



# What Does the Retinoscope Tell You?

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# LISTEN UP!

How did each of you respond when I charged you to LISTEN UP!

What was your first LOOKING response to the command?

How did you REACH to engage?

Each of us has made choices throughout our life that guide us in the way we respond to stimuli

The “brain” is always engaged with its reaching tentacles at the ready



# LISTEN UP!

**“Indeed, we begin to mold our perceptual world from birth. Newborn babies may appear helpless, but they are not passive recipients of the stimuli around them.”** Sue Barry – *Coming to Our Senses* – June 2021 - Basic Books; Hachette Book Group, NY

**“The eye is a reaching, groping, grasping organ...”** Arnold Gesell – *Infant Vision* Scientific American Feb 1950



So, What Does the  
Retinoscope Tell  
You?

It really doesn't TELL you anything!

The changes in Just Look Retinoscopy are  
**your observations of patient behavior and  
their actions taken to engage in the task  
presented**

**YOU** determine **HOW** the child is engaging in  
the task through **your observations** while  
using a retinoscope which will guide patient  
management

But the retinoscope itself has no power to  
observe or change behavior



## What Does the Retinoscope Tell You?

Refraction tells you where the patient has been

With the broader method of LOOKING while examining, Just Look Retinoscopy allows you to **focus forward** and determine options for **the patient's trajectory in development**

**There is no right or wrong in Just Look Retinoscopy**

**Just Look Retinoscopy is an observation of the stages of visual reach and engagement when involved in a task or activity presented to the them**



Refraction is not  
an endpoint  
Bubba

During early development, distance is an abstract phenomenon that has little foundational basis for the child and thus limited experience

If you are using a retinoscope to “tell you the refraction,” you can more likely get that information with an autorefractor

There is so much more there if we just take the time to LOOK at the **distinct and unique foundations** that have been built on the sequence actions taken in earlier stages of life.





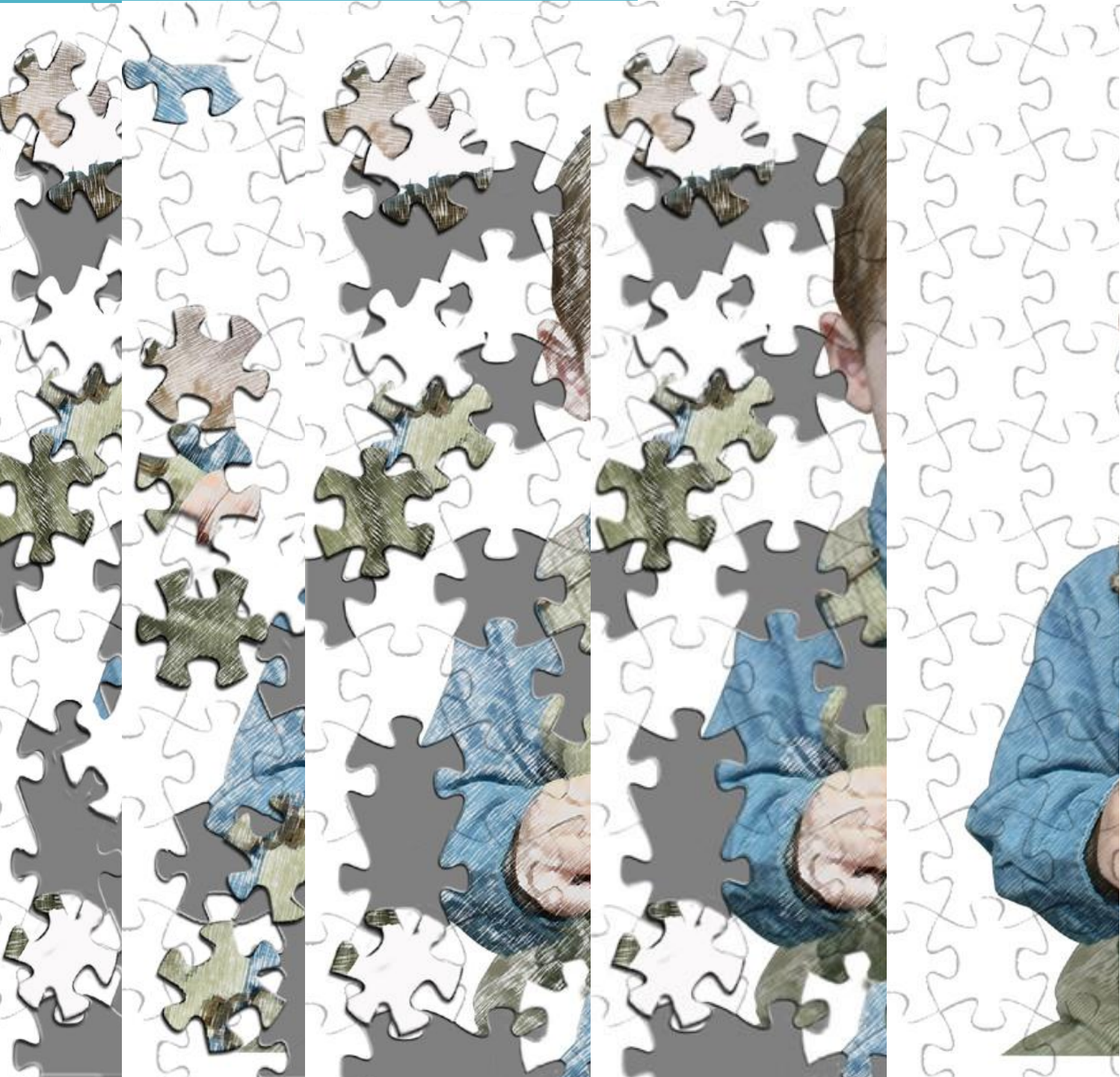
## Distinctive and Unique Patterns of Action

