

DIGITAL SELF: PRIMARY STUDENTS AND COMPUTER ART

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Abstract

This study evaluates primary students, aged 6-11, exploring their creation of a digital and virtual self. While learning they explored the positive uses of blogging and social networking on Facebook for a research study at a small computer art camp. The study used action research as well as a pre and post survey that evaluated the growth of knowledge in digital art, along with separate analysis of meanings and expression identified symbols, colours, feelings, and subject matter.

This study offers an opportunity to combine computers, art, learning, and playing. Campers learned to use MS Paint, Adobe Photoshop, and the Virtual World of Pet Society to create a digital self in a decentralized classroom. This study demonstrated that primary students are capable of creating meaningful digital art and a virtual self with professional, 21st century technology. The campers in their self-portraits established individual meaning.

Purpose of Study

My intent with this study was to use spring break camp to determine whether primary aged campers (age 6-11) were capable of creating and editing meaningful digital and virtual art, while evaluating it via a social network. Experts, like Gude, state that art education must include helping students increase their capacities to make meaning (2008).

Following the theory that children learn by playing and experiencing, Gee (2009), stated, "Games and virtual worlds [microworlds] can allow kids to experience how the words [technological terminology] attach to the world and to experience it [virtual worlds]" (p. 7). This comparison contributed to ascertaining whether the art created by the students was meaningful.

Meaningful art is a broad term. This study used it in the simplest sense of the word that the campers explored. What do their pictures say without words? According to Rudolf Arnheim (1997), "Art is the capacity to express the nature and meaning of something through its sensory appearance" (p. 11). Another definition is "the ability to engage and entertain ideas and images; it is the ability to make use of images and ideas to re-imagine one's own life experiences. It is the ability to investigate and represent one's own experiences" (Gude, 2008, p. 103). The art in this camp contains self-portraits.

The camp/study is about the self and by default necessary for the art to have meaning.

Gude explained (2008) that the expression of the students' emotions and feelings into meaning is necessary. Aesthetics matter because through aesthetic practices people make individual and collective meaning. Meaning making is the ability to utilize ideas and images, to re-imagine one's own life experiences in order to represent one's personal experiences (Gude, 2008).

As art educators, it is our job to introduce and engage our students to the techniques that make or provoke deeply engaged experiences. In this study the campers connected meaning to expression by commenting on the virtual gallery.

Research Questions

1. What kinds of digital art can young campers ages 6-11 distinguish and identify?
2. What digital artworks can campers create and what do they mean to the campers?
3. What kinds of self-presentation (symbols, colour choices, and patterns) do campers demonstrate when exploring digital identity?

Methods

Qualitative research is the collection and analysis of data in order to gain insights into a situation (Pitri, 2006). This study was qualitative and more specifically, used a participant observation approach. As a participant observer I taught, described, analysed, and interpreted a class to fully understand it (Stokrocki, 1997) but also used an action research method to improve as a teacher from my participants.

Action research is a relatively new method of research in art education used to study teaching practice (Mertler, 2009), though it has been used in other fields. Margaret Riel (2007), and Ernest Stringer (2007) both used action research and argue that it necessary to evolve the teaching process. All styles of action research are cyclical with variations of study: action, analysis and reflection.

As recent as 2006, art education researcher, Sara McKay, challenged art educators to 'live the question' by encouraging participants to think broadly about sources of learning in art. Action research provides an opportunity to create situation-specific knowledge and is thus associated with qualitative methods. Other educators, such as Eisner (1991), Stout (1993), and Sullivan (1993) agree that action research is natural to art education. Action research is describing a constantly changing educational situation, rather than generalized knowledge.

Description of Program

Campers (6 girls, 4 boys, aged 6-11) participated in a computer art camp in a decentralized classroom. The pre and post survey evaluated what the campers' knowledge. There were four general lessons. They also completed one art criticism with the artwork that they chose from their virtual gallery.

