted out her personal four-year-old theory: "If I had a baby, I would bust in half, it would be too big! I'm really scared!"

Clearly she had done a lot of thinking about this personal problem, reasoning at her own cognitive-developmental level. From her perspective, it appeared that if a large baby might be growing inside of *her* tummy, like in her mother's tummy, it would break her small body in half. Plus, her stomach had become distended due to the constipation. However, there was a missing link, an inference to be drawn, but one that she was not yet able to verbalize. I surmised that at her age, the only physical analogue she could entertain about birth was defecation, something solid leaving her body. However, the solid thing she visualized was the size of a baby, far too big. Her theory that she would split in two left her terrified, totally scared. As a result, her body reacted by becoming constipated. This was the only way her body could conspire with her mind, to prevent the dreaded outcome. With further talk, she came to admit that she never wanted to go potty again, never. The key was to encourage her to change her seemingly very compelling theory. Eventually, she accepted the fact that she was far too young to have a baby -- she would have to be much older. She also came to appreciate that babies come out of a special place in the mother's body when she is a woman, not where she has her bowel movements. We drew rather simple pictures that helped. Soon thereafter, her constipation symptoms abated, as did her fears about giving birth based on the only theory that her four-year-old mind could construct [12,14]. This case example was noteworthy because the parents did *not* ask, in exasperation, "*What* were you *thinking*?" Recall an assumption of this chapter, that when parents ask that question, they are being implicitly critical of their child because they are assuming that he/she was either *not* thinking at all or thinking unrealistically. Although these parents were perplexed about their daughter's symptoms, they had some appreciation for the fact that there must be some underlying reason that had to do with their daughter's four-year-old level of reasoning. Fortunately, a cognitive-developmental approach illuminates our understanding of the very complex thought processes that this young child was entertaining. The point is that this very young girl *was* clearly thinking!

Middle-to-Late Childhood

Many of the features of early childhood cognitive development undergo dramatic changes as children move into middle-to-late childhood. All-or-none thinking fades as children develop the skills to reason more logically. Make-believe and fantasies, in their earlier form, abate. This does not mean that children no longer have imagined goals for their future. Rather, their aspirations become somewhat more realistic, as children consider societal roles rather than fairy tale fabrications. "*Children in this age period develop what*" Nelson [10], calls a "cultural self." Thus, girls want to be teachers, nurses, secretaries or mothers, boys want to be football players, policemen, doctors, or astronauts. Roles typically follow cultural gender stereotypes, for better or worse.

Fischer's theory of cognitive development, supported by our own extensive research [5,6] also points to how children at this older age level realize that they can now possess attributes that previously seemed like opposites, where only positive attributes defined the self in earlier childhood. That is, self-attributes are no longer viewed as all positive, characteristic of the previous stage of virtuosity. Older children now realize that they can be both smart *and* dumb, both nice *and* mean. This new level of cognitive development contributes to a more realistic self-portrait.

New-found cognitive as well as social skills allow for an important developmental advance, the ability to employ *social comparison* for the purpose of *self-evaluation*. These comparisons demand that older children attend to the social norms for competence as well as for physical attractiveness [5] for a discussion of the punishing cultural standards for women as well as men). Children actively position themselves on the social ladder, accordingly. As a result, judgments about the self can become more harsh, a potential liability of these newly-acquired skills. Thus, cognitive advances during development represent a double-edged sword. They allow for more complex and realistic thinking. However, an appreciation of the reality of one's social world can have

its drawbacks. For children who do not evaluate themselves as the smartest or the prettiest on the totem pole of social comparison, they can become discouraged if not depressed.

