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Guggenheim for All: Museum Education for Students on the Spectrum

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by Chiara Di Lello

In February 2014, a group of kindergarten students sat in a circle inside the large rotunda of the Solomon R. Guggenheim Museum in New York. Together, they pointed to the glass skylight many stories above them and traced, with fingers in the air, its snowflake or spider web-like lines. They closed their eyes and listened to a fountain playing nearby. As they got up and followed their educator up the museum's ramps, they kept a hand on the poured concrete parapet, feeling it gradually rise in a long continuous spiral farther and farther from the museum's ground floor.

These students were experiencing the Guggenheim Museum for the first time through Guggenheim for All, a three-part sequential program that harnesses the strengths and principles of place-based learning to foster positive learning outcomes for students on the autism spectrum.

Guggenheim for All (GFA) follows the principles of Universal Design for Learning (UDL) while incorporating established best practices for students on the autism spectrum. Because of its grounding in UDL and the focus of GFA on the built environment of the Guggenheim, it also overlaps in many ways with the practices of place-based learning. The aim of this paper is to articulate the strengths of GFA as a place-based learning experience and the ways it can benefit students on the spectrum. I review educator practices in light of both UDL principles and best practices for teaching students with autism spectrum disorders (ASDs) and draw on anecdotal data from teachers that support a view of GFA as place-based learning.

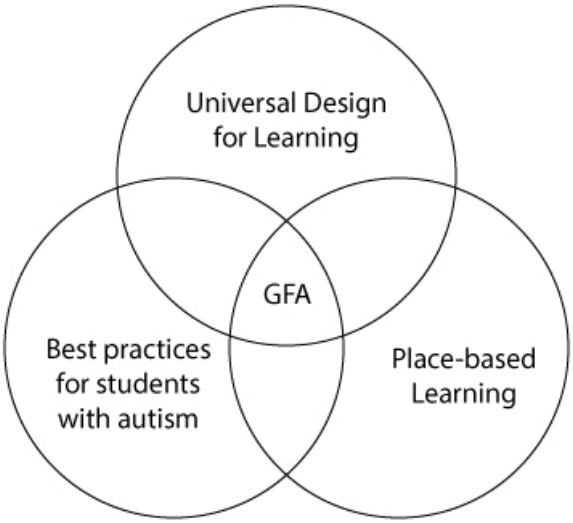

Figure 1.

GFA implements practices recommended by research for students on the autism spectrum, including providing opportunities for making choices, using individual interest as motivation, and building social skills practice into the museum experience. I posit that place-based experiences like GFA can help children on the autism spectrum develop their autobiographical memory and sense of an "experiencing self." This is a cognitive stepping-stone toward developing theory of mind and future learning.

By connecting the structure and content of GFA to salient research, I hope to provide philosophical and practical grounding for the ongoing life of this program and others like it. I begin by

exploring the intersection of museum access programs, place-based learning, and UDL, as shown in Figure 1, and consider two sample GFA programs with these frameworks in mind.

The Rise of Museum Access Programs

As part of a greater sea change and commitment to inclusion, many museums have structured new programs to improve accessibility and open their institutions to underserved audiences. Visitors on the autism spectrum are no exception and perhaps garner particular attention due to the rising incidence and diagnosis of autism spectrum disorder: the rate increased from one in 2,500 births in 1960 to one in 88 in 2012 (Solomon, 2012).

While accessibility has been legally mandated since 1991 with the passage of the Americans with Disabilities Act, many institutions are still in the early stages of practicing inclusion. Academic and clinical studies of museum programs for "access" audiences are just beginning to appear, and many programs for students and/or families of children with variations are less than 10 years old.

Program History. Guggenheim for All began as a grant-funded initiative that included a one-year partnership with Brooklyn Autism Center, a school for children with special needs. The grant also included two years of professional development for museum educators in teaching students on the autism spectrum. The full program launched in the 2012–2013 school year. There is a cost for most schools, but grant-based subsidies are available for Title I schools. Funding is critical due to the need for customization, extra planning time, and doubled staff: the educator-student ratio for GFA programs is always 1:12 or less (often 1:6), compared to 1:15 for standard gallery programs.

