What Vygotsky can teach us about young children drawing

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ABSTRACT

This paper brings a Vygotskian socio-cultural framework to young children's drawing processes. Using examples of children drawing in a year one classroom I will examine the dialogic engagement with drawing. Drawing dialogues allowed these children to move from spontaneous concepts to more scientific concepts and played an important role in promoting higher mental functions. I will suggest that when drawing is used in a collaborative and communicative manner it becomes a powerful meaning-making tool.

Introduction

Despite a growing interest in young children's drawing there seem to be few meaningful frameworks for supporting and examining drawing. In early childhood education, two very different discourses and approaches tend to underpin our understanding and responses to drawing. One derives from Piaget's (1956) developmental learning theory, the other from aesthetics and Fine Arts.

Piaget (1956) argued that a child's drawing performance reflected the child's cognitive competence. He did not consider drawing to be a special domain of development but merely a window into the child's general cognitive development (Piaget, 1956). A Piagetian developmental framework suggests that children's drawing follows a consistent, universal, sequential progression over which the adult has little influence. Drawing is viewed as a progression from scribbles to realism and there is a reluctance to engage in any meaningful dialogue with the child and his or her drawing. This framework does not fit easily with contemporary socio, cultural, historical learning theory.

Aesthetics is largely rooted in the adult world of modern art and art history. Bourdieu (1993) suggests that specific institutions, such as art galleries and art schools, along with the discourse of art critics, dealers and historians, construct an image of the artist and what might be counted as art. Such a construction can often belie the immediate

and real meaning making intentions of young children. I would argue that neither of these frameworks serves us adequately. In this paper I would like to present a more viable alternative.

I would like to suggest that if we examine the process of young children's drawing with a Vygotskian, social constructionist lens we might develop a more informative and useful theoretical framework for observing and working with children drawing. I need to begin by outlining two basic principles proposed by Vygotsky. Firstly, meaning and the role of spontaneous and scientific concepts, secondly the development of higher mental functions. I will describe how adaptations of these principles helped to provide me with an informative way of working with children's drawing processes. Before I do this I need review what I mean by visual thought (Brooks, 2003).

Drawing and visual thought

Vygotsky suggests that the "rational, intentional conveying of experience and thought to others requires a mediating system, the prototype of which is human speech born of the need of intercourse during work" (Vygotsky, 1962, p. 6). The diagram below (Figure 1) illustrates Vygotsky's theory of the connection between thought and speech and the development of verbal thought.

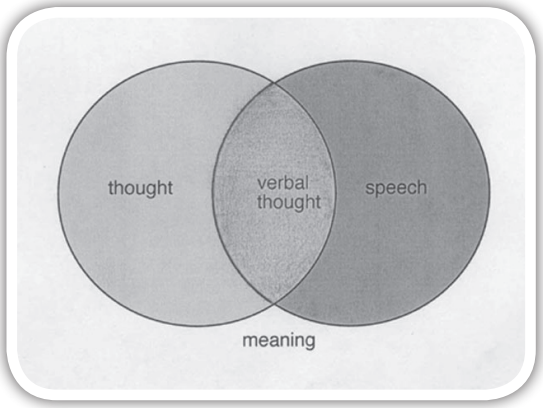

Figure 1: Verbal thought (Wink & Putney, 2002)

However, while speech was the primary mediation tool on which he focused his studies, Vygotsky (1962) also listed others such as symbols, algebraic systems, art, drawing, writing, and diagrams.

When we consider drawing to be a mediation tool, and a language of sorts, then we can see how drawing might contribute to the formulation of thinking and meaning. The following diagram (Figure 2) builds on Vygotsky's theory and illustrates a connection between thought, drawing and the development of visual thought (Brooks, 2003). We can now see how drawing is an important mediation tool for thinking and for meaning making.

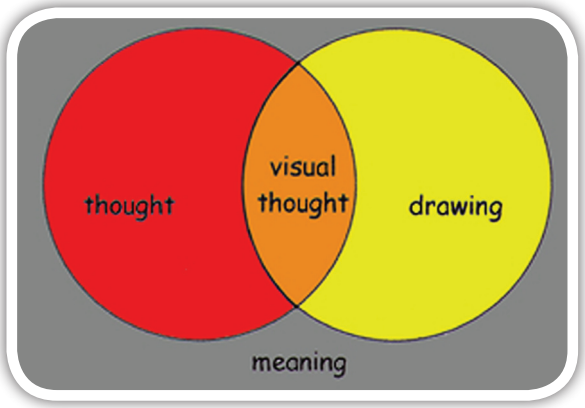

Figure 2: Visual thought.

