

The background features a light blue-to-purple gradient. Scattered throughout are several realistic water droplets of various sizes, some with highlights and shadows. In the center, there is a faint, light-colored diagram of a human eye, showing the iris, pupil, and surrounding structures.

The Process of Visual Engagement in Overall Development

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Background

- The Process of Visual Engagement is not a solitary stand-alone action
- It is involved in every process of development from becoming aware through action

Background

- What goes into the process?
- Remember Bubba's Nine A's

- Awakening
- Awareness
- Attention
- Anticipation

Action

Adjustment

Accomplishment

Adaptation

- Acquittal

Background

- LOOK ↔ ATTENTION ↔ FOCUS ↔ IDENTIFICATION ↔ ENGAGEMENT
- There is always a process waiting to be activated, inhibited, or recycled (to pass again through a series of changes or treatments)
- The developmental process can be active, passive or anywhere between
- There are 35,000 opportunities of choice EVERY DAY that will influence development

The Process

- One's internal curiosity is a driver throughout the entire developmental process
- The type of exploratory path that a young child takes to reach the object/person/activity is determined by the intensity used by the young child to get to a point of ENGAGEMENT
 - Calling words or Reading

The Process

- The manner in which the developing child manages internal curiosity is a determinant of how development will be achieved
- This process does not begin when the patient is first sitting in your chair
- **There is always a process waiting to be activated or inhibited**

The Process

- First one must **LOOK**. If LOOKING is passive or minimal, it is difficult or impossible to effectively expand into the ensuing stages
- Then **ATTENTION**. Even with LOOKING in place, if it is not used to direct ATTENTION, the ensuing stages will be limited
- **FOCUS** follows the effective utilization of LOOKING and ATTENTION

The Process

- With those in place, more detailed FOCUS sets the foundation for **IDENTIFICATION**. The process of IDENTIFICATION comes further up the developmental process and must have sufficient support of the LOOK, ATTEND, and FOCUS processes
- The level of **ENGAGEMENT** will be determined by how sophisticated the stages of LOOKING, ATTENTION, FOCUS and IDENTIFICATION are formed and utilized

The REACHES

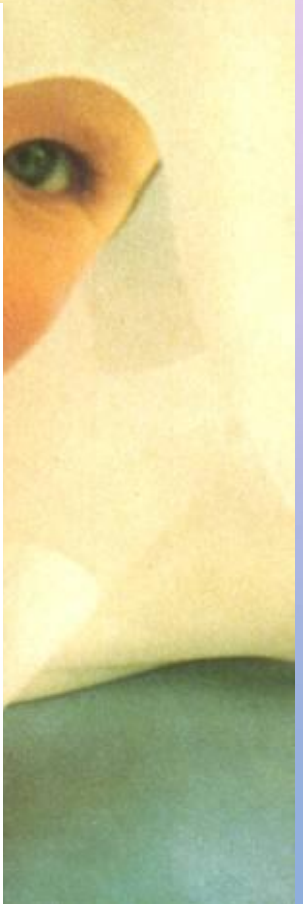
- Begins with stimulation from some process – the initial stimulus may or may not include vision – but vision is always involved
- Reaches are more than sensory processes and include – Looking-listening-feeling-smelling-tasting and any of the other “senses”

The REACHES

- Internal curiosity drives the REACHES which forms the patterns of development
 - SEE – primarily passive – LOOK – primarily active
 - HEAR – primarily passive - LISTEN – primarily active
 - TOUCH – primarily passive - FEEL – primarily active
 - TASTE-SMELL – have both passive and active aspects
- There is always a process waiting to be activated, inhibited, or recycled (return to a previous stage in a cyclic process)

Development

- So - is development primarily active or primarily passive
- Can it be fully either way or is it some combination of each extreme
- When does it begin
- What is the depth and intensity of internal curiosity





Steps to ENGAGEMENT

- Eye contact – LOOKING and AWARENESS
- Social smile – AWARENESS and ATTENTION
- Awareness of hands and feet – LOOK, ATTENTION, and FOCUS

Steps to ENGAGEMENT

- Goal-directed hand movements – LOOK, ATTEND, FOCUS, IDENTIFY, and ENGAGE
- Self-initiated movements to reach an object or item of interest – LOOK, ATTENTION, FOCUS, IDENTIFY, and ENGAGE
- Recognition of facial features – LOOK, ATTEND, FOCUS, IDENTIFY and ENGAGE

Steps to ENGAGEMENT

- Involvement in activities beyond their Circle of Understanding -
LOOK, ATTEND, FOCUS, IDENTIFY and ENGAGE