The three-part program consists of a pre-visit by museum educators to the school, a student trip to the museum, and a return visit to the classroom by the educators. An optional fourth session invites students, teachers, and parents back to the museum for a family day, including a short gallery visit and an informal exhibition of students' art. Students work with the same educators throughout the program.

Sample Program Descriptions. As a member of the Guggenheim's education staff, I taught GFA programs throughout the 2012–2013 and 2013–2014 academic years. Descriptions of two representative programs show the overall structure and variations of GFA. The first took place during the exhibition Picasso Black and White, on view from fall 2012 to early 2013; the second was given during the Christopher Wool retrospective in fall and winter 2013. All parts of the program are customized based on teachers' reports of student age, needs, interests, strengths, and challenges. Students ranging from kindergarten age to teenagers and young adults have participated in GFA.

Example 1: The participants were teenage boys with autism (severity levels 1 to 2 according to DSM-V criteria) from a self-contained special needs class in a public school. The pre-visit included an introduction, through both pictures and a verbal description, to the building and to works by Pablo Picasso; students also had the opportunity to draw in response to either or both, with a focus on shapes and lines. The students had a strong art background, and they referred to ab-

straction as "special effects." The museum visit included an observation of the building, with the students noting features they recognized from pictures as well as ones that were new to them, and the opportunity to sketch it. Educators led an inquiry-based discussion of the Picasso pieces and previewed the post-visit activity. During the post-visit, students created standing paper sculptures from two-dimensional drawings by folding, bending, or using slot and tab construction to make the paper stay upright. These were based on Picasso's folded metal sculptures, but several students used Guggenheim shapes as inspiration (Figure 2).

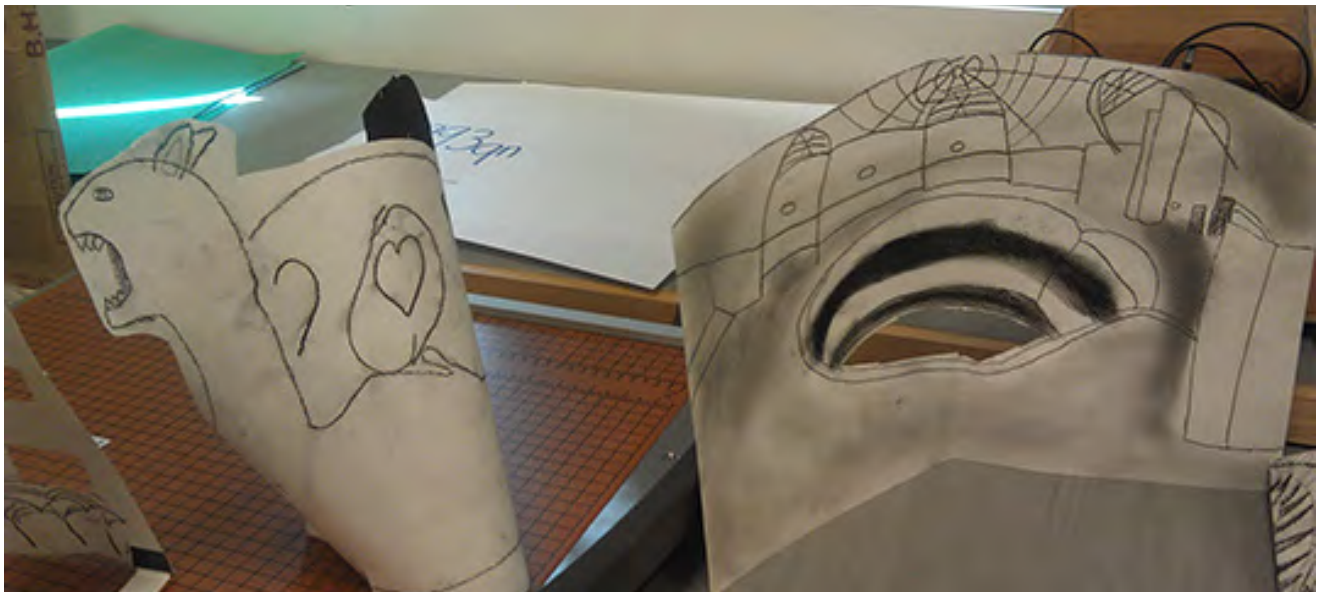

Figure 2. Student paper sculptures.

