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Image from the report of a
detail of the figure of
Tutankhamen on the north
wall of the burial chamber

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A Timeline for Fostering Financial Aptitude in Children

By Edi Alvarez

Childrearing comes easier to some than others. Fortunately, we have years of child developmental psychology from which to draw. Why not borrow on that knowledge to create a rough timetable for fostering financial literacy?

Although the research conducted by biologist Jean Piaget (1896-1980) was primarily focused on how the human organism adapts to its environment, I find his work on chronological age correlation with child development (1) to be a useful starting point for designing ways to introduce financial concepts and healthy financial habits for children as they grow. Correlating age with financial activities is offered here only as a framework or guide and should be driven by a child's actual readiness and interest.

Beginning sometime after age two, toddlers are said to enter Piaget's "Symbolic Thought and Representation" phase (1), meaning they recognize symbols and show interest in them. Since money is a symbol, children who have entered this phase are quite capable of interacting with it and understanding, to a limited degree, the role of money as a medium of exchange. Once they show interest, you can help them by demonstrating how to pay for items and how to count change. Help them take ownership of a purchase by choosing something they want to buy. Keep in mind, at this age it's all about "me."

It is critical that this experience be as visual as possible. Some parents make use of a clear plastic jar labeled "Savings Jar," to which the child attaches a picture of his/her target purchase and uses it to collect coins. The goal needs to be small enough and coins added regularly to quickly attain a total amount that exceeds the targeted purchase. The child may begin to understand the symbolic representation of money through this process, although s/he may not yet comprehend the actual value. When carrying out this exercise you must let the child be in control of the purchase to some degree and (after the transaction is complete) give her or him the opportunity to return the remaining change to the "Savings Jar" for future use. You've now taken the first step toward instilling in your child the healthy habit of planning for purchases.

Until about 5 years of age, children are focused on understanding how things are represented (1). As they begin to count and develop relationships between their savings and making purchases, you can help them further by playing the equivalency game: 2 nickels equal one dime, ten dimes make one dollar, 20 nickels make a dollar while only four quarters represent the same dollar. You can also provide the child with an opportunity to appreciate and play with non-equivalency. Many children will expect that a nickel is worth more than a dime because of its size and that 20

nickels are worth more than 10 dimes because they make a larger stack.

Between the ages of 5 and 8 you may see your child begin to identify with the way those around them understand monetary concepts (1). This is an appropriate time to emphasize the concept of needs versus wants. Children begin to socialize and share with others, providing parents a great opportunity to introduce ideas on the role of money in our society. Some families accomplish this during weekly family meetings that incorporate readings or stories with samples of how people earn, spend, save, and give to charity.

Chores also become crystallized for children as part of their contribution to the family. You may find that linking chores to an allowance implies that chores are "optional" and may lead to their choosing to not do chores and forgo the allowance. Similarly, withholding an allowance as a form of punishment for not doing chores generally reinforces the wrong message. I like to think that the allowance provides children an opportunity to make mistakes as they learn to manage their own money. At this juncture, adults will need to battle their natural inclination to protect the child from overspending. Letting them make mistakes will help them understand the consequences of misusing money. It is much better, after all, for a child to spend their weekly allowance on candy and discover the ramifications early on rather than to spend their first paycheck on a new HDTV and end up without enough money to pay the rent!

A stable source of income builds confidence and fosters rational decisions on saving, purchasing, and giving. You may want to include incentives to encourage savings by matching or providing interest on amounts saved (2). Some families create a "Family Bank" (an evolution on the "Savings Jar") to which children can save and earn higher interest than they would normally earn at a regular bank. They can track their earnings in a book or worksheet. Why? For children the incentive needs to be obvious, even a bit exaggerated. Opening a regular savings account or purchasing a savings bond for your child is undoubtedly a desirable third step but probably less effective as an interim teaching tool owing to the characteristically low interest rates and less "hands-on" nature of these financial instruments.

I encourage you to share smart shopping habits like making a list before going to the store, looking for bargains and checking prices of name brands compared to store brands as part of your family shopping experience. You can, for example, provide your child with money for the purchase of a cereal and then allow them to



select their preference. You can assist by pointing out the less and more expensive options. Assuming they choose the less expensive option, let them keep in their “Bank” the difference between the two, so they can learn the value of thrift. When they later consume the product, you will have the opportunity to hear their views on the difference in taste or quality (which may or may not have been compromised). In a concrete manner they will build smart shopping habits, mastering a balance between price and quality to their own satisfaction.

