Supplemental Material S2. Codebook.

Theme 1: Factors increasing photographic image complexity and decreasing cohesion: Describes factors that make an image difficult to understand, by hindering an individual's ability to identify key focal elements, and interpret scene meaning		
Subtheme 1.1: Saliency principles are not used purposefully: Describes the impact of minimal or non-purposeful use of composition principles related to saliency (color, contrast, line, shape) that when applied may help an object stand out from the background. Non-purposeful use of salient factors may make focal points difficult to identify, cause distraction by placing emphasis on non-relevant items in the scene, ultimately making the image more complex, and less readable. Participant may generally note that images may benefit from the use of compositional strategies when discussing complexity.		
Code	Definition	Example Data
Equal brightness or too much shadow	-An image with equal value and brightness will be very complex as nothing will "stand out." -An image with too much shadow will be very complex and may draw our attention to the shadows. -We can also consider that if you arrange the scene so that you aren't wondering if the information in the shadow is essential, it may limit the impact on complexity.	"Even lighting, that is sort of the same over the whole scene gives everything equal importance, so it makes that more complex, potentially." "Light can um, we can have over exposed photographs where your highlights are blown out, and in that case we start to lose information in the highlights. Um, in contrast, something that doesn't have enough light can be under exposed and suddenly you've lost information in the shadows."
Similar colors in proximity or lack of color pattern	-When there is a lack of discernable color pattern, the image becomes chaotic. -Colors that are analogous, equal in brightness, such that the image is mostly made of similar shades of one color and intensity can make the viewer rely more on lines to distinguish objects, possibly increasing complexity. -If the features of the image are difficult to distinguish, the viewer will struggle to identify them and that will be distracting. -Images that have both light and rich shades of color that the viewer needs	"Let's say that we've got a photograph that shows a bunch of kale next to some romaine lettuce next to maybe some broccoli. And we've got all these green objects. There's not going to be anything that stands out because green does not help us isolate what we're looking at, even different shades of green really don't help us." "I don't know if you've been to Times Square but it's like the perfect example. [laughter] It's super saturated with colors coming at you from everywhere."

	to process will result in a distracting color relationship. -People who are color blind will struggle with distinguishing colors, or some may perceive colors differently, possibly making images more complex.	
Equal depth or items all at various depths	-When all items in an image are at an equal depth, like a police lineup it is difficult to identify the most important items. -When all items in an image are at different depths, it is very distracting and difficult to comprehend the item of focus.	"Yeah lineups are confusing. I mean, if that's what you're trying to get across is there's lots of stuff and it's all equally important than a lineup is what you do for that in my head." "I mean if things are at different, at different depths, you know, different distances from the camera, that's going to potentially make it more complex."
Equal focus or lack of focus	-An image where everything is in focus and of equal sharpness it is more difficult to identify the important elements, possibly making it more complex. -A photo where the camera was not in focus/nothing is clear may also increase complexity.	"The idea of focus, so if everything is equally sharp, everything is equally important."
Lines in varying directions not emphasizing focal object(s)	-Strong lines (e.g., formed by a bridge, road) in multiple directions that do not lead the viewer to important elements, or draw the viewer out of the frame can create distractions.	"If there are a lot of different kinds of lines, lines going in different directions that cross each other. You know, of course, that's going to be more complex." "Right, no leading lines, no lines leading your eye along the image."
A lack of image structure	-A lack of structure (e.g., no order, chaotic) in an image can make understanding the image more difficult and thus more complex.	"Because we don't know how to read that image right, we're kind of, there's nothing guided us either through the composition or through form or Rule of Thirds, or kind of that idea of guiding through."
Subtheme 1.2: **A unifying theme, context or consistency with one's image schema is incomplete or missing*:*** Describes factors that contradict an individual's world knowledge and expectations (schema) for these scene, or impact their interpretation of scene context and meaning. Participants can generally discuss the role of meaning for visual communication, for instance, is the picture trying to tell a contextual story, or just highlighting one specific object or symbol.		
Too little depth of field/too much blur	-Limited depth of field or excessive blur causes the image to lose context,	"One is that it depends on the amount of blur. If, if I can still