The key issues in Just Look Retinoscopy are not the retinoscopic refractive numbers, but the **observations of distinct and unique patterns and cycles of action** as the patient engages in a task presented

One can observe the Cycles of Action from stimulus to curiosity to action to engagement and release for the next (ad)venture.

**Look-Attend-Focus-Identify-Engage-Release**

If all the pieces are not there, it will be impossible to complete their puzzle







**“The Child is born  
with visual  
hunger”**

Arnold Gesell  
Developmental  
Diagnosis

Developing babies are rarely at a loss for visual engagement(s) – they are always looking

They begin communication with eyes long before they can talk and much of early communication is through the processes of **LOOKING**

We can determine **where** they looking, at **what**, for **how long**, when they **let go**, and how they go about **engaging in subsequent activities** as we **observe patterns of engagement**



**“... and when he ceases to look, he goes to sleep.”**

Arnold Gesell

Vision – Its  
Development in  
Infant and Child

These cycles are repeated throughout a developing child’s time awake –

The actions the child uses to direct engagement become the **default actions and patterns of engagement throughout life**

Vision must become the **driving force** in the engagements of life - the **leader, instigator, and the influencer** in everything related to life

We miss all of that if we only look for refractive numbers



Infant Development  
Gesell -  
Chapter 4  
**Eyes, Hands, and Brain**

“The seeing eye, therefore, is by no means a passive receptor organ. **It is a highly active, kinetic organ, which exercises motor initiative, which seeks out and takes ocular hold of objects of interest.**”

“**Human vision outranks all the other senses in the abundance of its sensory, motor, autonomic, and higher cortical ramifications.**”



## Establishing the Pattern for Engagement

These **observations of actions during engagement** are central to what Just Look Retinoscopy is all about

The processes of vision are not isolated from engagements throughout development

How does a patient go about establishing a pattern for attention and engagement - a pattern of getting “there”

These actions can be observed when using Just Look Retinoscopy **IF** your attention is directed toward configuration of the reflex rather than directed toward refraction





## Just Look Retinoscopy

One may be able to get some of the information through observation in other testing.

Adding Just Look Retinoscopy gives one a direct observation of patient function and **HOW they are going about the process of ENGAGING in the world about them – not just a “final score.”**

All in a short period of time



## Just Look Retinoscopy and the Cycles of Engagement

Just Look Retinoscopy is a means of **observing the cycles of engagement** –

Stimulus – does not have to be visual  
Action(s) – what is the pattern of look-  
attend-focus-identify- engage