Between ages 8 and 12, children may enter the “Operational Thinking and Concrete Operations” phase (1), meaning they are able to apply logic with increasing facility within the confines of concrete situations. At this stage, they are ready to understand saving and investing concepts as they experience it through the things they do. Decision-making at this stage generally becomes much less egocentric. Here is an opportunity to discuss family financial tradeoffs. Children may also be ready to share their long term goals and explore ways to make those goals a reality. Many children at this age will get very excited about the possibility of earning money, brainstorming business or earning opportunities such as babysitting, garage sales, dog walking, selling lemonade or cutting the neighbor’s lawn. Listen to your child and encourage them to explore their talents and skills. Let them develop, plan, and execute their earning opportunity. Regardless of their success or failure in these ventures, they will build confidence and become self-reliant.

Depending on environment and encouragement, some children will enter the “Formal Operations” stage (1) around age 12. At this time, they will demonstrate an ability to think and apply themselves more abstractly. At this time, they are equipped to absorb other (more complex) financial realities. Unfortunately, early adolescents may also demonstrate a tendency to revert to egocentric behavior, requiring some additional monitoring and guidance. Extending allowance payments to once every two weeks or even once a month helps children learn to plan according to their available resources and to develop ways in which to make their funds last. It is a great time for many parents to share the family budget and how to prioritize family spending with short, medium and long-term goals. This is also a perfect time to show your child the power of compound interest.

By age 14 you should discuss credit and debt. In particular, begin by showing them how a credit transaction works from the point of purchase (including how a credit card is used) to when the credit card bill arrives. A family project can be developed for teens to research the various credit cards available and what is important in the credit contract, what contract obligations exist and how the interest, payment schedule and additional fees can mount. Finally, you should share both why and how they need to track their credit reports. Ideally, have them report to the family at a family finance meeting on how credit scores are used and how their credit can affect them. If you find that they are ready, you may provide them with a restricted or prepaid credit card before they begin to receive credit card offers.

If you’ve set up a college fund, make them fully aware of how much you’ve invested on their behalf and how well (or poorly) it is doing. Together, you can discuss your budget for their educational goals.

As your teen approaches 18, consider promoting that old “Family Bank” to a “Family Investment Bank” and give older teens an opportunity to experience purchasing CDs, stocks, mutual funds and other investment tools (2). This can work well if parents limit the amount of choice to a manageable amount (3). You could also have them work directly with your family financial advisor.

From my own experience, the most valuable tool for parents is the regular family finance meeting. At these meetings financial concepts are introduced that are appropriate to their child’s age and developmental capacity, slowly and methodically encouraging them to participate in family budget decisions, and educating them on credit, philanthropy and investment options. Whenever possible, model or share your experiences to allow them to learn from your own purchase of a car or home.

In this column I have shared my thoughts on how parents may foster sound financial behavior in their children. A child’s developmental stage is very individual and will impact how responsive s/he is to financial coaching. By exploring financial literacy with your children in a safe environment, they will have a sense of fun and excitement about joining the “real world” blessed with healthy financial attitudes. Just as valuable, their participation in family finances has real potential to develop strong family bonds. ■

Thanks to everyone who shared their childhood and parenting experiences. Your continued feedback helps to make the Money Matters column relevant.

References

1. Richmond, P.G. (1970). *An Introduction to Piaget*. NY: Basic Books, Inc, Publishers.
2. Owen, David (2003). *First national Bank of Dad*. NY: Simon & Schuster, Inc, Publishers.
3. Modu, Emmanuel and Walker, Andrea (2002). *The Practical Investment Guide For Teens and Their Parents*. NY: The Berkeley Publishing Group.



Finances can support or derail professional and family life. It is Edi’s intention to be both a resource and advocate for our financial health. Edi is a Registered Investment Advisor in California and Certified Financial Planner™ providing financial services to individuals and businesses. She is a past president of the Association for Women in Science, San Francisco Chapter, and presently serves on the AWIS Finance Committee. Edi can be contacted at edi@aikapa.com.