A general and flexible outline is as follows:

Monday – general introduction, with the pre-survey, lab etiquette, take photographs of the campers and follow Lessons: for Paint, for Opening a *Facebook* Account, and for *Pet Society*.

Tuesday – begin Lesson for: *Adobe Photoshop* – Special Effects of Filters, continue with *Pet Society*, take additional class photographs, and continue social networking.

Wednesday – begin Lesson for: *Adobe Photoshop* – Copy and Paste, continue in *Pet Society*, take additional class photographs, and continue social networking.

Thursday – continue Lessons in: *Adobe Photoshop* Special Effects and Copy and Paste, *Pet Society*, continue social networking.

Friday – complete comments, art criticism, all lesson plan requirements, post-survey, and share virtual gallery with parents.

Campers daily posted their digital art, comments on other students' art, and responses to my questions posted via *Facebook*. I took digital photos and videos of the campers and uploaded them to *Facebook* to build a library for the campers to use for editing during camp. I created a secure Internet environment in order to ensure the safety of minors on the Internet and within a social network. I set up the entire social network, with privacy settings prior to camp. All parents signed a written consent allowing their children to participate in the study as well as be on the Internet and *Facebook*. I monitored the *Facebook* accounts for misuse.

Results

Description of Observations During Class

On Monday, the campers were introduced to *MS Paint* and *Facebook* following the *MS Paint* lesson plan and the Lesson Plan for *Facebook*. They completed self-portraits; some used the shape templates to create the roundness of the face while others drew it freehand with the mouse, see Figure 1 and Figure 2. The campers were quickly bored with limitations. They complained that they had done this type of art previously; this was not new to them. The campers were required to create at least three pictures, one being a self-portrait. Many did more than were required.

All of their artworks were posted to their virtual gallery within *Facebook*. Using the social network did not appear difficult. The campers quickly grasped the concept of "tagging" digital photos of themselves. By "tagging" the campers were identifying themselves in the digital photos or artworks, clicking on the picture and automatically attaching a label with their name. Campers made minimal comments in *Facebook*.

The introduction of the virtual world, *Pet Society* was a welcomed break from step-by-step learning of how to upload a picture to *Facebook*. The campers asked few questions, then explored the virtual space on their own. I challenged them to "dress" their avatar (virtual-selves). The second challenge of the day in *Pet Society* was to take a photo and post it to their virtual galleries, see Figure 3. All met the challenge. Many of the campers did not want to leave when the class was over at noon.

On Tuesday, I introduced *Adobe Photoshop* following the Special Effects Lesson. The campers noticed the similarities to *MS Paint*, the tool bars, the tools, the layout, and the menu bar. They were amazed at the simplicity of using the filters. Shouting out “oooo, aaahhh, you did that with just one click!” After one five-minute demonstration, they were eager to try themselves. Students were required to edit at least three digital photos taken during camp, post them to their virtual galleries, and make comments on their own as well as others. All campers exceeded the minimum of at least three pictures, one camper made 13 variations. They quickly grasped the concept of “save as” and re-opening the original image to start the process again. They were eager to see what each other was working on and creating. The comments were easily made, see Figure 5. Grammar was not proper; complete sentences were a rarity; but the meaning was easy to interpret.

We also returned to *Pet Society*. They were required to take pictures of their avatar in their home, a friend’s home, and out shopping or around town. The *Pet Society* required that they work together rather than in competition, which is different than traditional games requiring competition, a winner and a loser. They were asking each other questions, such as where they got an item or so many coins, etc. I was only called for them to show me their progress, how they had redecorated, the fish they caught, or how the seed they planted turned into a tree. I was no longer the educator, but the spectator.

Wednesday, during transition time (drop off, sign in, etc), the campers explored an online program called *Mr. Picassohead* (www.mrpicassohead.com). This gave them the opportunity to create another self-portrait using tools based on the abstract designs of Pablo Picasso.