	decreasing understanding of meaning beyond just the object/symbol itself.	determine that what is around that orange are food items and a tray on a lunch table then my imagination will make up the rest of the scene. So, I can identify that, okay, this is an orange on the table, but I'm still focused on the orange. The things around it still have context, give context to place for the orange. Um, if it's slightly blurred, the orange stands out. If it's completely blurred and we can't really understand, we lose. If it's so blurred that we've lost the context, yeah, at that point it is truly about the orange, and not the orange at lunch time. Right?"
Objects are not semantically congruent, and do not support context, especially in the search area.	-When nonsemantic (unexpected) items are present in the scene or expected items are in an incorrect location it can cause distraction and confusion. We are drawn to unique items.	"That if you're placing something within a context that doesn't match the normal context that that person might understand that image, it becomes more difficult."
Foreground and focal elements are distracting do not support context or understanding	-Foreground and focal elements are distracting and do not support context and understanding. For instance, emphasis (e.g., light, large amounts of detail) are placed on non-essential elements, drawing the viewers' attention.	"Eyes, you know, go to the bright points on the screen. But if there are too many bright points or the bright points aren't meaningful that can be kind of like exhausting. Um, when you're looking at a prepared image, you're kind of trusting that this thing has been crafted for you to navigate it. And that's not always done intuitively."
Distorted reality [e.g., lines look curved or slanted, unnatural color balance/ saturation]	-Lines can be distorted by photographing at angles or tilting the camera/frame -Unnatural or non-accurate colors increase complexity and over saturated/ bright aggressive color can make things seem, "unreal" increasing complexity. -Color may be distorted by lighting source (e.g., fluorescent lighting) changing color balance. -Lenses can be used to distort reality (e.g., 50mm lenses make images most	"I mean I think especially if you're trying to relate it to something in the real worlds, if the color balance is really off, it might not look like the same object." "But the more lens distortion and, you know, the more angles that you're taking things at, you know, even when like you're looking down on something you can distort those angles."

	like human perception, 12mm lenses bend lines, and 200mm lenses create poor depth)	
The image depicts something complex in itself	-The meaning of the image itself is complex such as when there is an interaction in the image.	"To me, scenes become complex, as the meaning becomes lost or as the meaning itself becomes more complex."
Subtheme 1.3: The number and completeness of elements: Describes how the number of elements can impact scene complexity, and how if whole elements are not depicted, overlapping and cut off shapes may increase the abstractness of the image.		
Increased number of elements may increase complexity if saliency and meaning composition principles are not considered.	-Discusses the *interplay* between how the number of objects on complexity may be offset if organization/ composition principles are used (e.g., focal elements are the brightest). -Notes that increased number of objects/visual information may increase complexity -However, if those objects all relate to the semantic meaning of the image and are well integrated to the image using compositional principles, the increase in complexity may be mediated. -Additionally, the rule of thirds and spiral line principles may further help to limit the complexity of images with many objects.	"Um, I agree that, you know, obviously the more objects within the frame, that is a part of complexity. I think there are ways that even with multiple objects that you can organize it visually to make it less complex." "So you could theoretically have a picture of like a basement playroom that has a million different objects that we might, in theory, think are in some way complex. But they're not actually, because they're all kind of consistent, and they make sense together, and they're where they should be. "
Multiple overlapping shapes, and cut off shapes may increase abstractness, possibly drawing us out of the frame and decreasing context	-Multiple overlapping items and cut off shapes can decrease whole shape recognition, making element(s) seem abstract in shape, and possibly unidentifiable, meaning pareidolia may occur, and objects can be "lost" and decreasing context. This also applies to objects on the edge of a frame that are cut off. A viewer may fixate on a cut off object attempting to identify it and will be drawn out of the frame. -Some considerations include that many individuals are developing improved abilities to consume visual images through a compressed frame (e.g., cell phones) we may be becoming less sensitive to crowding.	"The amount of visual information in an image definitely determines complexity. The more a viewer has to search through a photograph trying to isolate individual elements that's when things become too complex often times and there's a bit of visual overload. Um, at least that's what I've found with my students. The relationship between objects adds to that, not just the number of objects, *but how close those objects are together.*"