Concomitantly, self-conscious emotions come to the fore [6,15]. Feelings of guilt and shame about not living up to the new, realized social standards emerge, along with potential feelings of pride. Self-esteem, in the form of a verbalizable sense of one's worth as a person, enters the repertoire of self-evaluation [5]. However, this allows for the ability to question one's global worth, as children internalize the peer and family values about what constitutes a desirable person in their culture. The potential liability is that older children may come to think that they do not measure up to the prevailing societal standards. Extensive research reveals that low self-worth or self-esteem is highly predictive of *depression.*

These cognitive advances and concomitant liabilities usher in new situations that may provoke a "*What* were you *thinking*?" adult reaction. Parents and teachers now have new and more mature behavioral expectations for children during middle to late childhood. "What do you mean you forgot to bring home the permission slip for the field trip and now it's too late? "*What* were you *thinking*?" The older child must now simultaneously navigate the worlds of both home and school. There are more demands put on the older child to expand his or her thinking which becomes more complex as domains of functioning increase. The strategic preoccupation with winning the championship little league game may interfere with a concern about the forgotten permission slip.

Expectations about responsibilities on the home front may clash, not only with school demands but with peer relationships. "*What* were you *thinking* the day your friends were over when you hurriedly took out the trash but forgot to put the lid on the can? Don't you know that at this time of the year, when the bears come out of hibernation, they are extremely hungry and overly aggressive in their search for food? And look what happened, garbage all over the driveway!" Thus, attention to peer relationships can interfere with home responsibilities. Another example can be found when a frustrated mother asserts: "You were supposed to be watching your younger brother instead of playing video games with your friends, and he burned himself trying to light the wood stove. *What* were you *thinking*?" Of course the older child *was* thinking but not about his younger brother. He was thinking about how to maintain his friendships, popularity, and social currency. He was not balancing these critical social goals with his home responsibilities.

Many in middle childhood engage in sports such as soccer, football, baseball, or basketball. This is an arena rife with opportunities for soccer moms and baseball dads to cry out in irritation "*What* were you *thinking* when you were up at bat at the end of the inning and struck out? Why didn't you swing at that pitch and not risk being called out on strikes?" In most cases the child *was* thinking. He or she lamely replies "The coach told me not to swing if it was 3 balls and 2 strikes, to try to get a walk to get on base, since the score was tied. I was also scared since the pitcher is known to try to hit the batter at 3 and 2 and so I stepped back because I didn't want to get hurt." However, often the child is not given the opportunity to explain his or her thinking because he is too flustered by the harsh parental reaction, giving him or her little opportunity for dialogue.

More generally, new expectations in the realm of home, the classroom, peer relationships, sports, and other extracurricular activities pull the older children in different directions in terms of "*what* were you *thinking?*" interrogations. Teachers may also express their frustration: "What do you mean you didn't do your homework assignment? It was clearly written on the board. *What* were you *thinking*?" In his or her defense, the older child may have been pondering the transgressions of the previous day when he did not vigilantly watch his younger brother, theorizing about how he could avoid being grounded. Of interest is the fact that what adults label as "lying" emerges at this age level, although skills at prevarication vary across children. Here again, one needs to achieve a certain level of cognitive development in order to construct a credible lie. Most children, fortunately, fall short. That said, sensitive listening on the part of the parents, rather than instantaneous grounding, represents a better reaction that can lead to mutual problem-solving solutions.

Thus, as children move to higher developmental levels, the focus of their thinking and the theories they construct to solve new life challenges change to deal with the evolving expectations of family, peers, teachers, and coaches. The increasing number of contexts provides new opportunities for "*What* were you *thinking*?" interrogations. The emergence of self-conscious emotions such as guilt, shame, and humiliation adds a new layer of complexity to the theories and reactions that the older child can bring to bear on a situation, in response to these exhortations.

Early Adolescence

There are new cognitive-developmental acquisitions that provoke "*What* were you *thinking*?" parental exclamations during early adolescence. Fischer's theory alerts us to the fact that despite the cognitive advances that emerge at the advent of adolescence, there are new liabilities. Fischer makes the general point that movement to any new stage of cognitive development, which brings advances also inevitably brings about new liabilities. This observation marks a major contribution of his theory.