The campers were given a short ten-minute demonstration the *Adobe Photoshop*, copy and paste Lesson. They recalled finding an original digital photograph in the virtual gallery, saving it to the desktop, and opening the file in *Photoshop*. One picture, Figure 7, used copy and paste multiple times. Switching the heads of the boys to the girls was a very comical and popular artwork, Figure 8. The boys were devastated when their heads were placed on a girl’s body wearing a dress.

Pet Society filled the final 50 minutes. The kids focused on checking on pets, petlings, planted seeds, friends, and the newest things in the shops. There were several image changes to their avatars. Today the theme was green, mostly due to St. Patrick’s Day. Some changed their colour; others just changed their clothes. There was collaboration between campers on how to best achieve status or coins. The challenge today was to capture a picture of a special place in the *Pet Society*, post it in the virtual gallery, and explain why it was special. Unfortunately, camp ended before all could complete this task.

Thursday, the campers spent some time tagging digital photos that were taken the previous day. Campers were asked to select one image of their choice to work with in *Photoshop*. The challenge today was to use the copy and paste technique and apply a filter. Most of the campers saved the work by doing a “save as” after each copy and paste or filter process. When they posted their images to the virtual gallery, it documented the progression of their creation.

Friday the campers completed the post survey, and were asked to select from their virtual gallery "the best picture EVER." It could be created with any of the software used during camp. I then asked verbally the following questions: "On the first comment line please describe your picture (what do you see), on the next comment line tell me what kinds of art do you see (colours, patterns, etc.), on the next comment line write what does it mean (the symbols, colours, shapes, etc.), and finally on the last comment write how well was the picture made and why." There was a lot of prodding on my part to get them to respond with more than four words. I had to make a rule that the comments had to be at least five words in length, in order to prevent them from saying: "it's me, it's cool, or I like it." They appeared to want to work with *Photoshop* more than write comments.

Seconds upon completion of the art criticism, they quickly selected a picture to work with in *Photoshop*. I noticed that they used copy and paste and filters. They took risks (more extreme variations of the filters). In one image the camper copied herself six times, and used a different filter for each one, plus a filter for the back ground, for example: canvas, blur, neon, outline, and sketch. Other campers even used the drawing tools to add in their own graphics.

The campers spent the final hour in *Pet Society*. They were eager to share with each other "tricks" to getting around or finding the most coins or points. When their parents arrived the campers shared their virtual galleries, taking the time to explain how pictures were made, where the picture was taken, or why they chose that specific picture to alter and change.

Using action research posed its own challenges. At times I was pulled in either the direction of the teacher or the desire to collect data as the researcher. There were times when I was about take a picture when a camper called out my name, requesting assistance or wanting to share a new discovery. In this case documentation was lost in order to continue teaching. It would have been easier to have a third party in the room to document or a video camera set up in the back corner of the room.

Data Analysis

Responses from the pre survey identified the existing digital knowledge of the campers.

The pre and post survey compared identification of art via multiple-choice questions. There was evidence of improvement in identification of digital art (36%), pencil drawing (20%), and painting (20%). Participating in camp assisted the campers in identifying different types of art.

In addition to art identification the post survey also included open ended questions about their avatars; name, colour, why that colour, why that clothing, if they went to the style shop, and what did they change? When describing themselves seven mentioned the colour while four listed emotional descriptors (happy, sweet, and cool). Clothing and outfit styles were chosen because of personal preference, regardless of cost. None of the virtual selves were naked. They responded that their virtual self was that specific colour due to their favouritism of that colour; none of the

campers selected a colour that matched their natural skin tone. Seven of the campers altered their avatar in the Style Shop during the week by changing a body part (eyes, ears, nose, mouth, head shape, or decorative symbol), while two changed their names. All of the other items visible the campers have purchased with their coins or earned by completing tasks, most left them in their room visible for all to see. Four of the campers included pictures of their “egg collection,” due to the spring season. There was not a dominant colour of avatars; all were different from each other.