Vygotsky (1962) describes thought as being both whole and simultaneous. It is not always connected to speech. There is also simultaneity in a completed drawing that parallels Vygotsky's (1962) description of thought. An image is seen as a whole and simultaneously, whereas speech has a more linear and temporal order. Perhaps the power of drawing for children (and adults) is that it more closely represents thought. If I consider drawing to be a communication system that supports meaning and operates in similar ways to language, and if I replace the word 'speech' with the word 'drawing' as I have in the diagram above, I now have a framework for examining children's drawing processes. This framework helps me understand how drawing might function at the referential level as well as be a mediator between a child's spontaneous concept and a child's scientific concept.

Meaning and the role of spontaneous and scientific concepts

Vygotsky (1962) proposed that it was in meaning that the relational properties between thought and speech could be found. If we are to concentrate on the notion of meaning it is important to understand that Vygotsky wrote about two forms of meaning; Firstly, meaning as reference and abstraction and secondly, meaning as contextualized personal sense (Wertsch, 2000). There are two basic assumptions about meaning as reference and abstractions. One is that, 'Language meaning is a matter of referential relationships between signs and objects,' and the other is that, 'the development of meaning is a matter of increasing generalization and abstraction' (Wertsch, 2000, p. 20). Vygotsky believed that an understanding of the difference between what he termed a child's spontaneous concept and a child's scientific concept depended on one's understanding of these two assumptions. It is in the spontaneous concept, which occurs in a child's first encounter with an experience that the referential use of language plays an important role. However, for meaning to develop further into abstraction the child has to move beyond this direct linking of referent to object to a more generalized meaning. Objects are grouped into categories rather than remaining single objects.

Vygotsky believed that a child's spontaneous concept differs from a child's scientific concept; particularly in the path the child takes in his or her thinking.

> The birth of the spontaneous concept is usually associated with the child's immediate encounter with things…In contrast, the birth of the scientific concept begins not with an immediate encounter with things, but with a mediated relation to the object. With the spontaneous concept the child moves from the thing to the concept. With the scientific concept, he is forced to follow the opposite path - from the concept to the thing. (Vygotsky, 1987, p. 219)

It is the referential nature of the relationship between the sign and the object that is the key to understanding the differences between everyday spontaneous concepts and more abstract, scientific concepts.

The key difference…is a function of the presence or absence of a system. Concepts stand in a different relationship to the object when they exist outside a system than when they enter one. The relationship of the word 'flower' to the object is completely different for the child who does not yet know the words rose, violet or lily than it is for the child who does. Outside a system, the only possible connections between concepts are those that exist between the objects themselves, that is, empirical connections . . . These relationships mediate the concept's relationship to the object through its relationship to other concepts. A different relationship between the concept and the object develops. Supra-empirical connections between concepts become possible. (Vygotsky, 1987, p. 234)

The following table (Table 1) summarizes the relationship between a spontaneous concept and a scientific concept.

Spontaneous concept	Scientific concept
Referential relationship between signs and objects.	Increasing generalization and abstraction.
First, or immediate encounter with an experience.	Mediated relation to the object.
Referential use of language.	Objects grouped into categories.
The child moves from the thing to the concept.	Child moves from the concept to the thing.
Absence of a system.	System in place.
Empirical connections between objects.	Supra-empirical connections between concepts become possible.

Table 1: The relationship between spontaneous and scientific concepts.

Vygotsky states that it is not enough to just have labels for objects in order to think and solve problems. What is also needed is the ability to manipulate these labels across contexts that will allow for connections that promote thinking at a more abstract and conceptual level and encourage higher levels of thinking. The ability to manipulate labels across context is, however, dependent upon the child's adequate understanding

of the concept. The acquisition of word labels does not necessarily presume a clear understanding. Vygotsky (1962) suggests that a working or experiential understanding is needed and I propose that drawing serves this purpose. Drawing helps with the definition of words that initially often only exist at the level of recitation.