HOW DID YOU GET TO THE POINT OF  
ENGAGEMENT

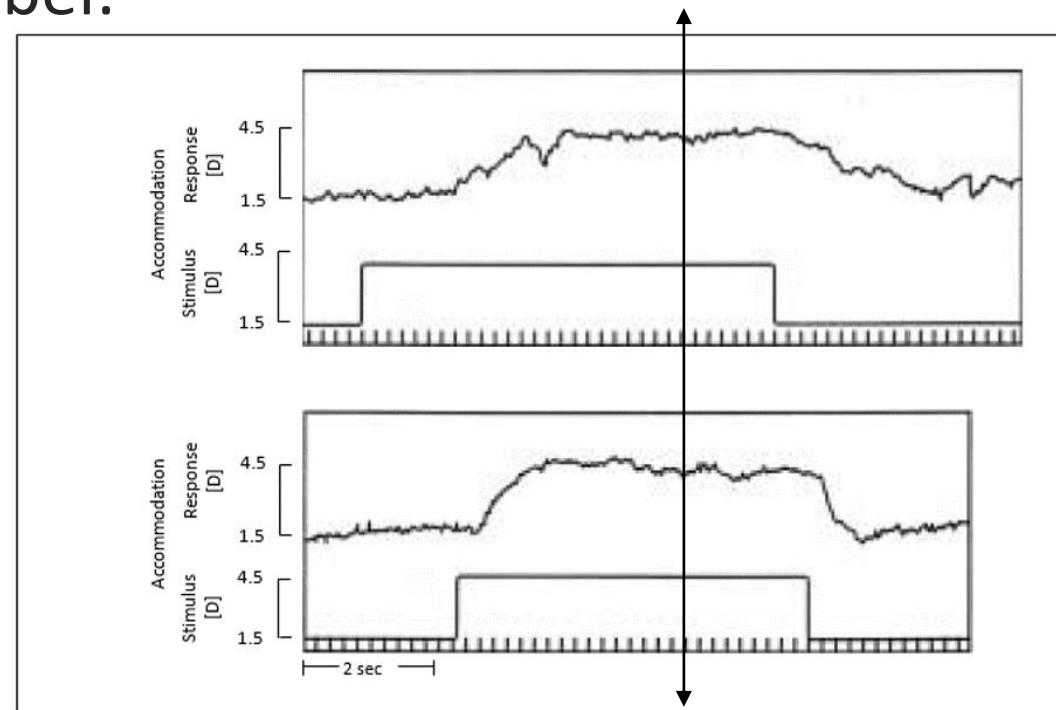
Release for the next (ad)venture  
throughout the time observed.

This cycle is repeated throughout  
development with each stage becoming  
more sophisticated in engagement



## Just Look Retinoscopy and the Cycles of Engagement

With a retinoscope, I am looking for the action(s) from instruction to engagement. An example is the Ciuffreda graphic of a patient before and after vision therapy. It is so much more than simply arriving at an averaged number.





## Just Look Retinoscopy (From Patient Perspective)

The goal is to assess HOW the patient  
(regardless of age) goes about:

Responding to the stimuli which piqued  
their curiosity (regardless of origin),

Pattern(s) of action directed toward this  
curiosity,

Pattern(s) of engagement with the stimulus

Pattern(s) of sustaining to satisfy the  
curiosity and task demand

Pattern(s) of release

Moving on to the next (ad)venture





## Just Look Retinoscopy (From Doctor Perspective)

How do WE go about:

Observing what is important to the patient through their patterns of engagement

Observing their strategy in manipulating the object

Observing their sustainability throughout the activity

Observing the ease of release for the next (ad)venture

**The value of Just Look Retinoscopy is to observe the child's unique actions and patterns of engagement with the task presented**



Journal Reference:  
Elizabeth M. Clerkin,  
Elizabeth Hart, James M.  
Rehg, Chen Yu, Linda B.  
Smith. **Real-world visual  
statistics and infants'  
first-learned object  
names.** *Philosophical  
Transactions of the Royal  
Society B: Biological  
Sciences*, 2016; 372  
(1711)

“Summary: Psychologists have shown that a **baby's most likely first words are based upon their visual experience**, laying the foundation for a new theory of infant language learning.”

**"Difficulty learning words could stem from visual processing problems,"** Smith added.

"Children who are late talkers have **slow or age-delayed visual processing skills** for objects, for example.”

“Children with autism have object-processing problems as well.”



Journal Reference:  
Elizabeth M. Clerkin,  
Elizabeth Hart, James M.  
Rehg, Chen Yu, Linda B.  
Smith. **Real-world visual  
statistics and infants'  
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names.** *Philosophical  
Transactions of the Royal  
Society B: Biological  
Sciences*, 2016; 372  
(1711)

"Taking account of the visual brings a whole new dimension of word-learning into view," she added.