The post survey also asked the campers’ opinions about software, challenges, and enjoyment. The favourite software of all of the campers was *Pet Society* (63%), *Photoshop* (48%), *Facebook* (27%), and *MS Paint* (18%). Four campers noted having difficulty with *Facebook*. All of the campers (100%) responded that they enjoyed camp.

Analysing the campers’ artworks and their meanings was key to this study to determine what the artworks mean to them and their symbolism. Table 1 satisfied the requirements for Feldman’s art criticism: describe, analyse, interpret and judge. The campers were unaware that they were doing an art criticism, they just responded to the questions asked. In reviewing the art criticism, meaning seems minimal, yet it is there with statements like: “double friends and double me” or “who I want to be.” The campers shared what is important to them, what they thought was cool, who they wanted to be. For example, this student in Figure 9, not only describes the location of this picture, but also why he is “proud” of this picture. Not only is he collecting, but also he is 66% done with his egg collection, which in this game, in two days is a feat of luck that none of the other campers achieved. Yet, in his post he is not taunting or teasing the other campers.

This camp took place during the week of March 15th. This included St. Patrick’s Day, the first day of spring, and the middle of Lent. This was visible in the virtual world, *Pet Society*, but not reflected in any of the other art. Other variations included totally transforming the original image to be completely unidentifiable, Figure 10. The camper would not “tag” anyone in the photo and left a caption of “guess who?” Responses would lead to guesses of not only whom the mystery person was but also which filter was used to create the artwork.

One camper posted Figure 11, in her virtual gallery. It was obvious by the end of the week that she loved pets. She not only posted it in her virtual gallery, but also took it upon herself to make sure that if another camper had petlings (virtual pets for their avatar) that they took care of them, fed them, and did not lose them. She would post status reminders for the sake of the petlings. She carried her love of pets into the virtual world, making that her communal cause.

In Figure 12, the camper defended her pink spiral on her forehead as something cute and to match an existing mark on her forehead in reality. It is a representation of her, but not her exactly. She has a pet at home (in the real world); the same exact pet is not available in the virtual world, so she took another pet, a cat. Having a pet is important to her. She took liberties to explore and try new things to improve her self-image. Throughout the week she tried several hairstyles, in various colours, a few different pairs of glasses, even her outfits changed, but the spiral on her forehead remained there the entire time.

What does this mean?

From the first minute of camp, the campers were on the computers using technology. We went through general instructions of opening a program, logging in to the social network, and uploading pictures. The repeat of those instructions was not necessary the remainder of the week as the campers completed the task without additional instruction. Couse and Chen (2008) found similar results when they studied young children's (3-6 yr.) investment and motivation in learning using Tablet computers.

Ongoing throughout the camp, I also noticed that the campers were teaching each other. When students discovered something they announced an invitation to all campers to come over to their computers so they can demonstrate how to do it. Ryan Shin (2010) had the same experience stating "the digital world does not emerge from a vacuum state without having relationships... in a digital world people are connected, supporting and critiquing each other in the social context of their technologies"(p. 39).

Campers' verbal communications during the week were similar to their posted comments. They shared their discoveries with each other rather than quietly keep it to themselves. There were other instances where a camper would ask, "how did you do that?" Thus providing the opportunity for one camper to demonstrate to another camper on the desired effect was achieved. Catchings and MacGregor (1998) found a similar results stating, "Letting each student tell the group about her or his favourite effect and how to achieve it provides a great way for them to learn more about the program and it encourages the collaborative tendencies that are paramount to the successful use of this medium" (p. 23).

Gender Differences

It is interesting to note the difference between genders. When looking at the examples in Figure 13 and Figure 14, anyone could almost guess as to which was created by a boy or a girl. But this gender specific style is only visible when the campers used the *MS Paint* software. When just using the filters or copy/paste in

Photoshop, the gender differences are harder if not impossible to notice. Within *Pet Society*, the gender differences are obvious as the girls chose to wear dresses and the boys wore pants or shorts (one wore a tire).