Subtheme 1.4: Age, cognition, environment, and interests can potentially compound complexity: Describes how person-centered factors such as an individual's age and perspective, and interests may impact the level of image complexity		
Person centered factors may influence perceived complexity	-The individual's cognitive processing, culture, age, and interest level may impact how complex they perceive a given image. - The interface may be adapted (e.g., less to more complex) overtime as the individual learns navigation. -Consider that some may related to object differently, for instance, culturally, some items may be out of context of semantically inconsistent for different cultures, so customization and the viewers culture is important to consider.	"That's kind of hard to put into words because everybody might be different depending on their cognition or how they're responding to that image."
Theme 2: <u>How complexity may impact the viewer</u>: Describes the effect that a complex image can have on the viewing individual		
Subtheme 2.1: Complexity decreases accessibility and increases difficulty in understanding image content: Describes how increased image complexity may decrease the efficiency/ease in which visual communication exchanges takes place though an image, making the image less accessible and more difficult to understand. Participant may generally note that the use of compositional strategies may decrease negative impacts on the viewer and increase accessibility.		
Visual overload, confusion, loss of objects and context	-An individual may experience visual confusion, especially as objects get lost in the image, and overload may occur due to increased amounts of small detail that may become overwhelming.	"Just comes down to like some visual confusion or something getting lost kind of in the complexity, where like you might be looking for one element and it's sort of lost in the composition somewhere."
Increased fatigue, effort, stress, strain and frustration	-Individual indicates they may feel fatigued, stressed, strained, anxious confused, or frustrated when viewing complex images or visual displays. -Participant notes that additional time, energy, and cognitive resources may be required in attempting to understand a complex image, especially for communication. -Saturation may increase visual fatigue and strain.	"I absolutely think that the, the more complexity we add to the image, the more effort that has to be exerted by the viewer."
Decreased engagement [person may give up] and increased distraction	-Due to factors such as those outlined above, a viewer of a complex image may experience limited engagement, become distracted or "pulled out" of	"There's so much visual information that it can be difficult to look at an image for any length of time and

	the image, which may ultimately lead to the individual "giving up" on the complex image as their attention/vigilance wanes.	people will literally get visual overload and walk away." "And then eventually, you don't want to try anymore because Waldo, completely, to your knowledge is not in that picture, whether he's supposed to be or not."
Increased time to understand	-More time is required to understand a complex image which is a concern for communication scenarios.	"It takes longer and then also there's like a stress level, honestly."
More difficult to select items on device if close together	-Items will be more difficult to select or touch on a visual scene display if they are very close together or overlapping.	"I mean, uh, especially with overlapping, I would imagine, just in terms of, like, whether it's touch or I could see there being like, if you, you know, have trouble hitting exactly where the touch and even in organized programming, where the touch is like being able to separate them out clearly so that they aren't overlapping too much where the sort of hot spots are separated enough to be effective."
Subtheme 2.2: Complexity may be mitigated when a user's interests are activated: Describes the "bigger picture" in that person-centered factors such as motivation, background and interest, can impact their reaction to complex images (e.g., a *Where's Waldo?* fan may be prepared to engage in a complex image, and thus stay engaged in the complex cartoon image for longer than a non-fan).		
How a complex image impacts the viewer is influenced by person centered factors such as motivation, incentive, background and interests	-Viewer interest, situation, background, experience, and motivation may impact response to a complex image, and what the viewer connects with. -Our response to images is influenced by our experiences, culture, and motivation to comprehend image meaning and content.	"My gut is that there would be other factors at play which would, would have bearing on it. So in other words, if the image is aesthetically pleasing or something that is of interest to the, to the viewer, I think that would have a greater amount of impact than the complexity itself." "I also think culture and well, you know, culture, style, and age kind of dictate what you are going to be enjoying or what you connect with, um."