Circle of Understanding

- Development must always be considered as an ongoing and expanding process
- As our Circle of Understanding moves beyond that which we can touch, vision takes on a higher priority as the child moves through each stage

Area of greatest
comfort
Things they can
reach and touch

Fear Zone

Things they
cannot
touch or
engage

Vast
Unknown
Not going there

Area of Comfort

Caution
Zone
Been there
But cannot
touch

U
N
K
N
O
w
n

The "Comfort" Zone
or
Circle of
Understanding



Circle of Understanding Examples

Just Look Retinoscopy

- +1.00 inside Circle of Understanding
- +4.00 after crossing outside the Circle
- +1.50 inside Circle of Understanding
- -1.00 after crossing outside the circle

Disruptions in the Process

- In each of the areas, disruptions occur limiting the immediate and the long-term processes leading to engagement
- Any limitations in the foundation developed through previous stages almost always ensure an incomplete activation and vulnerabilities at the next stage

Foundations

- LOOKING and ATTENTION must be in place in order to FOCUS
- With good stages of LOOKING, ATTENTION, and FOCUS in place, IDENTIFICATION operates in a more sophisticated manner
- Based on how these foundations are established, we modulate toward the object/task/person - ENGAGEMENT

• LOOKING  ENGAGEMENT

Foundations

- In summary, when, **LOOKING, ATTENTION, FOCUS, IDENTIFICATION, and ENGAGEMENT** are in full active place, potential abilities and opportunities and actions reach levels that would not have otherwise been achieved without additional effort.

Exploration to Fixation – LOOKING TO ENGAGEMENT

- A recent exchange on the DOC list prompted me to revisit an article entitled, “**An Oculomotor continuum from exploration to fixation**” by Otero-Millan, Macknik, Langston, and Martinez-Conde published in Proceedings of the National Academies of Science in 2013
- An oculomotor continuum from exploration to fixation; Jorge Otero-Millan,^{a,b} Stephen L. Macknik,^{a,c} Rachel E. Langston,^{a,d} and Susana Martinez-Conde
Proc Natl Acad Sci U S A. Apr 9, 2013

Exploration to Fixation – LOOKING TO ENGAGEMENT

- If we think of this continuum from exploration to fixation, we are first scanning in DEFOCUS mode until we discover something of interest in which we slide toward fixation and FOCUS.
- Depending upon the level of curiosity and sustained interest, the child may ENGAGE in the object/target/activity in more depth and/or for longer periods of time. LOOK – ATTEND - FOCUS – IDENTIFY – ENGAGE.

Exploration to Fixation – LOOKING TO ENGAGEMENT

- The movement along this line is in constant modulation shifting back and forth or up and down in the curiosity or importance of the object, task, or activity.
- LOOK ↔ ATTENTION ↔ FOCUS ↔ IDENTIFICATION ↔ ENGAGEMENT
- Everything we DO has an internal driver or curiosity and we respond to that internal driver

Meredith Graham

- “I think that people who have difficulty with eye movements have, first and foremost, difficulty with selecting the space to move to – it’s all in the planning rather than the execution.”

Meredith Graham – Bubba's Take

- From my curiosity – do I **WANT** to LOOK, **WHERE** do I LOOK, **HOW** do I LOOK, **WHAT IS THAT** to which I am LOOKING and **WHAT DO I DO WITH IT ONCE I LOOK-FOCUS-IDENTIFY-ENGAGE?**
- In other words, how much do I want to put into this activity?

Kitchener

- “Generally, the structure of the field is so automatic that it is unrecognized (for good or bad), but when the structure is inadequate or inconsistent with the task it will not support, or even suggest, the required actions.”

Bubba's Take

- **Curiosity breeds engagement and engagement breeds further curiosity**
- The process of development happens in a sequence but what the developing child DOES within that sequence determines their abilities and the person they eventually become.
- Sustaining at either extreme of Passive and Active is problematic