I would argue that drawing might play an important role in focusing children's attention on the spontaneous concept as well as allowing them to make connections between concepts. A drawing will often contain and make visible the essence of an idea or concept. When these thoughts or concepts exist outside of the child, the child can then work with the idea in relation to other ideas. Drawing, when used as a medium of exchange, can form a dynamic function that allows an elaboration of an initial idea and the definition of a concept as well as assisting with building supra-empirical connections between concepts and systems.

Higher mental functions: collaborating and communicating

Vygotsky (1978) considered the shift from everyday concepts to scientific concepts important in the formation of higher mental functions. Children acquire cultural tools, which are handed to them by more experienced members of society, to facilitate the acquisition of higher mental functions like focused attention, deliberate memory and logical thought. As a deliberate, symbol-mediated activity, drawing might be considered a cultural tool that facilitates the acquisition of higher mental functions.

Higher mental functions exist for some time in a distributed or 'shared' form before being internalised (Vygotsky, 1978). When drawing is used in a collaborative and communicative manner it exists at an interpersonal level and can assist this task of distribution or sharing. The distributed, or shared, form of higher mental function requires a concept to exist in an external frame so that learners can access help from more experienced others. However, if drawing is considered to be an independent creative activity that must not be interfered with, then many adults are unwilling to facilitate the collaborative use of drawing.

When children have acquired a certain competency with a cultural tool, such as drawing, then they are able to use it independently at an intrapersonal level to develop new categories and concepts for themselves. Communication between concepts and ideas then also becomes possible through the intrapersonal dialogue with drawing. Drawing becomes a metacognitive tool. This progression from an interpersonal dialogue to an intrapersonal dialogue with drawing might be considered as part of the law of the development of higher mental functions (Vygotsky 1978; Brooks 2005). When adults are reluctant to engage meaningfully with children's drawing the shift from interpersonal to intrapersonal is compromised. Children should be assisted in acquiring a certain competency with a cultural tool that is part of the development of higher mental functions and a powerful way of meaning making for them.

Drawing engages the mind

I suggest that the creation of a drawing is an experience that is more complex than the appropriation of a word label that can be heard and memorized for recitation. The creation of a drawing involves all of the child's past and present experiences as well as imagination and emergent thinking. Drawing simultaneously involves memory, experience, imagination, and observation. The creation of a drawing demands an integration of these elements. When children draw they become fully engaged with the subject being drawn. When children acquire word labels the acquisition tends to be at a referential and recitation level.

It is through the formation of ideas, or the expression of those ideas, that we can bring something more clearly into consciousness. My focus is on drawing and how it can mediate between a child's spontaneous and scientific concepts. I see a role for drawing supporting higher mental functions.

The context and methodology for the study

This paper presents a very small example from a much larger study that was undertaken for my PhD. The research was a visual ethnographic study (Brooks, 2002; 2006) that examined the drawing processes of 22, five and six year old children in an urban, year one, classroom in Alberta, Canada. I was both the teacher and the researcher. A research assistant and a teaching assistant assisted me with data gathering. Over a period of three months most of the drawing events that occurred during the course of the children's everyday, project work were recorded on video. The children's drawings from these events were dated, scanned and saved. Research journals were kept by the researchers and selections of video reviewed and discussed with the children and families. The data was analysed in relation to the research questions. This PhD, and the video clips, can be viewed at: http://www.une.edu.au/Drawing/main.html.

Drawing shadows

One topic under investigation during the children's project work time was 'shadows'. This study of shadows evolved out of a study of flashlights. As the children had worked with the flashlights, they had noticed not only the different qualities of light created by them but also the different shadows that happened when they pointed the light at objects. Armed with clipboards and pencils we began to explore shadows by going outside to draw them.

Ed's exploration of shadows

Ed drew the shadow of the bike rack (Figure 3). He said, 'I drew the bike rack because the shadow looked so different from the rack'. He wondered why that would happen.

He was surprised that shadows were not necessarily replicas of the objects that created them. I noticed in his drawing that he had looped the shadows like a continuous row of 'e's, while his drawing of the rack looked more like a row of 'n's.