Theme 3: Composition strategies to decrease photographic image complexity and increase cohesion: Describes composition strategies that may help decrease image complexity and distraction, and increase visual communication		
Subtheme 3.1: Composition is not a one size fits all approach; composition principles provide a toolbox to support photographic communication: Describes that multiple compositional strategies are available and may be employed differentially depending upon an individual, situation, or communicative intent of the image.		
Composition is not a one size fits all approach; composition principles provide a toolbox to support photographic communication	-While composition strategies provide a general guide for image design, strategies should be considered for application on an individual basis, depending upon factors such as the communicative intent of the image, and the individual (e.g., needs, oculomotor skills). -It is best to see the composition principles discussed as a toolbox which can be appropriately applied to each photo or scene developed for communicative purposes.	"Yeah, there are some like famous quotes like from Edward Weston, a famous photographer, who said there is no recipe for composition, every subject demands its own solution kind of thing." "Because of that as you're thinking about like individual differences, person to person, it may even be the case that if you have people that are like greater difficulty like looking up and down type thing, you would have to structure things almost along like a specific horizontal like plane, and doing that would make it easier for them to get to places that they need to be."
Subtheme 3.2: Use of contrast (light and dark): Describes the use of light and dark contrast to draw our attention to focal scene elements		
Bright focal objects attention and contrast creates bolded line around object helping it to stand out from the background	-A well-lit (bright) focal object creates a contrast with the background (due to a value difference), that attracts our attention, creates a natural bolded line or rim around the object, and helps it stand out from the background. Soft lighting may be used to limit harsh contrast.	"The important objects are well lit and things that are not important are more in the shadows that will make it, that will help simplify what we're looking at and what our gaze is drawn to. Um, because we tend to look at the brightest things first."
Subtheme 3.3: Use of contrast (color): Describes the use of contrasting colors to draw our attention to focal scene elements		
Most vivid color on focal object draws attention, but consideration needs to be given to use of saturation	-The most vivid color in the scene will draw the most attention, therefore the use of this technique may be applied to the focal element to draw attention. -May discuss that color brightness may also be impacted by light.	"Color contrast is huge. And when we talk about, when we talk about films that have any sort of budget. There's, there's ridiculous amounts of attention paid to color palettes within a frame. Um, the wardrobe choices, what those mean. If there's a

	-We need to be cautious utilizing excessive color saturation, especially as it can make things seem unnatural.	character that needs to stand out, no matter what everybody else's wardrobe choice is, you know, that character is going to have a contrasting palette of, of color to call attention to them."
Bright and complimentary color pairings draw attention but may cause fatigue.	-Bright and complementary color pairings (e.g., blue/orange, yellow/violet, green/red) will draw the eye but may be more fatiguing.	"They're just trying to pop over to the other side of the color wheel from the color that's input as a, as a way of generating a contrast." "Highlighter yellow is really difficult to look at for a long time. So, sometimes you might want to even tone down colors slightly, not changing their color."
Warmer colors, possibly on a cooler background may attract attention	-Warm colors (e.g., red, orange, yellow) contrasted by a cool background (e.g., blue, green, violet) may draw attention.	"If you have two objects next to one another and you have one that's a warmer, warmer hue or warmer color, and another one that's a cooler color, even if they're the same size. The warmer color will appear to pop or come towards you, so there are some optical illusions like that."
Use of natural color contrasts	-The use of the natural color contrasts, skin tones, for items is also preferable to help the image be easier to read. -Discusses color balance and how it can be impacted by light source (e.g., natural versus fluorescent lighting). -Discusses not using natural color contrasts (e.g., black and white photo with colored parts), may be less natural for the viewer.	"I think you can make a strong argument for why you would keep the color, because that might be the color thing." "Yeah, because I just, I know, especially if the color balance is really off, it can really shift the perspective of what's going on."
Grouping items by color may assist with building associations and help with balance, but effects of color grouping are unclear	-Discussion about grouping colors, naturally occurring, could help with building associations, and image balance, but overlapping colors of similar tone and value may increase complexity.	"But if there's an opportunity, you know, kind of like I said, just sort of thinking about it as grouping things in color, either in a way that's balanced to sort of separate things that are the same color that might make them seem more similar, so you kind of move one to the other side to kind of create a color balance."

Subtheme 3.4: Structural principles: Describes the use of structural principles which help provide a guide for the placement of scene elements in limiting complexity and increasing engagement.		
Central composition is simple, intuitive, and may be better for smaller screens	-When the focal element is centered, especially with balanced composition on either side, the image may be easier to read depending on the subject. -Some find this format the most intuitive and easier to comprehend on small screens.	"Yeah, I mean I think um, a lot of times when we center objects in the frame, we tend to just immediately go to them, or depending on the size of how that's spaced in the image."
Rule of thirds, Spiral line [Fibonacci], and phi grids may be more engaging and better for larger screens	-A rule of thirds composition may be more engaging for the viewer due to the guiding eye effect. -It also may be better for larger screens in which the viewer can process more information. -Understanding the math is not necessary for principle application.	"Some people are fond of the rule of thirds or the golden mean with, you know, kind of the Nautilus shell where that image is coming around. And we kind of focus where that primary third is. So, I mean, there are there definitely are um, compositional elements, or things that we can bring to kind of help guide that eye or help bring that attention a little bit quicker into the frame."
Arranging items along implied triangular lines can provide structure	-Pyramid and triangle composition and arrangement may take additional thought while constructing the image. -Triangle may be implied through line and line of sight within the image, but difficult for "on the go" photographs.	"We might look at, you know, the triangle has some sense of hierarchy to it. Right. I mean, there's like using that as a form or a shape." "Yeah, that is a very sort of Western Renaissance ideal where you can, where you can have a repetition of sort of various shapes sort of help. I think that it takes a really, a really complex artist to sort of understand those compositional strategies."
Avoiding items on the edge of the frame can decrease distraction	-Discusses that items placed on the edge of a frame may be distracting, cut off, and draw the viewer out of the frame. Placing items within a ~10-20% "safe zone" of the frame border may reduce edge items.	"You know so if you've included something that is a bright red color and then it's right in the corner of your composition, that's really going to draw our eye out of the whole, of the whole picture frame."

