

Vision Development and the Link to Developmental Milestones

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Introduction

While preparing several documents for the InfantSEE® program, I have happily revisited my background in vision development and overall development. The pioneers who greatly influenced the behavioral aspects of the profession were well versed in these concepts. However, much appears to have fallen by the wayside, even within the optometric community most closely aligned to the behavioral aspects of optometry.

I discovered in my review that as optometry collaborated with other professions in the early years,¹⁻⁴ it is important for the profession to continue this collaboration with disciplines outside of optometry. In the early years neither medicine nor optometry was as specialized as today. Optometry had a very “simple” responsibility of prescribing and dispensing lenses. Our optometric pioneers modified the profession’s abilities and responsibilities. We moved into vision development and function. Later, the medical emphasis of optometry gave the appearance of negating much of the collaboration between professions that had been established regarding human development. The privileges obtained in the expanded scope of optometric practice created divides not only between optometry and organized medicine but within the profession of optometry itself. This was especially true for those whose responsibility was child and vision development.

My attendance at the Association of Maternal and Child Health Programs (AMCHP) meeting in Washington, DC last February was very revealing. I saw opportunities to network with professionals whom I did not know existed. The indi-

viduals involved with AMCHP are professionals, in the trenches, who work with the babies/young children on a regular basis

How is Development Generally Defined?

Development is often defined as a measure of ability to perform a certain task, correlated with age. It is most often determined after the ability has been observed. Actually, development is an ongoing process that uses past and present information to accomplish current or future activity. To restrict development to only accomplish a specific task at a certain age is awkward and poorly represents the child to the parent and other caregivers. There is a covert or overt push to “get him up to speed,” but, development is so much more than measurement against a norm. It is a dynamic, ongoing process, not just a place in time.

How Does Development Take Place?

Development requires “doing”—looking by doing—reaching by doing—making mistakes and correcting by doing—exploring by doing—learning to release by doing, etc. The key word is doing. **Development is doing and doing requires planning.** This is not new. This concept has been promoted for many years by many individuals from all professions. Indeed, the concept of Reach-Grasp-Manipulate-Release requires successful planning at the beginning and end to become automatic in “doing.”

What Influence Does Vision Have on Overall Child Development?

A widespread guide to social and emotional milestones recommended to parents from Bright Futures and the American Academy of Pediatrics comes from the book by Shelov, *Caring for your Baby and Young Child: Birth to Age 5*.⁵ Without

linking social and emotional concepts to vision, it demonstrates these concepts are determined by observations of the baby’s visual interaction with their world. The implication is that vision has a significant influence on the determination of a baby’s social and emotional well-being. Getman, as a pupil of Gesell, recognized this fact many years ago in his writings on vision development. In particular, his book, *How to Develop Your Child’s Intelligence* was heavily based on visual exploration.⁶

In terms of evaluating milestones, there are eleven criteria listed for social and emotional milestones in Shelov’s book.⁵ The selected criteria can be seen to be heavily weighted in observed visual responses to social and emotional interactions (Table 1). He also included five criteria for cognitive milestones that have clear visual dominance (Table 2). Clearly, vision is most influential in overall development from a very early age.

There is an ongoing interrelationship between overall development and vision development. Getman states;

This book illustrates how the child’s world is built by him. Parents, teachers and clinicians can set the stage, but only the child himself can act thereon. A child is taught nothing - he learns everything - and vision is the supreme mechanism a child possesses for the interpretation of his world. All other mechanisms discussed here are important for a “total child,” but they are all subservient to vision.^{6(p 124)}

Our world is primarily a visual world, one we must explore and manipulate to gain the full wonder of it. Through time, we must learn to recognize time, space, size, texture, smell, feel, relationships, and all the other links to life that are to be developed as a “normal” process. We call these links developmental milestones but they

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Table 1. Social and Emotional Milestones⁶

- Shy or anxious with strangers
- Cries when mother or father leaves
- Enjoys imitating people in his play
- Shows specific preferences for certain people and toys
- Tests parental responses to his actions during feedings. (What do you do when he refuses a food?)
- Tests parental responses to his behavior. (What do you do if he cries after you leave the room?)
- May be fearful in some situations
- Prefers mother and/or regular caregiver over all others
- Repeats sounds or gestures for attention
- Finger-feeds himself
- Extends arm or leg to help when being dressed

are heavily weighted in the development of vision. Optometry's responsibility is to provide recognition, observation and guidance for parents in this process. The baby is supplied the platform necessary to reach his/her most complete development. Again quoting from Getman:

Thus the child develops vision and in the course of normal development is preparing to adapt himself to his culture and to operate satisfactorily within it.^{7 (p 15)}

In today's culture, there are so many distractions, not only for the child but also for the parent. When these distractions interfere with the engagement of activities that should lead to more appropriate overall development, then overall development is limited. Activities that can lead to more appropriate overall development must then be rigorously addressed through alternative means. The parent needs to be aware of these "problem areas" to be able to provide intervention at the earliest age of recognition. Even at a very early age, vision is leading the overall process of development!

What Are Potential Problem Areas?

In today's society there are so many more cultural expectations and diversions. Parents are often left exhausted trying to meet their "obligations." It begins almost at the moment of conception. The pregnant mother must begin to alter her lifestyle to provide nurturing for the yet unborn child. Alcohol avoidance, proper nutrition, proper exercise and minimizing stress as much as possible are examples. Once the

Table 2. Cognitive Milestones⁶

- Explores objects in many different ways (shaking, banging, throwing, dropping)
- Finds hidden objects easily
- Looks at correct picture when the image is named
- Imitates gestures
- Begins to use objects correctly (drinking from cup, brushing hair, dialing phone, listening to receiver)

baby enters the world, the parent's undivided attention to the baby is often stressful. Doctor's appointments, shots, vaccinations, and feeding are very time consuming for a new parent. The parent's socialization with friends is often reduced to an occasional text message or phone calls rather than personal visits. This is often accomplished during feeding times when the parent may feel they can multi-task. This, however, is a very inappropriate time to engage in these activities.

Baby companies are promoting activities and devices that help the baby "develop faster" and minimize the effort required by the parent. Devices such as playpens have been discouraged but oftentimes, the devices that take their place are even more restricting. The baby carriers or "containers," as some call them, limit vision development and potentially limit overall development. Devices that promote less effort for the parent when teaching the child to walk are too often utilized prior to the time the child is ready to walk. Another area of recommendation by child advocates is that the baby sleeps on its back to minimize the potential for Sudden Infant Death Syndrome. Though necessary, this minimizes the amount of "tummy time" activities. It becomes important that we encourage parents to have specific periods of "tummy time" for development of visual upright and the beginning of distance visual exploration as well as the development of neck muscles.

Learning videos may be helpful at certain ages but they are often used when active exploration rather than passive learning is necessary. None of these are bad but they are often used to excess and at inappropriate times.

How Can We Provide Earlier Identification of Issues?

The most effective means of identifying these issues is to become engaged in the developmental process at the earliest time possible. We often wait for a problem to

appear before we treat it, rather than encouraging activities that have been commonly used in the past. Modern technology has overtaken common sense. Our culture emphasizes episodic care and this is pervasive in all of areas of health care. It is important that we begin to think in terms of lifetime care, preventive care and guidance/enhancement rather than episodic care.

Consult with the parent about activities that engage vision in everything they do. Raise the parent's awareness of the importance of development during pregnancy. After birth, looking at the baby during feeding and diapering is helpful.

Later activities are designed to build both social and motor skills. Another example would be picking up the toy knocked off the high chair so the game could be played over and over. These games are very important to the developing visual process. Any activity that increases parent/baby interaction is desirable for the development of social and emotional milestones. We must encourage the use of activities that parents have used for centuries.

Do Optometrists Have a Responsibility in Overall Child Development?

With the obvious link of visual and overall development, it is important for the parent to first recognize the link between visual and overall development. The parent should then become involved in the process. At the earlier ages, the guidance activities that are familiar to us as professionals are too often not a part of the parent's culture. Often educating the parent of the need for tummy time, feeding from both sides, giving the baby different visual experiences, etc., are all the activities that might be necessary to provide a solid foundation in visual development. Vision development is vital for overall development of measurable milestones in social, emotional and cognitive areas. Optometry has a significant responsibility in this process.

Organizations that work so prominently with children must forge relationships with other organizations that strive to foster overall child development. Professionals should raise the awareness of the importance of vision development during the baby's critical stages of development. Following these principles and suggestions, I believe, will improve the overall development of the child who will be

Continued on page 158

STEELE continued

a more prepared individual to meet the challenges of society.

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