Example 2: The participants were kindergarten and first-grade age students with higher-needs ASD from one inclusion and one self-contained class. The pre-visit included reading I'd Like the Goo-Gen-Heim as a group (Figure 3). Students explored shapes at the Guggenheim Museum by looking at photographs and by using their bodies to make a circle, a triangle, a spiral, and an arc. The museum visit included finding shapes in the Guggenheim's architecture and in paintings, with photos of the building features and the artwork used as support. During the post-visit, students made patterned rollers using foam shapes and printed a design in paint.

Figure 3. Children listening to a reading of I'd Like the Goo-Gen-Heim.

Review of Practices in Guggenheim for All: UDL and ASD

Universal Design for Learning is the backbone of GFA and is based on the principle that practices benefitting students with special needs will benefit all learners. The teaching practices used in GFA align with researched interventions and practices for students with ASD. Goodman and Williams (2007) identify four areas of engagement that may be affected by behaviors and skill deficits associated with ASD: auditory, visual, social, and physical. They recommend strategies that are evidence- and research-based, replicable in nonlaboratory settings, and used not alone but in tandem. I have sorted their recommended strategies according to the three guidelines of UDL, which state that learning experiences should provide multiple means of representation, expression, and engagement (CAST, n.d.).

Multiple Means of Representation. Students on the spectrum may have difficulty focusing on distant objects or a complex visual field (Goodman & Williams, 2007). For this reason, GFA educators regularly use photocopied images and encourage students to match shapes, colors, or lines on the photocopies with those in the art or building, connecting visual input with visual-motor coordination and spatial reasoning.

Visual schedules that employ both words and images are a key component of all three segments of the GFA program (Figure 4). They reduce anxiety with regard to unfamiliar routines or spaces and increase independence.