Age Differences

When comparing the differences with age, the youngest camper was six and the oldest was eleven. Developmentally there is a large gap. One is just learning to read while the other is beginning puberty. In the first example, Figure 15, the youngest camper uses multiple techniques of a special effects filter and a painting tool. His title was "two mes," meaning that in the original that he used the liquefy filter and the digitally painted version of him as well. Neither portrait is flattering or truly identifiable by the viewer. Figure 16, by the oldest camper was completed using multiple filters (the pixelating and the pencil effect). The digital outcome highlights the young lady, is flattering, and identifiable. She clearly wanted a nice digital artwork of herself that viewers could identify.

Conclusions

Primary students in this study, when given the opportunity to learn digital editing technology, are capable of creating meaningful digital pictures and using a social network responsibly (they chose the "be kind" rule). The children in this study excelled at learning in a decentralized classroom. They quickly met the requirements and went on to investigate the software and meet their own personal goals of exploration.

The first research question asked 'what kinds of digital art can young campers ages 6-12 distinguish and identify?' The survey demonstrated improvement. Previous studies by Unsworth et. al, (2005) and Slovic and Kloek (2007) also documented that children, under the age of 12 are capable of using computers, reinforcing this study. Thomas (2005) also studied children online. In her study, children, aged 13 learned how to use the online environment without an expert or educator. Marsh's (2009) study with children aged 5-11, in *Club Penguin*, stated that 52% of the 175 children used virtual worlds on a regular basis. According to the pre survey, this camp had different results. One hundred percent of the campers stated that they previously used a virtual world.

Research question two focused on meaning in the campers' artworks: 'what digital artworks can campers create and what do they mean to the campers?' The campers utilized a variety of software in a progression allowed each lesson to build on the previous lesson. This created inquiry and invited the campers to be curious to learn more.

The art criticism questions were part of the data interpretation to obtain meaning. According to Gude (2008) a core concept of art education is students' need to increase their ability to make meaning. Meaning-making is the aptitude to employ and think about ideas and images; the ability to make use of images and ideas to re-imagine one's own life experiences; the ability to examine

and symbolize one's own experiences, to enhance students' abilities to engage, to analyse, to apprehend, to make, and to enjoy. These campers spent a week exploring their identities. Most of the students presented themselves in the moment. For example, if they were feeling sad, they altered their virtual self to be sad.

Figure 17 illustrates the expression of emotion. She is happy, giggling, she is in her favourite colour, and her fellow campers concur that she is cute and laughs a lot. She was happy to be in a virtual world that she could easily manipulate. Later in the week, she posted the second image. She is clearly not happy, perhaps pouting even. She even takes the time to caption her photo and explain, "I am sad. I have no coins to shop." Most campers followed the adage, 'what you see is what you get.' They were not looking to be something that they were not. They were just being themselves, making friends, and being cool.

These campers had individual meanings when exploring their identities. What is key here is to note that they were capable of expressing themselves and what was meaningful to them about their personality, lifestyle, pets, virtual collections, and culture. Karen Murphy (et. al, 2003) also concluded "images can lead children to discuss the events with adults and peers and then perhaps use them as a basis for writing, drawing, or other form of processing and expression" (p. 3). Drawing about their identity is another possible stepping stone in discussing it with parents, teachers, or counsellors.

Leigh and Heid (2008) stated that children find comfort and greater ease in expressing themselves when drawing. Drawing is an opportunity to allow children to open up and share themselves with others. By exploring their art, we can learn what part of their culture is important to them and what they are willing to share. Educators can teach how the culture is shaped and how to shape the culture by providing the students with the tools of contemporary aesthetic investigation. Through such signifying practices individuals make meaning of their lives and they make purposeful meaningful lives (Gude, 2008).