Subtheme 3.5: Shape and Space: Describes how the use of space, which may be used to help isolate focal elements, and support whole shape recognition. Along with how contrasting shape can help draw attention.		
Isolate focal objects with negative space and avoid object overlap and cut off to help support whole shape recognition and avoid abstract shape formation	-The shapes within an image and the space surrounding them determines how identifiable objects in an image are. We can make objects more identifiable by providing negative space around scene elements (e.g., limiting overlap of a toy on the edge of a rug) to support whole object recognition. – -Objects may be *isolated* using background blur.	"If you have negative space around an object, it becomes much more easy to identify." "I can't emphasize enough any time that you can create negative space around an object that is going to give preference to the object itself."
Viewers are drawn to contrasting shapes	-Contrasting smooth and jagged shapes or patterns such as with sharp angles and smooth curves can draw the viewer to the object that occurs less frequently because it will stand out.	"So if we have a bunch of um, pointy objects in a, in a scene right, like star shapes and just shapes with jagged edges and you know, this can create a very complex scene, but then if we have one object in that scene which has smooth edges, a circle or an oval. All of the sudden, identifying that object in the midst of this very otherwise complex scene becomes much easier again, because of contrast."
Subtheme 3.6: Leading line toward focal object or into frame: Describes how the use of line can help guide the viewers attention toward focal object. Considers the use of both real (e.g., a tree branch) and implied (e.g., an individual's gaze) line in directing the viewers' attention to the focal object(s).		
Leading horizontal, vertical and diagonal lines may draw our attention to focal objects.	-Discuses use of line and how strong lines that point to focal objects can help draw the viewer to the focal object and reduce distraction. -Vignettes or frame within a frame strategy can create implied lines to bring us into the image but may also make an image more complex. -Leading horizontal and vertical lines as they may provide stability, and may be more calming versus jagged lines.	"But, you know, leading lines are huge, like what, you know what, what kind of a line, a road, a fence, a river, a tree branch. Can your, will your eye lock on to and follow to your, to your subject."
People's faces, eyes and directionality [e.g., walking left to right] create an implied leading line, which may be used to draw some individual's attention to focal	-Implied lines such as line of sight, directionality (English/America-English typically read from left to right), can be used to structure elements and draw attention to focal elements. Unclear about applications of implied eye lines	"I think if there's a picture of a person, when you look at that picture, we follow the eyes of the person." "It's sort of along the lines of a leading line, I guess, you know you want, they're leading you into the

elements and draw their attention into the scene.	to those with autism spectrum disorders.	frame. If they're walking from left to right and they're, you want to place them more to the left side of the image. So that they're leading you into where they're going."
Subtheme 3.7: Scale: Describes how the use of scale can help guide viewers' attention to focal objects		
Larger scale items attract attention, unless just providing context and background, but scale should remain natural	-Large items will attract attention, unless they simply provide a backdrop for context (e.g., a section of a river). Scale should "make sense,", and not be manipulated unnaturally.	"We understand the importance because it's usually the largest thing in the frame and it's usually the thing that's clear, right it's sharp."
Place focal elements closer in foreground	-Items that are most relevant for the viewer should be in the foreground, as the foreground contributes usefully to context. -If an object is closer/more forward than others it can draw our attention.	"Feel like layers, like for a photography standpoint, layers as in depth of field may be more beneficial and so maybe you have, I don't know, three different sport things and you want the focus on a baseball bat, then the baseball bat should be in the front and all the other balls behind it are around it."
Being close up on the focal object or activity, with enough space for context	-Mentions getting close up and filling the frame with the focal object(s) or activity may help with scale, but also sharpness. -One should still provide enough negative space for relevant information/context and readability. -Other compositional factors (e.g., line) be considered to draw attention to focal object if not close up (e.g., a tree in a field).	"So, the best thing to do is if the caregiver can understand to take a close up of the cake where the cake is in focus and limit the background noise."
Subtheme 3.8: Focus: Describes focus, relating to both the focus/sharpness of the focal elements and it's background, can help lower visual complexity.		
Shallow depth of field can help draw our attention to foreground elements in focus, but enough background information should be retained for context.	-It is relevant to consider blurring *background* objects (by using a limited depth of field) may help the viewer identify the focal object (in focus). -Contextual information in the background should be preserved, as background information plays an important role in providing image context.	"In other words, if your object of focus is, say, in the foreground, you would take that in focus and your background may be blurred out so that the object in focus is what your subject is so it's easier to pick out within that image." "Matter of fact, if you think of, if you think of objects that are out of focus, having one type of texture and