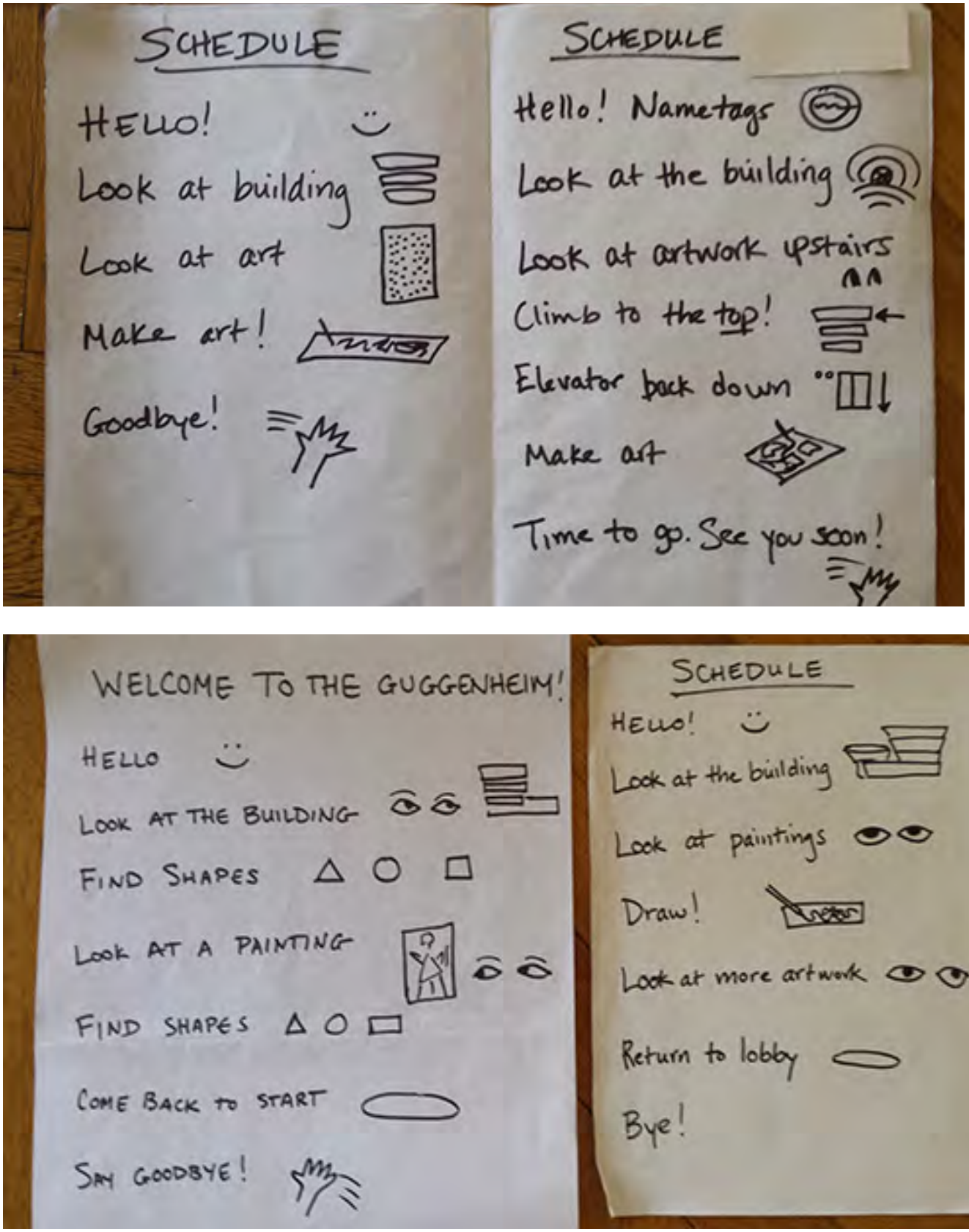

Figure 4. Visual schedules.

Touch objects and material samples provide tactile input to help students make sense of visual and auditory information. When discussing the spiral ramps of the Guggenheim, students handle a spiral seashell. When looking at oil paintings, students can touch canvas and burlap, comparing the texture of painted and unpainted samples.

Multiple Means of Action and Expression. Students with ASD often have difficulty processing verbal cues and information, which inhibits their ability to follow oral instructions (Goodman & Williams, 2007). GFA educators use auditory focus cues to get students' attention before delivering information and to signal transitions. Often these cues include a physical component. For example, an educator may tell the students, "if you can hear me, put your hands on your head."

The Guggenheim employs inquiry-based teaching for its school programs, in which student observations and questions are central to the experience. Students on the spectrum may have difficulty with these conversations, and they benefit from opportunities to communicate with more support. To this end, GFA educators use a modified form of inquiry that still elicits a high frequency of student response. An inquiry-based discussion of the building might start with "What shapes can we find?" and continue with "Point to a triangle," "Point to a curvy line," or "Find a circle on the floor." These questions and instructions provide frequent and predictable routines for interaction. Students can also use communication boards._

In addition to using auditory and physical cues, educators incorporate kinesthetic activities and "body breaks" into GFA experiences. The kindergarten students used their bodies to explore the shapes of the building. Other kinesthetic activities include posing like an artwork (whether it depicts people or not), moving arms or hands in the way the artist may have moved them to create marks on the canvas, and posing in freeze-frame or in a group tableau. Imitating objects or people benefits students on the spectrum because it requires observation, leading to improvements in expressive language and joint attention (Goodman & Williams, 2007).

Multiple Means of Engagement. For some students, exposure to the museum with "minimized threats" is an effective strategy for learning to cope with new routines and spaces. The shape of the Guggenheim creates some potentially challenging and surprising acoustics. The curved walls carry sound uncharacteristically far; people speaking many feet away on the ramps may sound as though they are in the immediate vicinity. Echoes are also a challenge, and the noise of each area combines and aggregates in the building's central space. While this can be a challenge for students on the spectrum, exposure in a guided experience can help them develop flexibility and tolerance for this form of sensory input. Museum educators also use touch objects to increase student engagement, providing fidgets that help some students sustain attention.