"If all you ever worry about is the word side of word-learning, you may be missing half the problem: **visual cues that aid language learning.**"



## Bubba's Response

Journal Reference: Elizabeth M. Clerkin, Elizabeth Hart, James M. Rehg, Chen Yu, Linda B. Smith. **Real-world visual statistics and infants' first-learned object names.**

*Philosophical Transactions of the Royal Society B: Biological Sciences*, 2016; 372 (1711)

Can our use of Just Look Retinoscopy allow us to assess the QUALITY of response and engagement and the potential for “word-learning?”

Through use of Just Look Retinoscopy, we can make observations of patient engagement long before the patient begins using language to communicate.

Are the patient's foundations at this stage sufficient for appropriate action and engagement?





Quotes from: Janis Intoy, Michele Rucci. **Finely tuned eye movements enhance visual acuity.** *Nature Communications*, 2020; 11 (1)

“Unlike a stationary camera that takes a fixed photograph of the world, human eyes are constantly moving, taking in new pieces of a visual scene and continually changing the visual input to the retina.”

“... fixational eye movements are key contributors to 20/20 vision. In fact, even though humans are not aware of making them, these eye movements are finely controlled and can **allow people to read at least two lines further on the Snellen eye chart versus when eye movements are absent or impaired.**”



Quotes from: Janis  
Intoy, Michele  
Rucci. **Finely tuned  
eye movements  
enhance visual  
acuity.** *Nature  
Communications,*  
2020; 11 (1)

“If eye movements and the properties of the eye are interrelated in this way, **then therapies involving eye movements may be helpful in these cases.**”



## Bubba's Response

Quotes from: Janis Intoy,  
Michele Rucci. **Finely tuned  
eye movements enhance  
visual acuity.** *Nature  
Communications*, 2020; 11 (1)

Just Look Retinoscopy is the observation of an **internal process as the patient reaches outward**, not an external process or a physical part of the eye **well before eye movements are initiated**

A determination of what is happening internally as the child tries to **ENGAGE** within their world

When using Just Look Retinoscopy, one can assess the **QUALITY** of response and **engagement during eye movements**

Determining not only where the eyes are pointing but where they are really looking!!



## Bubba's Take Through Just Look Retinoscopy

**Modulations are always present** throughout the visual processes as the patient moves to engage and understand the task before them – an observation of manipulation of the task

When the modulations decrease immediately and this pattern of decreased modulations is sustained, this is an indication of rapid attention, focus, and identification leading to appropriate engagement (according to the patient's understanding of the task)





## Bubba's Take Through Just Look Retinoscopy

When the range of modulation increases during engagement, this is an indication that the patient can initially focus but may have difficulty sustaining.

When the range of modulation is greater than expected and **remains that way**, this is an indication that the patient has trouble directing attention to the task and “focusing.”



## Bubba's Take Through Just Look Retinoscopy

When focus is continually “forced,” a cascade of changes takes place throughout the body

If the “forced” condition is sustained, it is likely that substitute patterns of engagement will be developed providing short term gain but likely producing long-term changes and consequences throughout the body



What you “see” is  
determined by  
the integrity of  
how you LOOK

It sounds easy, but how do developing kids know that when they are left to develop their patterns and habits on their own?

Even so, seeing is not the origin. Looking is the origin, and that origin begins with curiosity

If one is not curious, why would you look?

If there is less motivation to begin the action part of looking and if you don't look or have difficulty looking, you don't “see”



What you “see” is determined by the integrity of how you LOOK

A stimulus may originate internally or externally, but the **quality** of “seeing” is dependent upon how well you have developed the foundation(s) of looking, attending, focusing, identifying, and engaging.

If one wants to “see” well, they must learn to look well.

Just Look Retinoscopy provides a wealth of information regarding the **status and quality of the LOOKING process** from initial stimulus all the way through to “seeing.”



What you “see” is  
determined by  
the integrity of  
how you LOOK

The goal of management should be to  
**augment the LOOKING process** as this leads  
to enriched “seeing.”

Visual reach must be linked to all reaches

Intervention must begin at stages before  
pointing eyes

Where does “looking” go when sniffing for a  
smell, responding to a sound or touch, etc.