	-Discussions about texture, as blurring the background also creates a texture difference, with us being attracted to scene elements that are in focus.	objects that are in focus as having a different type of texture then then the exact same, you know description applies."
Objects of interest should be in focus	-Focal objects contributing to image meaning and context, especially those in the foreground, should be sharp and in focus.	"Our instincts typically are to find the thing that's in focus first and maybe as an afterthought we might try to figure out what is blurred, but the first thing that we connect with is the object that's in focus."
Subtheme 3.9: Facial features should be in focus and well lit: Describes how an individual's facial features should be well lit so they can be seen by the viewer.		
Facial features should be in focus and well lit	-Discusses people/facial features naturally draw our attention in images, and we connect with them. -We are also drawn to the mood of the people in an image, which may play a role in how the individual responds to the image (e.g., happy or sad). -When people are included, they should be identifiable by facing the viewer and well lit. If there is too much shadow we cannot identify the face/mood.	"We want to identify the elements of a face. So, again this is where lighting comes into play, the face needs to be well lit enough that we can see the eyes the nose, and we can identify if it's you know. We start to look at things like gender. We look at things especially like mood."
Subtheme 3.10: Not distorting reality to support consistency with the viewers image schema and support interpretation of meaning: Describes factors that help support interpretation of image meaning, and consistency with one's image schema (expectations) for scene content.		
Elements should be semantically consistent with the scene should be included, and the number of elements, background patterns or colors, *may* need to be simplified if they do not contribute to meaning, context, and/or drawing focus away from focal element	-Comments fewer objects in the scene/frame and background may help with make the image easier to read. -Comments discussing semantically relevant objects, and a unifying image theme, may help decrease complexity.	"If it is the case that we were trying to do is make the scenes as easy as possible for people, then absolutely in those situations, you want to be considering things like as few objects as possible, as clear meaning of the scene as possible." "If there are things that you want them to attend to, like, having them relevant to the meaning of the scene." "If possible, try to have the plainest background possible, um, I think that would help."

Include familiar objects, locations, and meaningful engagements	-Children respond positively to seeing themselves or a likeness of themselves playing with their own items in visual scenes. Meaningful engagement within an image can facilitate more positive reactions and meaning for an individual than a still or posed image. -The visual scenes used to create the image ought to reflect/be customized to the person's actual life and environment, not be a rendering of an unfamiliar place.	"But I could imagine being able to say it's nap time being able to show a picture of you know the child's bed or bedroom like their bedroom as opposed to just a generic drawing of the bed might really help communicate that quicker."
Utilize the perspective of the individual viewing the image	-An individual's height and mobility often determine how they see the world. It may lower complexity to provide images that mirror how that person sees their environment (e.g., taking the photograph from the viewers height) to increase readability of the image by decreasing demands on an individual's spatial abilities.	"So I my tips would be, uh, if this is for the child, then get on the child's level because that's their perspective, a lot of times, adults will stand up over them and they'll have this angle that's not conducive to the child's worldview and so they'll not connect with it."
50-85mm lens, may more naturally reflect how our eyes see, to limit line and depth distortions	-Discusses different lenses -To limit distortion in an image, lenses or around 50-85 mm lens to mimic the way the human eye perceives the world, line, and depth. -Longer lenses may distort depth, and line	"So this is a wide angle lens, which is slightly distorted. Um one of the things that I suggest to my students is to use a 50 millimeter lens. Why 50 millimeters? Because it is the same way that our eyes see in terms of the shape in general."
Photograph objects squarely on to limit line distortion	-We can match the natural angle of the object in a photo by photographing items squarely without tilt to help limit distortion, such as straight lines appearing bent (e.g., stand in front of the doorway versus to the side).	"But also, one thing that's a really easy way to simplify an image that has a lot of objects is thinking about the vantage point from which you're taking it. So if you are too off to the side of something or too above or below, like in relation to the scene that you're photographing that can sort of create angles that add complexity, rather than trying to square up more straight on, or thinking about your relationship to it."