One defining feature of early adolescence is the emergence of multiple selves across different social roles. The differentiation of multiple selves represents an advance, but it can also reflect a liability, as our own research has amply demonstrated [5,7]. The young adolescent constructs a self with parents, where the attributes differ from the social self with peers. This latter self, in turn, differs from the relevant characteristics of the self as student in the classroom. However, the attributes that define these different selves are highly *compartmentalized*, as Fischer points out. They are not integrated into a single, overarching self. Thus, young adolescents may report that they are often sad at home because parents do not understand them. Conversely, they are cheerful around peers, where they can be fun-loving. That self with peers may be different from what they display in the classroom, where they are studious and more serious.

Multiple selves that are highly compartmentalized, as emphasized in Fischer's theory, have their cognitive advantages. For example, they protect young adolescents from detecting potential contradictions among their multiple selves. Thus, the budding teenager is not troubled by the fact that she can be sad with parents but happy or cheerful with friends. The downside to this compartmentalization is that the "*What* were you *thinking*?" encounters may increase, setting the stage for adolescence to become the grand inquisition. The expectations of others in each role are clearly differentiated, leading to potential interpersonal conflicts that are not anticipated by the adolescent. The Friday night highly celebrated basketball game is the social and athletic event of the week, obligatory among one's group of friends. It is a ritual that commands one's social attention. Yet parents are insistent that Friday evening be "family night", where each member is expected to describe his or her week as they talk around the dinner table while

enjoying their favorite pizza. Two very different agendas, one defined by peers versus a second demanded by parents, clash. Important peer loyalties may be strained when, for perhaps for the first time, friends feel betrayed. A close friend was going to drive them to the game but the adolescent feels compelled, instead, to participate in Friday family night, capitulating to parental demands. Peers retort "*What* are you *thinking*, Dude?" A chorus of friends now complains because they feel let down and are angry.

Alternatively, if the young adolescent opts to accompany his friends to the Friday night game, a ritual of equal importance if one wants to maintain one's valued peer relationships, one can incur the wrath of his parents. Dad can sometimes be the "heavy." "*What* can you possibly are *thinking*? You know how important Friday nights is to your mother. We hardly see you during the week given how busy you are with activities; this is the one time that you can show your respect for our family. How dare you be disruptive! You have plenty of time every day with your friends. All we are asking is one evening. In addition, your mother has ordered your favorite pizza. At least *act* like you appreciate the family tradition. Grow up!"

What we observe in this highly charged episode is that the confrontational assault lengthens and escalates. The young adolescent is forced to face the dilemma, represented by the different demands of clashing roles, but is ill-equipped to deal with the situation. It becomes evident that the consequences of disappointing either peers or parents are dire. The young adolescent has yet to develop successful skills for coping with this dilemma. He has cognitively compartmentalized these relationships, never imagining that they would clash. His reaction? "I'm going to my room" he murmurs, where he turns off his cell phone, unable to deal with disappointed friends either. Loud, hard-rock music coursing through earphones doesn't appease his distress.

There is another major cognitive advance at early adolescence in Fischer's theory, namely the emergence of *abstract thought* which is the cognitive ability to construct *abstractions* about the self and one's experiences. For example, one can construct an abstraction such as "intelligent" by combining more specific traits such as curious, smart, and scholastically competent. Or, in the social realm, the abstraction of "introvert" might reflect a combination of such specific traits as being shy, nervous, and uncomfortable. In contrast, the abstraction of "extrovert" could reflect the combination of talkative, outgoing, and funny.