Just Look Retinoscopy is critical in making  
these early observations



## Bubba's Take Through Just Look Retinoscopy

The observations of HOW a patient comes to “focus” demonstrate the integrity of the looking part of visual engagement –

i.e., **HOW** do they get **THERE**

What **you “see”** is also determined by the **integrity of how you LOOK during Just Look Retinoscopy**

If you want to be better at Just Look Retinoscopy, a consistent effort to expand your own LOOKING is the key





## **Eyes as windows to the soul: Gazing behavior is related to personality**

John F. Rauthmann,  
Christian T Seubert,  
Pierre Sachs,  
Marco R. Furtner

Journal of Research in  
Personality, Volume 46,  
Issue 2 April 2012, Pages  
147-156

“Gazing is a fundamental human behavior with important cognitive, affective, motivational, and social underpinnings that is likely to have produced individual differences linking it to major personality traits.”



## Bubba's Take

**Eyes as windows to the soul: Gazing behavior is related to personality**

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Christian T Seubert,  
Pierre Sachs,  
Marco R. Furtner

Journal of Research in Personality,  
Volume 46, Issue 2 April 2012, Pages  
147-156

It is suggested that gaze is controlled by temperament, but I suggest temperament is influenced by patterns of gaze developed during early life

But in this study, there was a link between gaze and temperament



John Lubbock, **The  
Beauties of Nature  
and the Wonders of  
the World We Live in**

New York,  
Macmillan, 1893  
New York,

“What we do see depends mainly on what we look for. ...”

“In the same field the farmer will notice the crop, the geologists the fossils, botanists the flowers, artists the colouring, sportsmen the cover for the game.”

“Though we may all look at the same things, it does not all follow that we should see them.”



## Bubba's Take

John Lubbock, The Beauties of Nature and the Wonders of the World We Live in New York, Macmillan, 1893 New York,

How often does someone have to point something out to us that we did not “see,” or we have to point out something to others that they did not “see?”

We “see” what we are curious about as we direct our “looking” to that entity

We can observe the probability of WHERE and HOW the patient is looking which **determines the outcomes of what they see** though Just Look Retinoscopy



Observing the  
Process of HOW  
We Look Through  
Just Look  
Retinoscopy

The way the developing infant engages the looking process today establishes patterns for HOW they will engage in the ever-expanding stages of visual engagement tomorrow

Just Look Retinoscopy provides information regarding process and purpose versus refraction.

Just Look Retinoscopy is **qualitative**, not quantitative – **forward-focused, not static**



## Just Look Retinoscopy is Forward-focused

If our goal is just to measure, we are looking in the past - not ahead to redirect and make things easier in the future

The goal of any procedure is to find ways to help the patient **redirect** their behavior - even when they do not know it is related to use of vision.

Measure – tech can do this

Assess and provide direction – doctor responsibility here





## Just Look Retinoscopy is Forward-focused

When a doctor looks only at refraction, they are using a technician mentality which can be obtained using an auto-refractor

**Just Look Retinoscopy should transfer us into a forward-thinking approach - moving ahead – using current observations to become aware of the potential for change as the patient goes on through life.**

The goal of management should be to **redirect behavior of engagement** to meet the expectation of the culture



## Just Look Retinoscopy is Forward-focused

The process of looking ahead does involve determining where they have come from, **but not stopping at that point in time.**

What is their potential? How far can they go that their current situation might not allow if only addressed at the refractive level?

What current activities or manner of going about the activities limits them in looking ahead?

What resources are available to help them move ahead?



## Bubba's Circle of Understanding and Expanding Development

How can we direct involvement in activities beyond their Circle of Understanding - LOOK, ATTEND, FOCUS, IDENTIFY and ENGAGE