Choice has been shown to increase engagement when it comes to free play (Goodman & Williams, 2007). In addition, harnessing the restricted interests of students with ASD can lead to greater engagement and better learning outcomes (Mancil & Pearl, 2008). GFA uses both of these entry points as part of the UDL principle of optimizing choice and autonomy. During artmaking activities in the gallery or classroom, students make material and compositional choices

and have autonomy over their work while using materials in an appropriate way. In the teenage group described above, two students fulfilled the same activity goal according to their own interests: one made a standing picture/sculpture of an animal; the other made his in the shape of a train (Figure 5).

NoneFigure 5. Student paper sculptures.

This is a small sample of the interventions and adaptations used by educators in GFA. Many more strategies evolve organically as educators respond to students.

Place, Space, and the Museum

The distinctive architecture of the Guggenheim is a key component of the GFA program, particularly for cognitively or chronologically younger groups. It constitutes a content baseline that can be varied for different age levels, allowing discussions about topics as basic as shapes and lines or as complex and technical as poured concrete and cantilevering. GFA educators focus on helping students get to know the building and use the physical environment as a teaching object and sensory experience. In this way, GFA foregrounds the Guggenheim as a place and uses physical interaction with that space to create a rich experience.

Place-based Learning, UDL, and Museums. A glance at the principles of place-based learning reveals natural connections to the approaches of museum education. A few that are particularly relevant for GFA are:

- Learning takes place on-site in the school yard, and in the local community and environment.
- Learning is personally relevant to the learner.
- Learning is interdisciplinary.
- Learning is grounded in and supports the development of a love for one's place.
- Place-based education programs are integral to achieving other institutional goals. (Promise of Place, n.d., "Principles of Successful Place-Based Education")

The implementation of these principles leads to curricula that are compatible with UDL. Museum educators have documented the connections between place-based learning and museum education, and scholars of education have noted the connections between place-based learning and UDL (Petitpas, 2012; Semken, Williams, Ross, Kerr, & Monhardt, 2010). When students are learning from and about their immediate environment, they take in information in various ways (multiple means of representation). They will express what they know in ways that fit their abilities (multiple means of expression), and they will synthesize knowledge and continue to learn in ways that fit their interests, motivations, and preferences (multiple means of engagement).

Behind these pedagogical overlaps between museum education and place-based learning is a stronger statement regarding "museum as place," which is a fundamental standpoint of GFA. Leach (2007) articulates four domains that constitute the tangible and intangible aspects of "museum place." These are origin domain, creator domain, display domain, and viewer-object domain. Interactions with the building occur in a kind of hybrid of the latter two domains. In most cases, the museum environment constitutes the display domain and must be both physically and cognitively accessible. In the Guggenheim context, where students can interact with the building through their senses, I believe the viewer-object domain is also present.

In this domain, Leach notes, sensory perception has a key role in mediating the beginning of the internal meaning-making process. GFA educators encourage this sensory engagement and letting the body lead. They encourage students to listen to the sounds in the rotunda with their eyes closed, to lie on their backs to view the oculus window more easily, and to touch the walls, floor, and plants to feel the texture of the building and the relative temperatures of different materials. When 30 hands reach out to trace metal circles embedded in the concrete floor of the Guggenheim, the pedagogical stars of place-based learning, UDL, and autism-friendly teaching are all aligned.

Place-based Learning as ASD Intervention? Best practices for teaching students on the spectrum are consistent with UDL and also intersect with principles of place-based learning. Baranek (2002) calls for "appropriately structured physical and sensory environments"(p. 418) that accommodate the needs of students with ASDs, and advocates keeping students in "naturalistic contexts" (p. 419), not pulling them out for the purpose of intervention. With regard to social interventions, McConnell (2002) also notes the need for generalizable interventions that can be used in "home and community settings" (p. 367). The focus on place in GFA combined with the work of specially trained educators makes it a program that fosters place-based learning.

Surveying Teacher Goals and Outcomes

In addition to connecting GFA instructional methods with research, I sought anecdotal data from participating classroom teachers in order to learn more about their motivations for bringing their students to the Guggenheim. The results indicate that out-of-school learning and leisure experiences as well as positive exposure to the museum environment were key goals, consistent with the concept of "museum as place."