Abstract thinking represents a cognitive advance; however, it can also usher in new liabilities, as Fischer cogently observes. For example, abstractions are conceptually removed from specific traits and even further removed from concrete, observable behaviors. As a result, they are therefore more susceptible to distortions because they are more difficult to verify than traits, which build upon concrete behaviors. Theories of self-based on abstractions are thus likely to be somewhat inaccurate. Such distortions can lead to vulnerability and defensiveness, if the young adolescent is confronted with "*What* were you *thinking*?" interrogations. For example, an adolescent may have constructed the abstraction that he or she is "intelligent", combining the attributes of being curious, studious, and scholastically competent. These psychological trait labels, in turn, are based on observable behaviors such as good grades and report cards. However, if the adolescent is primarily thinking at the level of abstractions, rather than at the level of traits or the observable behaviors at the bottom of this hierarchy, abstractions may be challenged.

Consider the dreaded standardized achievement tests that teachers may loathe, that students can fear, and that parents try unsuccessfully to comprehend. When the results are painfully made public, the adolescent, who considered himself quite intelligent, has not done as well as anticipated. "*What* were you *thinking*?" the parents demand, "Why didn't you study? Did you think you were so intelligent that you could just blow off the test? You know how important these achievement tests are, if you ever want to go to college!"

The young adolescent has little in the way of a compelling retort his abstraction about his perceived intelligence cannot be realistically defended. The abstraction that he is intelligent fails him, in light of his inadequate test performance. It does not immediately provide a ready answer to the inquiry into what he was thinking. In point of fact, he was not thinking logically about the implications of his test results which contradicted his self-concept as an intelligent student. He unrealistically just assumed that he would do well, given his general self-theory that he was intelligent. Thus, although abstractions about the self are advanced, cognitively, they do not necessarily equip the adolescent with the defensible strategies to protect the self against "*What* were you *thinking*" queries of parents.

Middle-to-Late Adolescence

Another one of the major contributions of Fischer's theory of cognitive development is that the documented normative developmental trajectories are not necessarily *linear*. That is, the developmental progression of theories about one's experiences in the minds of children and adolescents does not necessarily lead to increasingly more positive outcomes. Cognitive advances can lead to setbacks. That is, there can be minefields on the path to more complex thinking. Middle-to-late adolescence provokes the creation of new, and the destruction of old, theories of self that can lead to troublesome new-found "*What* were you *thinking*?" situations.

Perplexity is shared by both the adolescent and his or her parents. Both are impacted by the changing thought processes that normatively emerge in middle adolescence, at ages 14 to 15 in U.S. culture. As Fischer has observed, new cognitive skills now include the ability to *compare* abstractions about the self, including his or her emotions in different roles. For example, the adolescent can now realize that he or she can feel both hopeless and optimistic about the future, at the same time. There is an acknowledgement that one can be both an introvert and extrovert, simultaneously. To take a very common culturally-determined preoccupation, one can believe that one looks attractive when looking in the bathroom mirror, but when faced with the social mirror at school, one's appearance is woefully inadequate.

Thus, contradictions between self-attributes in different roles now become painfully apparent (whereas in early adolescence, compartmentalization spared the young teen from recognizing these intrapsychic clashes). The new-found ability to compare these abstractions about the self in different roles becomes problematic. Attributes that define one's multiple selves now clash, provoking internal conflict and confusion [5,7]. Adolescents at this stage do not have the cognitive ability to reconcile these contradictions that they can now vividly and painfully recognize. They cannot integrate these disparate self-perceptions which, in turn, produce emotional distress.

All-or-nothing thinking can now be observed at the level of abstract thought. At one moment, the adolescent feels totally intelligent yet quickly can shift to feeling like a total dork. Another such example can be observed when an adolescent girl faces the prom. When she

dresses for the dance, she feels she is wearing the most beautiful gown in the world. She feels like a beautiful princess. Her mother bought the gown at a modest dress shop in town, not the most expensive, where her mother reminded her that they were on a tight budget. When she and her date arrive at the prom, she is snubbed by one of the most popular girls who were flaunting an elaborate gown that was obviously much more expensive. Our adolescent girl feels totally humiliated. She races toward the restroom stifling tears. To the bewilderment of her date, she demands that he take her home, *now*! Her perplexed mother greets her now sobbing daughter at the door, as her confused date flees with a flimsy excuse. "I just had to leave," the daughter, insists between sobs, "it was so humiliating! Everybody was looking just at me! I'll never be able to face them again!"