Theme 4: <u>Strategies to support the quick application of composition strategies in a just in time setting</u>: Describes strategies that can allow the camera to "do the work" during the application of composition strategies that may lower complexity.		
Subtheme 4.1: Utilizing automatic grid lines and frames: Describes automatic camera overlays that provide may help guide arrangement of scene content		
Gridlines for rule of thirds and spiral line	-The grid line and overlays, available on cameras and video cameras, or photo cropping software may help guide the photographer in implementing composition principles like rule of thirds phi grids, or spiral line (Fibonacci). It can be turned on in photo mode on most automatic cameras.	"And the nice thing about these grids, both with rule of thirds and sometimes now even phi grids is most places you can overlay within like a digital SLR camera or I would imagine, even in like an iPhone."
Edge frames	-The use of a ~20% edge rule or "safety zone" for photography is helpful for avoiding edge cut off helping ensure items are more central to the scene -Vignettes frames can help guide the viewer to the center of the image.	"They also have the ability to bring up those safe areas, to make sure it stops within the safety zone."
Subtheme 4.2: Automatic camera settings, especially aperture priority: Describes automatic camera settings that adjust camera setting based on the photographers identified film speed (ISO), shutter speed, or aperture priority (controlling depth of field and background focus), and their application.		
Automatic camera settings, especially aperture priority	-A DSLR camera (versus a more "point and shoot" camera may provide more options for automatic camera settings and image manipulation in real time over point and shoot cameras. -Most cameras should be able automatically control for aperture (depth of field), focus, film speed (ISO), and shutter speed. -Discusses any considerations for use of automatic exposure settings.	"Yeah, um, first and foremost I would tell them to set their camera to the aperture priority setting on Canon cameras…for a good camera, what it will do is it will let you set the aperture you what you want, as the photographer, want the aperture to be set at and then it will compensate accordingly with the shutter speed and the ISO in order to achieve an adequate exposure."
Subtheme 4.3: Touch screen aps for focus, light, and depth of field: Describes automatic and touch screen aps that are available on many cellphones to help the photographer control focus, light, exposure and depth of field.		
Touch screen aps for focus, light, and depth of field control, including portrait mode	-Touch screen aps, such as portrait mode on the iPhone allows for the photographer to manipulate the	"So make, focus that somehow, stick your finger on it if it's your phone or whatever it is, like, make it focus. The other thing that I think is maybe

	subject's depth of field, focus, and lighting.	almost as important is that it must have light on it, so it's clearly readable, whereas the unimportant things can fall into shadow or darkness. And in fact, new iPhones do amazing things, like portrait mode and stuff is really incredible."
High dynamic range {HDR) exposure	-High dynamic range available on cell phones camera can help provide even exposure. In doing so the camera takes multiple exposures (of dark and bright elements) for an image and combines them.	"One thing that could be helpful that I know exists even on like an iPhone or stuff is the idea of like HDR imaging…"
Subtheme 4.4: 4 and 4.6k cameras and editing software: Describes the use of cameras and software that allow for the photographic manipulation and application of compositional principles after the photograph is taken.		
4 and 4.6k cameras and editing software	-With recent advances in the availability of 4k cameras, we are more easily able to capture high quality images that allow for a range of editing/ post-production options after image capture. Discusses associated applications. -Other editing software (e.g., Photoshop, Adobe) may also allow for the application of composition principles after taking the image.	"Well they're using 4K now because you can you can do all of that with one camera. You can shoot the entire scene in 4.6K and then you can go into post-production"

Descriptions and uncoded: Used for comments that define concepts such as saliency and meaning, along with interviewer questions and comments that do not directly contribute to context of participants response, discussions on how we compose 3D scenes or considerations extending beyond the 2D image (e.g., discuss mixed reality or 360 degree environments non-visually-based design ideas, navigation ideas such as depth mapping) and how color and line could theoretically influence affect, participant questions, and other comments tangential to the questions asked.