The third research question asked: "what choices of self-presentation (objects, colour, and patterns) do campers demonstrate when exploring digital identity?" Girls were typically in dresses, with a bow or flower, while boys selected hats and pants. All of the items in their homes (with the exception of the items provided) were purchased and displayed by them, for example, their egg and pet collections or the trophies that they had earned. They most commonly chose room 1, to put their favourite or most important items in, which is the entry point to their house and the first room a visitor would see.

Campers had no problems creating pictures of their identity or a virtual self. For example, this camper posted these five portraits, Figure 18. All of the pictures, though created with different software, illustrate the same general statement about the same camper. She is feminine, and loves the colour pink. Even at nine years old this camper knew what part of her personality she wanted to illustrate and share with others.

The virtual gallery within *Facebook* allowed students to see each other's pictures in real time. As soon as they were created, they were posted for viewing and evaluation. A virtual gallery extends the exhibition experience beyond the physical space. Exhibiting student artwork completes the artistic experience. A virtual gallery provides opportunities for other people—teachers, classmates, students, school staff, and the public not only to view, but also appreciate, and praise student artists. Burton (2010) stated that, this contemporary gallery format “also creates venues for critique and discussion that would not be possible otherwise” (p. 48).

During this study campers did not receive a grade or were not forced (no consequence if not completed) to complete the requirements of the camp, yet every camper exceeded the requirements. What were their motivations if there was no incentive? These campers communicated, learned, played, posted, and taught each other without a dangling carrot. This kind of motivation is intrinsic motivation, coined ‘Motivation 3.0’ by Daniel Pink a 21st century philosopher, defines intrinsic motivation as “for artists, scientists, inventors, school children, and the rest of us, ... it is the drive to do something because it is interesting, challenging, and absorbing – is essential for high levels of creativity” (2008, p 46).

Additionally, action research also needs to continue in the field of art education. Action researcher McKay (2006) challenges art educators to continue to inquire into the unknown, to continue to explore the new and unknown, to make new connections and reveal new knowledge about teaching and learning in art. The more educators know the more they can teach and share. “The goal is to work towards a better understanding of their situation in order to affect a positive personal and social change” (Riel, 2007, p. 1). Action research is a challenge. It is a give and take process of teaching and documenting, but the challenge is to do both to improve education.

Art, technology, and children are the seeds of our future and when carefully grafted together each cause the other to grow in unexpected and random ways furthering their potential and the impacts on future seedlings. As Aristotle once was quoted, “the whole is greater than the sum of the parts.” We, as a human race, need all of them, if we neglect any part, it's to our detriment. Everyday we are preparing children for jobs of the future. The careers of the twenty-first century work are more challenging, more creative. “Solving challenging problems requires an inquiring mind and the

willingness to experiment one's way to a fresh solution... it seeks engagement." (Pink, 2008, p. 174)
 Art links technology, problem solving and the human element.

For the Future

This study opens the door to numerous future studies ranging from digital art, meaning making, social art, social networking, virtual galleries, and visual culture. This study was completed with primary students, but could have been with any age group, in any setting (school or community centre). I encourage future researchers to continue to explore these avenues with various age groups in a variety of cultures.



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Figures



Figure 1: *MS Paint* Freehand Student Example



Figure 2: *MS Paint* Template Student Example



Figure 3: *Pet Society* Example



Figure 4: *Photoshop* Special Effects Example with a pink outline filter

Added today · Comment · Like



Madelyn Artstudent omg i love this photo. it looks so cool! it looks like a photogerpher took this pic. you look awesome
6 hours ago · Report