"*What* was your *thinking, honey*?" the mother asks empathically, as she hugs her distraught daughter. Yes, this question can be transformed from an accusation into a gentle and empathic query that allows the adolescent to share her theory of the episode with a parent who is listening. She had felt like a beauty queen when she left home for the prom, only to return looking like Cinderella *before* the ball. "They were all staring at me," she laments, "as if they knew that I had a cheaper gown. Tiffany looked beautiful and I know she will be voted the prom queen. I never want to go to another dance *in my entire life! Never!* I don't know how I can go to school on Monday, I just can't face anybody, I'll just plan to be sick, OK?" One can observe in this vignette Elkind's [1] concept of the *imaginary audience,* one form of adolescent egocentrism. One assumes that everyone is as preoccupied with one's own behavior as one is with oneself.

Another of Fischer's contributions to our understanding of adolescent thought is that vacillations are common occurrences, much to the consternation of perplexed parents. Theories still dominate the adolescent's thinking, but they are not stable and they are not under what Fischer labels as "cognitive control". This is another liability of the movement to a new cognitive level. New skills have to be honed, through practice, just as athletic skills, for example, in tennis or other sports, need to be refined and brought under one's control. Cognitive skills must also be perfected over time which can represent a painful process for all.

As teenagers make the transition into late adolescence, with support they will move into a new level of abstract thought, what Fischer labels higher level abstractions. Older adolescents become more capable of integrating earlier contradictory perceptions of self. For example, feeling both depressed and cheerful can now be integrated into the higher level abstraction that one is "moody". Other earlier contradictions, such as being both an introvert and an extrovert, can be integrated into the concept that one is "flexible", appropriate in different social situations. For example, on a first date it is understandable that one may be a bit shy and anxious, attributes that define introverted. However, there are other situations where it is acceptable to be extroverted, like at the Friday night basketball game! Other solutions may also become apparent: "I'll go to family night every other Friday and even offer to pick up the pizza!"

The ability to integrate attributes that previously seemed contradictory improves with further cognitive development, leading to less confusion and distress over time. Such progress also depends upon the support of significant others. Fischer makes a cogent argument for how the further one travels along the pathway to higher levels of cognitive development, the more social scaffolding is necessary, in the form of guidance and instruction from adults [4]. However, given the developmental urge to become autonomous from one's parents [5,6] often other adults in the life of a teenager such as teachers, coaches, counselors, ministers, psychiatrists, psychologists, social workers, etc., become essential in this liberation process. Without such external interventions, individuals will not reach more mature levels of cognitive development.

If individuals other than parents' guide the adolescent are thinking toward greater clarity and maturity, it is essential to realize that autonomy goals do not exist in isolation. Rather, although the normal, healthy, adolescent wishes to become independent of parents, he or she also longs to remain *connected* to parents, which is why this period of development is particularly fraught with seemingly inexplicable behavior. For example, an 18-year-old who moves out of the house and into a college dormitory may feel liberated but can also perplex parents because their adolescent bitterly complains that the parents don't call, email, mail comforting packages, or visit frequently enough.

It is this combination of needed autonomy *plus* continued connectedness that other adults such as mental health professionals need to keep in mind. The goal of therapeutic interventions is not to transfer dependence on parents to the psychiatrist or psychologist, for example, but to foster a healthier relationship between the adolescent and parents, in the face of changing life circumstances.