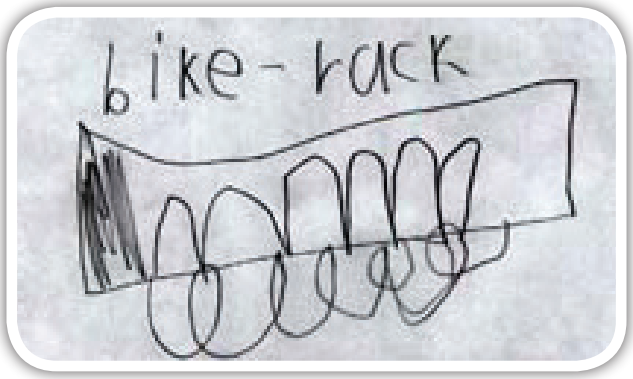

Figure 3: Ed's drawing of the bike rack and shadow

Referring to both his drawing and the bike rack he was able to point out to me how the hoops of the bike rack had been separate circles that were attached to the bar at the top while the shadows appeared to be a continuous loop (Figure 4). Had Ed not drawn the bike rack I doubt whether he would have observed this detail.

Figure 4: The bike rack.

When there was so much to see it was often difficult to know what to pay attention to. Choosing to draw something that caught his attention helped to focus that attention. Drawing the bike rack meant that Ed had to spend time looking more closely at it, drawing mediated attention. In the process of making the drawing he became more aware of what it was that first caught his attention and his drawing provided a means for him to articulate the discovery he made about shadows. Ed's motivation for drawing the bike rack and its shadows was to discover more about the nature of shadows. In this context, drawing was a meaning-making tool. Ed began with the spontaneous encounter and concept and through his drawing moved to a higher level of thinking. Ed discovered that shadows were not necessarily replicas of the objects that created them. Drawing acted as the mediation tool that allowed this new understanding to occur. When I encountered Ed drawing the bike rack our discussion focused upon

what he had chosen to draw, why he had chosen to draw it, as well as what he was discovering in the process. Back in the classroom, when sharing his drawing with his peers, he talked about how he had discovered something new about shadows and how this discovery became clear to him while he was drawing. It would have been more difficult for him to share this information with others without his drawing to refer to. Ed's observation, when shared with the class, became part of our collective understanding about shadows. Drawing mediated new knowledge for Ed as well as for the other children.

Each child had produced a drawing that could be referred to during group discussions. Drawings provided a common point of reference, framed the point being made, focused all the children's attention, as well as assisted the children's understanding of the concepts. Sharing the drawings and the information they contained, helped to extend our collective understanding of the nature of shadows. Each drawing contained an idea that was immediately visible and accessible and this allowed the children to move between different ideas about shadows and have access to a wider understanding of the nature of shadows. The drawings mediated between spontaneous concepts and allowed the children's thinking to move to more scientific concepts of shadows. The many different things that the children noticed as well as the different perspectives taken while drawing helped the children see that there were many ways of looking at shadows as well as many ways of recording information obtained from the observation of shadows.

Following this activity they worked with a partner and with chalk recorded their shadows on the ground (Figures 5 & 6). Two children noticed that there was a difference between shadows while standing and shadows while sitting. They said that a standing figure had more shadow than a sitting figure. Another two children discovered that if they lay down then the shadow almost disappeared. There was also a discussion about the quality of the shadow as some children noticed that the shadow was lighter and darker in places. On subsequent days they also discovered that shadows moved and changed size according to the time of day.

Figure 5: Drawing shadows (a)

Figure 6: Drawing shadows (b)

Several different drawing contexts were set up so that the children might pursue these new ideas. One group worked with a lamp that was positioned in one place while movable wooden figures were sat, laid down, and stood at various distances from the

lamp (Figure 7). Each context provided different variables for creating shadows.

Figure 7: Lamp, manikins and shadows

Figure 8: Ed's drawing of the head's shadow

The children decided how the manikins should be placed. Many of their decisions seemed to be based on the experiences they had had outside when they chalked around their own shadows. For drawing the figures and shadows I provided the children with some more responsive drawing materials. Conté crayons come in a range of tones of grey with black and white at the extremes. I also provided erasers and drawing pencils in a hardness range from B to 6B. I reminded the children how to use and care for these materials and I pointed out the tonal features that might help them better describe their shadows.