Over the 2012–2013 and 2013–2014 school years, 13 classroom teachers participated in GFA, with two repeating from year to year. The teachers worked with a broad age range of students in a variety of settings: charter, inclusion, and self-contained classes; District 75 embedded schools from three boroughs; private schools for students with ASD or Pervasive Developmental Disorder, and one school outside the five boroughs.

All the teachers were invited via email to complete an online survey and provide information about their students, their goals for the museum visit, and what they believed contributed to the

success of the program. Four teachers returned the survey. The data sample shows remarkable consistency among teachers' perspectives across a range of student demographics.

The teacher responses, while small in number, came from professionals working with students as young as five years old and as old as 21. Their goals for the museum visit broke down evenly: for the two middle groups (six to seven years old and 11 to 15 years old), the goals were exposure to a community space that the students might not otherwise have had access to and the opportunity to generalize social skills. The teachers of the youngest and oldest groups both desired an accommodated or "appropriate" museum experience. Multiple teachers mentioned both "art and museums" or "the Guggenheim and its art collection" in their responses, a distinction which suggests that the museum environment in and of itself was a draw. They may be referring to the Guggenheim's unique architecture or to the public and communal museum environment more generally. Either way, these responses suggest that for a segment of teachers, the goal of the museum visit centers on the place itself.

The responses support viewing GFA as place-based learning. Teachers reported that their students "did well" in and enjoyed an environment that could have been overstimulating and that students were able to generalize information from the GFA class (about the art curriculum, social skills, or both) and apply it in another setting. Creating genuine engagement and applying classroom lessons to community settings are two hallmarks of place-based learning.

Memory and the Museum as Place

One response from the oldest group's teacher is of particular interest because it points to a critical cognitive outcome for students on the spectrum: the development of episodic memory and sense of an "experiencing self." Upon returning to school, the teacher asked the students to sequence and narrate portions of the visit and express an opinion about which artwork they liked best. Similarly, the kindergarten group completed sentence stems and created drawings to narrate what they had seen during their museum visit (Figure 7). A teenage group narrated their museum visit in the form of postcards to adults at home (Figure 8). These are cognitive tasks that are often challenging for students on the spectrum, but teachers harnessed the museum experience and place as an authentic opportunity for their students to practice them.