It is critical to realize, therefore, that cognitive development itself does not automatically propel the adolescent toward mature thinking. Moreover, cognitive neuro-science has revealed that the frontal lobes, the site of eventual mature decision making or conversely of risk-taking behavior, are not fully developed until the mid-twenties [5,16]. Many parents assume that graduation from high school signals the transition to adulthood. However, as Arnett [17] has cogently argued and documented, the age period of 18-25 represents an under-investigated stage that he has labelled "emerging adulthood." During this period, the young adult is still trying to master culturally-determined roles that involve occupational exploration, the development of adult social relationships, the experimentation with intimate relationships, the daily skills of managing one's new, emancipated life, the redefining of one's relationship with parents, and the list goes on. Thus, our adolescents, as well as our "emerging adults", continue to need the support of the various mature adults in their lives, to foster advanced, logical, and realistic thinking that will help to address their life challenges. I believe that the role of such external support should be applied to the question raised in this chapter, "*What* were you *thinking*?" This parental query need not be accusatory, it need not represent an anxiety-producing interrogation that turns adolescence into the grand inquisition and may rupture family harmony. It could be an empathic inquiry, accompanied by a hug. It could be an opportunity for support and dialogue. The question could be reframed as "I know you had a reason for what you did and so I'd really like you to share that with me so that I can understand what you were thinking." Just listening (a skill that many parents need to practice) can be a very powerful, positive intervention.

References

1. Elkind D (1967) Egocentrism in adolescence. Child Dev 38: 1025-1034.
2. Piaget J (1960) The psychology of intelligence. Psatterson NJ: Littlefield-Adams.
3. Fischer KW (1980) A theory of cognitive development: The control and construction of hierarchies of skills. Psychol Rev 87: 477-531.
4. Fischer KW, Bidell TR (2006) Dynamic development of action and thought. In W Damon & R.M. Lerner Eds Handbook of child psychology New York: Wiley, 6th ed. 313-399.
5. Harter S (1999) The construction of the self: A developmental perspective.

Guilford Press, New York, USA.

6. Harter S (2012) The construction of the self: Developmental and sociocultural Foundations. Guilford Press, New York, USA.
7. Harter S, Monsour A (1987) A developmental analysis of conflict caused by opposing attributes in the adolescent self-portrait. Dev Psychol 28: 251-260.
8. Fischer KW, Canfield R (1986) The ambiguity of stage and structure in behavior: Person and environment in the development of psychological structure. In I. Levin (Ed.), Stage and structure: Reopening the debate 246-267. Plenum, New York, USA.
9. Harter S (1977) A cognitive-developmental approach to children's expression of conflicting Feelings and a technique to facilitating such expression in play therapy. J Consult Clin Psychol 45: 417-432.
10. Nelson K (2003) Narrative and self, myth and memory: Emergence of the cultural self. Autobiographical memory and the construction of a narrative self 3-28 Mahwah. Erlbaum, NJ, USA.
11. Harter S, Buddin B (1987) Children understanding of the simultaneity of two emotions: A five-stage developmental acquisition sequence. Dev Psychol 23: 388-399.
12. Harter S, Chao C (1992) The role of competence in young children's creation of imaginary Friends. Merrill-Palmer Quarterly 38: 350-363.
13. Harter S (1988) Developmental and dynamic changes in the nature of the self-concept: Implications for child psychotherapy. Cognitive Development and Child Psychotherapy 119 :160 New York: Plenum.
14. Harter S (1982) Cognitive-developmental considerations in the conduct of play therapy.
15. Mascola M, Fischer KW (1995) Developmental transformations in appraisals for pride, shame, and guilt. Self-conscious emotions: The psychology of shame, guilt, embarrassment and pride. Guilford Press, New York, USA, 64: 113.
16. Dahl RE (2004) Adolescent brain development: A period of vulnerabilities and opportunities.
17. Arnett JJ (2010) Adolescence and emerging adulthood: A cultural approach 4th edition. Upper Saddle River. NJ: Pearson/Prentice Hall.