Ed spent time experimenting with a combination of conté and graphite. He then launched into an ambitious drawing of the whole setting (Figure 8). He singled out one figure to pay particular attention to and began to draw its shadow. He said, 'Look, the shadow is bigger than the head.' He had noticed that there was a difference between the size of the figure's head and the size of the shadow cast by the head. The shadow was much bigger than the head. He spent a great deal of time and care to ensure that his rendering of the head and its shadow was somewhat proportionally congruent with what he saw. I could see some relationships between this drawing and Ed's drawing of the bike rack and its shadow. Ed seemed interested in the size and shape of the shadows in relation to the objects that cast them. It seemed to intrigue him that there should be a difference in size and shape between the two. This latest drawing looked at a similar idea in a different context. When I grouped the two drawings together, I could see the connections between Ed's ideas. Without these drawings, I doubt if these connections would have been as accessible to me or even to him.

Ed next focused his attention on the different tonal range that he observed within the shadow of the head. He was working next to one of his peers who was experimenting with the tonal range she could achieve in relation to what she saw. I could see Ed copying many of her actions. There were also several other children drawing the figures and they were all involved in similar experiments. There was much sharing of ideas and findings during this process. This was an interesting scenario where all are novices in the art of creating tonal ranges in shadows. I noticed the children were talking aloud about what they were doing. This is an example of the dialogic nature of learning where new knowledge was first shared in this interpersonal state before

the child gains enough understanding for the knowledge to exist in an intrapersonal or independent state. I also noticed that Ed had moved from describing the shadow with a line to using a tonal approach. As he explored the possibilities of the materials in relation to the effect he had in mind, there was much trial and error happening. This was the same for all the children in this group and it was the nature and outcomes of these trial and error activities that they shared with each other. For example, Connie said, 'When I put white conté on top of black it makes the shadow lighter at the edges'. I saw evidence of co-construction of knowledge in these exchanges of information and the adoption of strategies suggested by others.

The experimentation with the drawing materials in this context acted as a generative activity that extended the possibilities for representation. The outcomes of the children's experiments led to new growth and development in relation to their understanding of the nature of shadows and their representation. While the drawings were being done individually, the effort was a collective one that built upon itself and initiated new actions and ideas about drawing as well as shadows.

Ed's drawings allowed me to see the connections between the concepts Ed was working with across contexts. I believe the drawings also helped Ed to see connections across contexts. Each drawing revealed Ed's train of thought, his connections across contexts and his increasing generalization. These drawings and the collaborative communication that occurred through and with his own and others drawing kept Ed continually moving on to higher, more complex and more abstract levels of thinking. He broadened his understanding of shadow so that it was no longer a direct reference between object and shadow but rather concepts of shadows among many shadows and increasing generalizability.

When I discussed children's drawings with the class I was aware that I was providing a model not just of the language I used to describe what I saw but also what was of interest to me in the drawing. When my comments focused on the meaning the child was working with it gave me a framework within which to work that promoted the child's efforts and highlighted his or her thoughtfulness. I believe this focus helped children to value their drawing efforts as a tool for meaning making and honoured their intent.

The children's explorations and our class discussions spawned a series of drawings by another child, completed over a period of week, which explores many of the possibilities of the drawing materials and the nature of shadows that were discussed.

Shadow drawings by Rick (aged 6)

In Figure 9, Rick explained that he had noticed that there were shadows on the body of the figure. He tried in this drawing to show the light and dark patches on the wooden body of the manikin as well as some of the shadow shed by the head of the manikin.

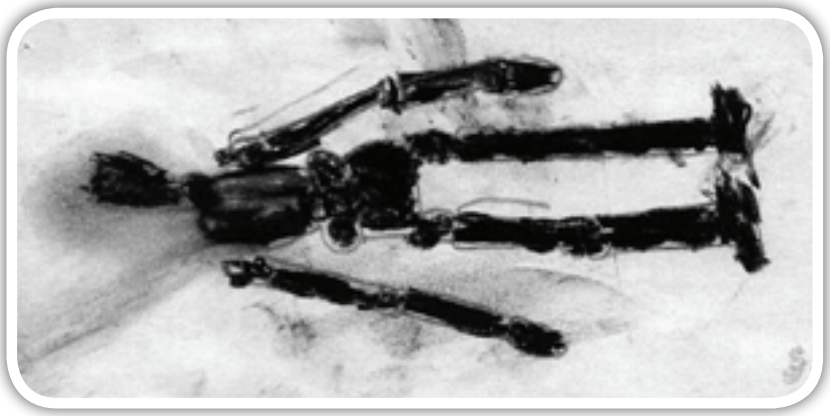

Figure 9: A conté and graphite drawing of a figure lying down.