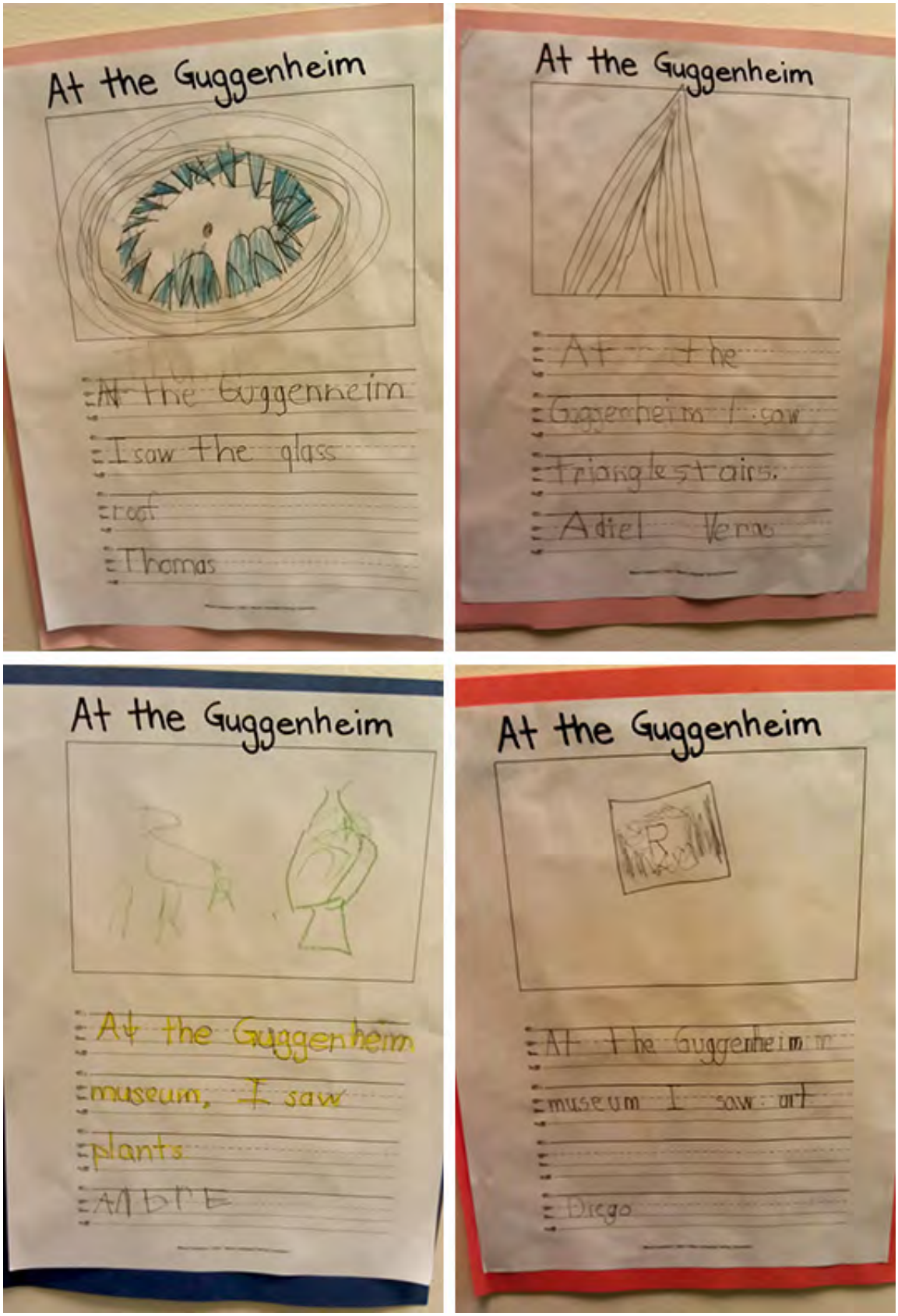

Figure 7. Kindergarten student drawings and writing after a GFA class.

Multiple studies have demonstrated that individuals with autism tend to be less accurate in recalling events that happened to themselves than in recalling events that happened to others, inverting the pattern for typically developing children and adults (Cornett, Miora, Fass, & Dixon, 2013; Millward, Powell, Messer, & Jordan, 2000). This deficit may be linked to the delayed or absent emergence of theory of mind in children with autism: if a child lacks an understanding of another's mind as separate from her or his own, there is a parallel lack of awareness of "knowing that one knows something" (Tager-Flusberg, 1990, as cited in Millward et al., 2000). Due to executive function challenges also common in individuals with autism, it can be difficult to select from and store information received through social interactions or the senses (Cornett et al., 2013).

Given these cognitive patterns, students with autism may be slow to develop self-concept, memory, and empathy. A well-developed cognitive curriculum can help build episodic memory skills by providing students with "a sense of themselves experiencing events" (Millward et al., 2000, p. 26). In the context of GFA, the social story that precedes the museum visit combined with sequencing or extension activities upon return to school can help support this cognitive goal. These outcomes are not limited to the context of the Guggenheim and may not even be limited to specialized programs, but a change of environment is essential. Taking students out of their usual setting creates a noteworthy narrative that is distinguishable from routine and can take shape around an "experiencing self."