Development

- Development may be guided but the child must put themselves together



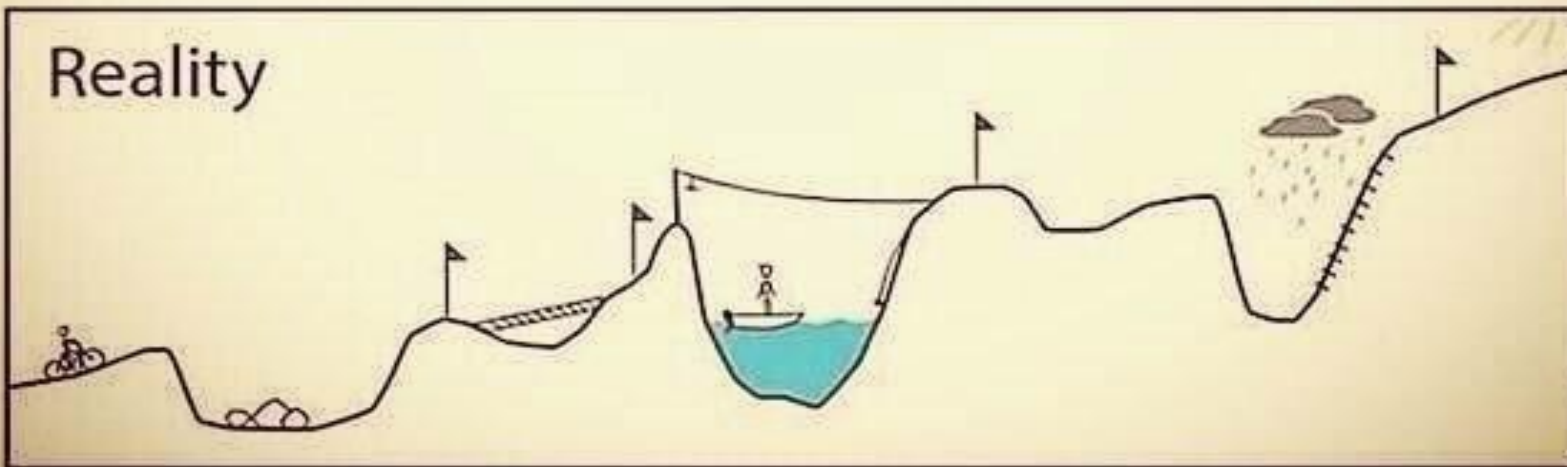
Development

- Do they passively sit and watch things go by or do they attempt to engage in the world?
- Do they passively accept what is happening to them or do they try to change engage in actions beyond themselves and their Circle of Understanding?
- Or are they active within this process

Your plan



Reality



Bubba's Adaptation Of Skeffington's Circles

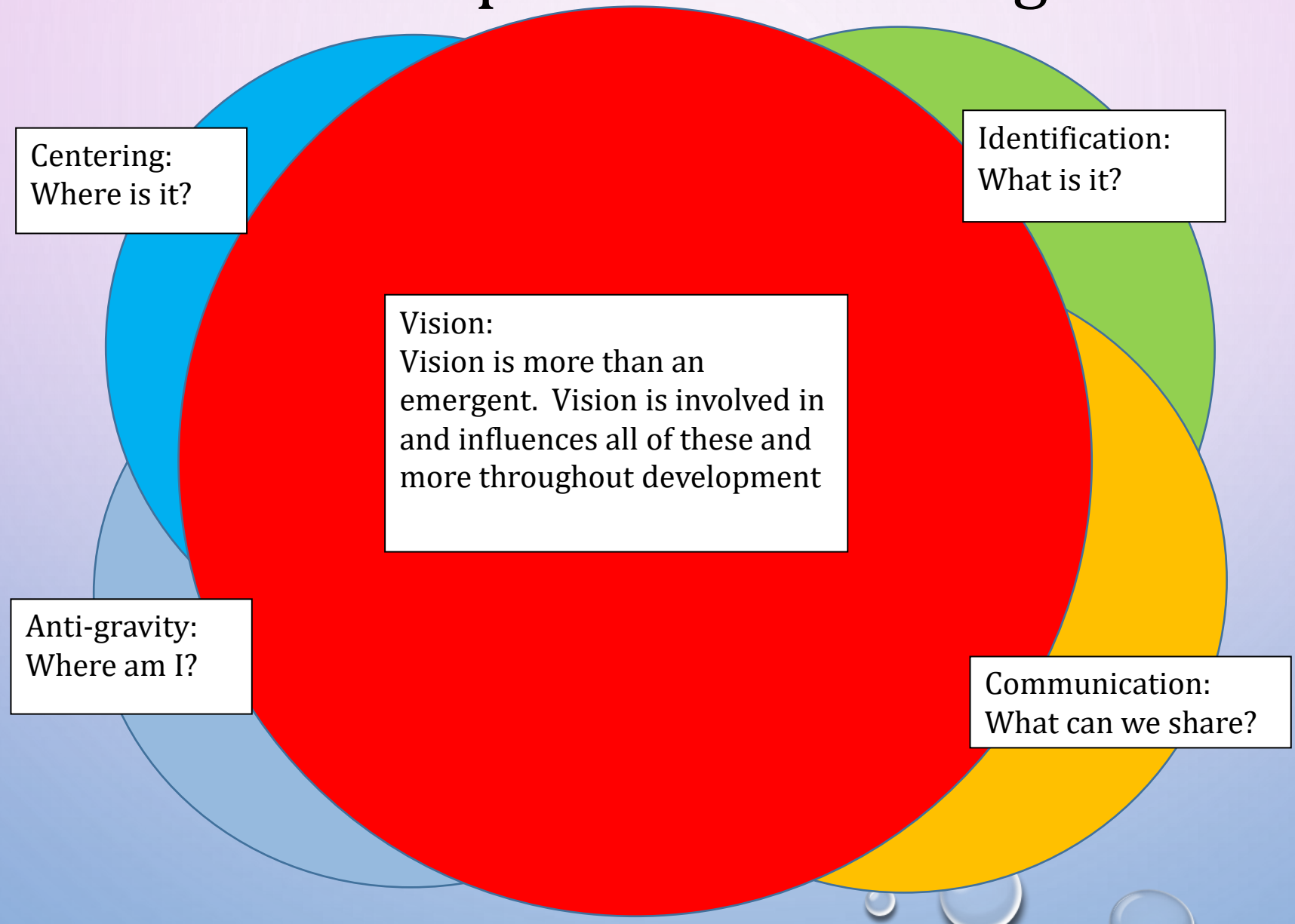
Centering:
Where is it?