Emma Evans looks like a real painting
6 hours ago · Report

Figure 5: *Facebook* comments example



Figure 6: *Mr. Picassohead* example

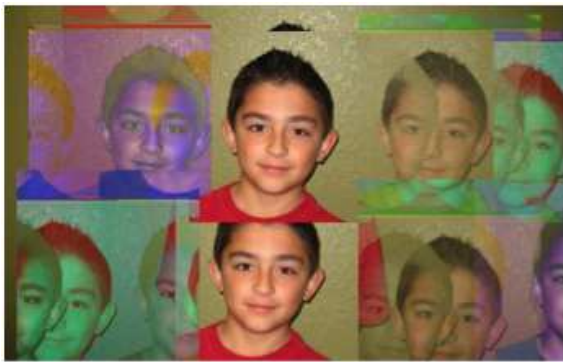
Figure 7: *Photoshop cut and paste example*Figure 8: *Photoshop head switch example*

Figure 9: Pet Society Example of meaning in comments

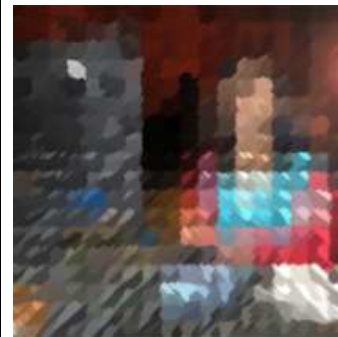
Figure 10: *Photoshop "guess who" example*

Figure 11: Pet Society cause



Figure 12: Pet Society self presentation example

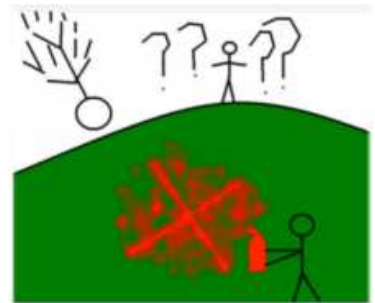
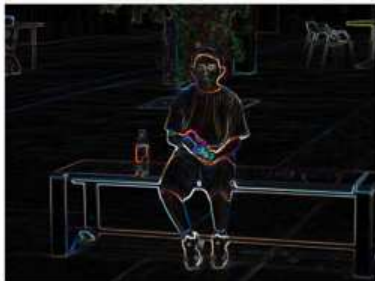
Figure 13: *Photoshop* artwork by female camperFigure 14: *Photoshop* artwork by male camperFigure 15: *Photoshop* artwork by youngest camperFigure 16: *Photoshop* artwork by oldest camper

Figure 17: Pet Society examples of mood expression

Figure 18: Self presentation, *MS Paint*, *Photoshop*, Pet Society, *Photoshop*, and *Mr. Picassohead* by the same camper

Table 1: Their responses (verbatim) are in the following art criticism chart.

"The best picture EVER"	Describe	Analyse	Interpret	Judge
 1	This is the best picture. I see a girl that looks like a cartoon	I see colours, lines, and squares.	No meaning, I'm thinking	It is good because it is what I imagined it would be.
 2	I see a finde (friend)	I see my colours	I have a frined	It is good. I did a good job.
 3	I see my pet on <i>Pet Society</i> glowing, with bows around her	I see dark colours and a pattern of bows	This pictures shows what I like and it shows my personality	The artist did a good job because is shows the way I like things and my personality
 4	I see a secret agent	I see a lot of colours	This is who I want to be	It is good because I tried best.
 5	It is me with a long nose and ryan deformed		It means I have a long nose, it is a joke	The artist did a good job since he didn't explode the face like the nose

 6	I see lots of shapes, its weird	I see circles, lines, green colour	It means it all is round	It is good, it started with me and mad this, it changed to sumthing new.
	I am sleeping, I really need to sleep	Dark colours	It means nothing	It is good cause its important to me. I did it.
 8	I see me	Colour lines	Nothing	Its good, cause I did it by myself.
 9	I see me in pinkness	I see patterns of little dots	It means I like pink	I did a good, because it makes me fell good.
 10	I see the food eat place, and friends	It needs art it is broing	It means double friends and double me	It is good because I made a twin. I did it.

 11	I see me sitting on a chair and jenna sitting next to me	Its white and some colour stripes on my jacket	I think it looks cool	I did a good job because I did it, duh!
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