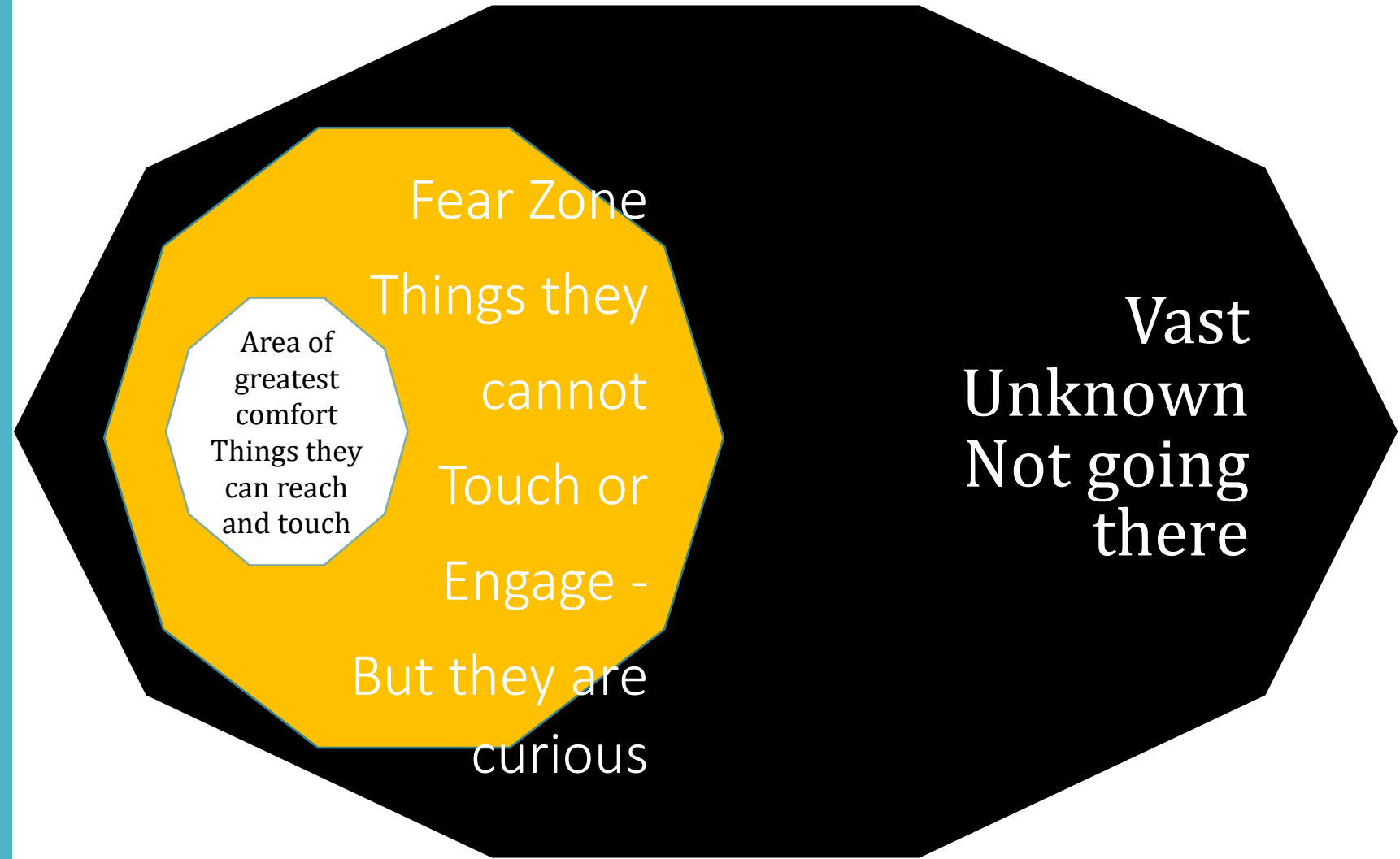
Development must always be considered as an ongoing and expanding process

Vision must emerge as the leader

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



## Bubba's Circle of Understanding and Expanding Development





Bubba's Circle of Understanding and Expanding Development

# Area of Greatest Comfort

Caution  
Zone  
Find it  
esting  
TRY IT

U  
N  
K  
N  
O  
W  
N



Adapted from:  
The “Comfort  
Zone”







## Circle of Understanding Examples - Just Look Retinoscopy

As you move inside and outside the Circle of Understanding with your retinoscope, what if you observe:

+1.00 inside Circle of Understanding but  
+4.00 after crossing outside the Circle

+100 inside Circle of Understanding but  
-1.00 after crossing outside the circle

Both have different areas in which they have not sorted out as a whole

The second one is much more hesitant to venture into that area of Caution and Unknown



Just Look Retinoscopy is a means of assessing the patient's **ability to look, sustain and attend** to the task presented

Just Look Retinoscopy is a means of assessing HOW and WHERE the patient **begins** the process of looking

- Active – Looks quickly and begins reaching Quick looks and often moves into the unknown
- Look and attend - Refining modulations and holds attention with sustained looking
- Passive – Slower to Look and resistance to holding fixation and attention - very comfortable in their own cocoon – little movement into the unknown