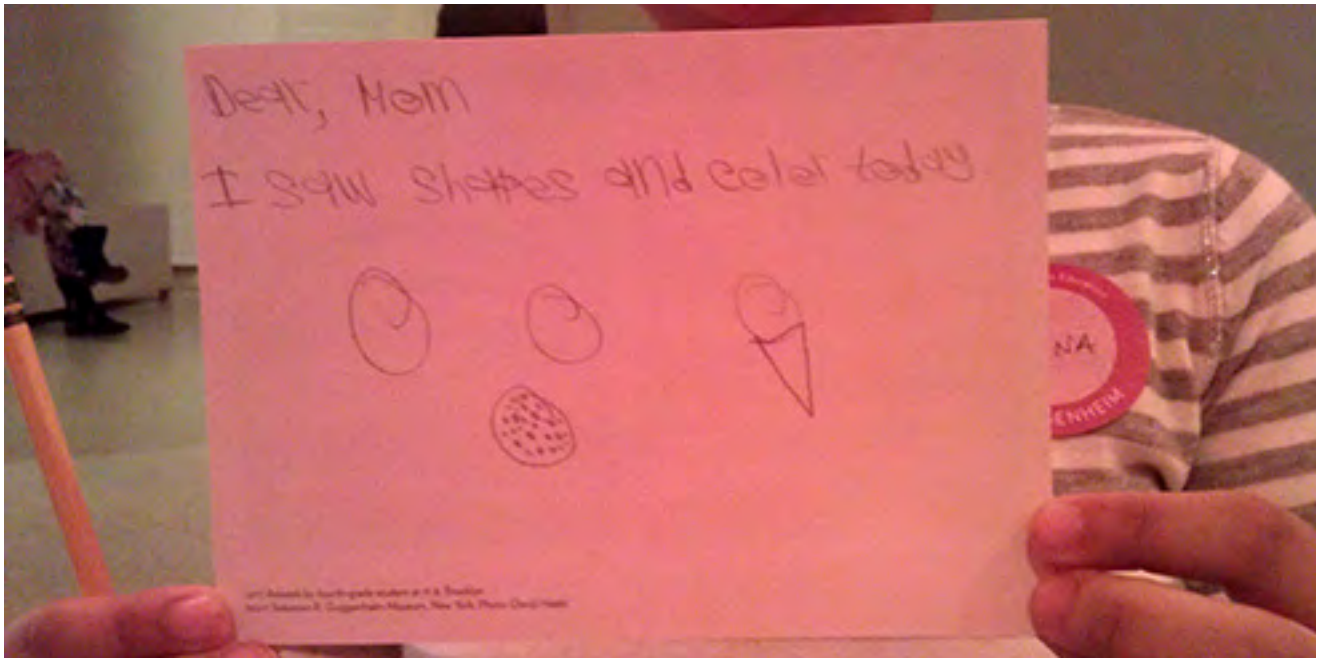

Figure 8. A teenager's postcard home at the end of a GFA tour.

An Upward Spiral: Scaling up Guggenheim for All and Place-Based Programs

Given the links between UDL principles, best practices for students with ASD, and place-based learning, there is great potential for researchers and educators to include experiential, place-based

learning in formalized teaching approaches for students on the spectrum. The practices and environment of GFA are compatible with a variety of teaching methods, and more programs are emerging in which museum professionals implement programs that draw on the clinical autism education literature (such as Baldino (2010) and Freed-Brown (2010)).

With due consideration given to modifying teaching practices, place-based learning experiences like GFA can be a resource for practitioners of various autism education methods and provide the variety of opportunities that researchers recommend for students on the spectrum. When it comes to interventions, "flexible eclectic approaches" more closely reflect the real world and the wide variety of "conditions and events" that the student will encounter (Tutt, Powell, & Thornton, 2006, p. 80). Additional research connecting experiences in museum settings to classroom and clinical approaches to autism education will benefit professionals in both areas; it will provide classroom teachers and therapists with more options for interventions and help museum professionals both hone the implementation of their offerings for visitors on the autism spectrum and better communicate the strengths of those offerings. It is my hope that the links between GFA and place-based learning will encourage more special educators to expose their students to the benefits of place-based learning experiences in museums and elsewhere.

For teachers, paraprofessionals, and parents, GFA is often a program of surprises: a child willing to explore a new environment or new materials rather than melting down, or a child who unexpectedly speaks about the building or artwork. What a given student will take from the program is unpredictable, but successful experiences are easy to spot. After a GFA program, one kindergarten student filled his reflection sheet with spirals and triangles, and wrote that his favorite part of visiting the Guggenheim was "holding Hollie's hand," recalling the educator who had led his group. And I could tell that the teenage boys who had explored Picasso's work felt ownership of the Guggenheim when they started referring to it simply as "the G."

As programs for audiences with special needs continue to grow, there are ample intersections that educators and researchers can draw upon to continue to improve access to museums for students on the spectrum. Place-based learning has the clinical and pedagogical grounding to inform this work and increase the benefits of participation at the Guggenheim and other museums for students on the spectrum.

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