Identification:
What is it?

Vision:
Vision is more than an
emergent. Vision is involved in
and influences all of these and
more throughout development

Anti-gravity:
Where am I?

Communication:
What can we share?



Hierarchy

- In order to best understand the hierarchy of the vision process in development, there are four foundational issues:
- First, Vision is a BRAIN HOG needing support from many areas of the brain during development.
- Second, through its reaching ability, Vision impacts many areas of the brain during development and stimulates motor activated reaching in all processes of development.

Hierarchy

- Third, the brain can be “retrained” through vision as it has tentacles in so many areas and stimulation of vision reaches throughout the brain.
- Fourth, there is always a process waiting to be activated, calmed, or disrupted

Vulnerable Children Due to Vision Issues

- **Because vision is so critical in overall development, partial diagnoses or partial assessments reach partial solutions**
- Partial diagnoses will delay the process of overall development, and this is especially true in these VULNERABLE children

Annie E Casey Foundation

- “Every student who does not complete high school costs our society an estimated \$260,000 in lost earnings, taxes, and productivity. High school dropouts also are more likely than those who graduate to be arrested or have a child while still a teenager, both of which incur additional financial and social costs.”
- Annie E Casey Foundation 2010 – Early Warning! Why Reading by the End of Third Grade Matters

Management

- The key is to provide guidance and lenses that calm and stabilize the process of LOOKING with the least amount of intervention to reorder the process.
- Think of any diagnosis as a habit, not a condition. How strong is the habit and how much effort must be involved in completing the task?

Management

- Will our management help build a stronger foundation with less dependence on the habit – the defined formed pattern – the diagnosis?
- OR
- Will our management reinforce the pattern or diagnosis?

How Does This Relate to Care

- To whom does this process apply?
-

Summary

- Vision and Overall Development must always be considered as an ongoing and expanding process engaging with their environment and coordinating with other processes
- There is always a process waiting to be activated, inhibited or recycled
- The processes of vision and overall development do not expire. It may become more difficult to resolve or restore but they does not expire

Summary

- Motor ability must be activated before ENGAGEMENT can begin
- Observations of vision and overall development can be made with Just Look Retinoscopy!
- The configuration of brightness, color, motion, and stability are indicators of HOW the patient is LOOKING leading to ENGAGING

Additional References

- “Making eye contact is the most powerful mode of establishing a communicative link between humans” - Farroni, Csibra, Simon and Johnson – Eye contact detection in humans from birth; PNAS 2002
- “Gaze is accurate in order to see clearly, not because targets can be seen clearly” – Steinman, Pizlo, Forofonova, Epelboim; Spatial Vision 2002

Additional References

- “Baby and Adults brains ‘sync up’ during play” - Elise A. Piazza, Liat Hasenfratz, Uri Hasson, Casey Lew-Williams. Infant and Adult Brains Are Coupled to the Dynamics of Natural Communication. *Psychological Science*, 2019;
- Potential downside of high visual acuity; Vogelsang, et.al, PNAS Oct 30, 2018