Just Look  
Retinoscopy is a  
means of  
assessing the  
patient's **ability to  
look, sustain and  
attend** to the task  
presented

Expected - Looks, attends, and sustains while holding fixation

- Overactive – Short bursts of attention and engagement when task is presented
- Ultra passive – Looks but little effort to attend and engage when task is presented
- From an external perspective, all were able to point their eyes to the target, but each shows a different intention and purpose during engagement



Just Look  
Retinoscopy is a  
means of  
assessing the  
patient's **ability to  
look, sustain and  
attend** to the task  
presented

Just Look Retinoscopy is a means of assessing  
HOW they are approaching the process of  
**LOOKING, ATTENDING, FOCUSING,  
IDENTIFYING and ENGAGING** with the target  
or task

Monitor the kind of modulations – large  
(searching) or small (refining)

Determine if the action of identification  
results in engagement or avoidance or  
somewhere between

Determine if the actions observed are  
sufficient for the expectations of the task  
and the culture



Just Look  
Retinoscopy is a  
means of  
assessing the  
patient's **ability to  
look, sustain and  
attend** to the task  
presented

Just Look Retinoscopy is a means of assessing  
the **STABILITY** of how the patient is **LOOKING  
and ENGAGING**

Observe modulations – are they **searching or  
refining**

Just Look Retinoscopy is a means of assessing  
the **QUALITY** of how the patient is engaging in  
the task/target

Observe modulations – are they **searching or  
refining**



Just Look  
Retinoscopy is a  
means of  
assessing the  
patient's **ability to  
look, sustain and  
attend** to the task  
presented

Just Look Retinoscopy is a means of assessing  
the **PLASTICITY** within their visual  
engagement

Facility - positive or negative easier?

Positive (minus) easier – easier to come to  
attention and focus - easily handles minus  
phase

Negative easier (plus) – difficulty with  
sustaining and often let's go – may not handle  
either phase

Difficulty with both phases – does not easily  
move through tasks and expectations





Just Look Retinoscopy is a means of assessing the patient's **ability to look, sustain and attend** to the task presented

Just Look Retinoscopy is a means of determining how the patient **ENGAGES** in the task presented

- Sustains with refining modulations consistent with task – getting it
- Looks away and back – larger modulations – not getting it – difficulty sustaining
- Dark reflex with “neutral” motion can indicate difficulty completing the task and may be in the process of giving up
- As the task becomes difficult, there will be a decrease in brightness, but you may also see a movement toward against motion



Just Look  
Retinoscopy and  
the response to  
lenses, prisms,  
filters, and  
occlusion

Just Look Retinoscopy is a means of **assessing the current situation and determining the POTENTIAL for change**

Response with lenses, prisms, and filters decreases number and amplitude of modulations

Response with lenses, prisms and filters shows the reflex brightens significantly

Less motion indicating better attention with less effort

Or the opposite – lenses, prisms and filters show a pattern of interference



## Just Look Retinoscopy Summary

**With Just Look Retinoscopy, one can observe the process from stimulus to curiosity to action to engagement to release for the next (ad)venture**

The key issues are not the retinoscopic refractive numbers, but the observations of **unique and distinctive patterns of action** while using the retinoscope.

**Just Look!**



## Just Look Retinoscopy Summary

Just Look Retinoscopy is a means of assessing HOW engagement is/was made

Assess Efficiency in **attention, focus, identification** and **engagement**

Assess ability to **sustain** attention, focus, identification, and engagement



## Just Look Retinoscopy Summary

A greater change toward expected with lenses, prisms, and filters alone is a sign that these tools alone may be most efficient

No or little change toward expected indicates we should explore other options for management

Is there Calm or Chaos – Are they Looking or Searching – Engaged or Disengaged – are actions done with Ease or Effort



## Just Look Retinoscopy Summary

ALL these patient actions can be determined by **observation of distinctive patterns of action during Just Look Retinoscopy**

Our responsibility is to assess how the patient got to where they now are, determine potential, and initiate a management plan to for redirection and/or restoration.





## Just Look Retinoscopy Summary

So - what does a retinoscope tell you?

It really doesn't TELL you anything.

**YOU** determine **HOW** the child is engaging in the task through your **OBSERVATIONS** of **patient's distinctive and unique patterns of engagement** while using a **RETINOSCOPE** which **guides** you in patient management.



Thank you!

Contact Information  
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