Rick told me he wanted to show the exact outline and extent of the shadow when the body was lying down. He also wanted to explore how all the joints that allowed the manikin to move (Figure 10).

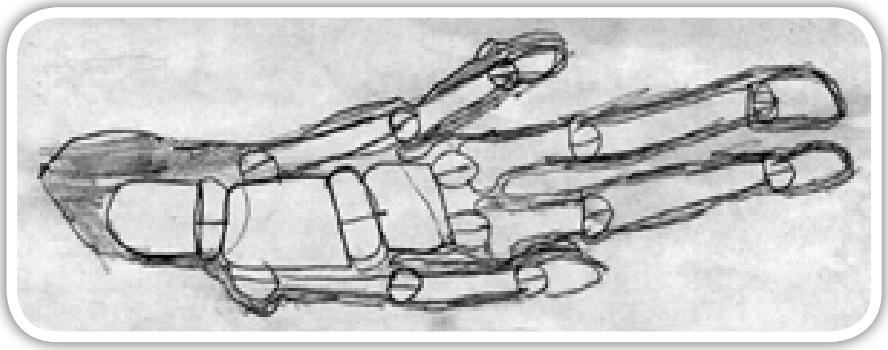

Figure 10: A graphite drawing of a figure lying down

In response to his peers' discussion of the tone of the shadow on the white cloth Rick tried using a light grey conté crayon to describe the shadow of the prone manikin. He also tried to make the edges of the shadow softer and less dense (Figure 11).

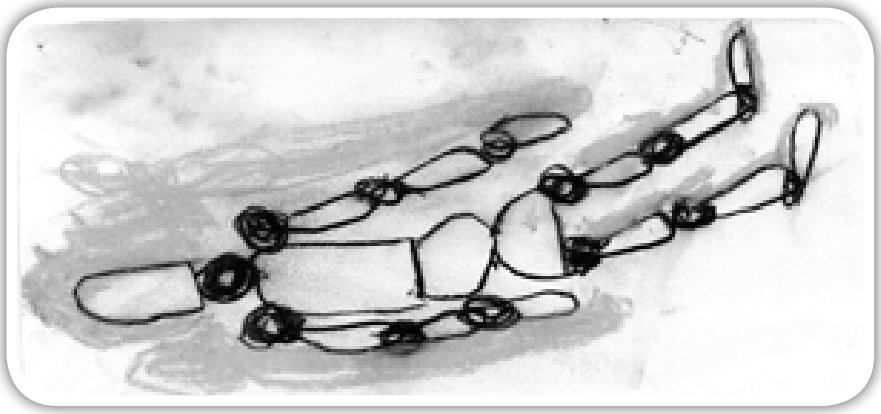

Figure 11: A conté and graphite drawing of a figure lying down.

Ed's discoveries about the size and shape of shadows inspired the drawing below (figure 12). Rick carefully tries to demonstrate how the shape of the manikin corresponds to the shape of the shadow.

In these four drawings we can see the cyclical and dialogic engagement with a variety of concepts. Collectively they represent evidence of the movement between the spontaneous concept and the scientific concept and the development of higher mental functions.

Figure 12: A graphite drawing of a standing figure.

Conclusion

If I had just taken the children out to see shadows and we had looked at them and discussed them, I could have assumed that because the children could talk to me about the shadows using the same words as I did that they had the same understanding of shadows that I did. However, when I look at the children's drawings of shadows I can see many different interpretations of the concept of shadow as well as different drawing strategies used to develop these concepts. Drawing involved the constant invention of symbols. Changes in children's thinking became visible through their drawings. Meaning and understanding was facilitated through the dialogic engagement with drawing shadows. Drawing played a significant role in the growth and movement between the spontaneous concept and the scientific concept. Supporting a collaborative and communicative approach to drawing allowed these children's drawing efforts to assist in the development of higher mental functions.

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