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Metacognition at the Program for the Advancement of Learning

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Metacognitive Perspectives of Practitioners at Curry College's Program for the Advancement of Learning

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Abstract

This is a pilot study of metacognition, and how it is defined and utilized by practitioners at Curry College's Program for the Advancement of Learning (PAL) in Milton, Massachusetts. Presently there are several distinct approaches to metacognitive practice in education, pulling from different traditions. Examples are Self Regulated Learning Theory (Bandura, 1997, Zimmerman & Schunk, 2001), which focuses on behavioral problem-solving strategies and their uses, psycho-dynamic developmental approaches (Kegan, 1996), the self-talk approaches of Mindset Theory (Dweck, 2008), dialectic approaches (Montgomery & Baxter 1998) of philosophical traditions (Popper, 1945), and contemplative mindfulness approaches (Gautam, 1999). Educationally these approaches to metacognition are developed through inter-personal, intra-personal, and socially constructed processes. One of the first individuals to champion the use of metacognition in education with students with learning disabilities was Dr. Gertrude Webb (1989), who established the Curry College PAL program in 1970, the nation's first college-level program for students with language-based learning difficulties. For this pilot study I chose to interview three of the PAL program's faculty.

Review of Literature

Metacognition was originally defined as "learning about learning" by John Flavell (1979, (p.906). Today the study of metacognition is moving through a period of transformation driven by distinct lines of research that approach metacognition introspection and reflection from a subjective/intrapersonal, dialectic/interpersonal and a social/constructivist definition. What has

remained consistent is that a metacognitive practice of self reflection continue to be considered central to education by many educational thinkers, researchers, and philosophers (Hacker, Dunlosky & Graesser 2009).

In the United States, it was John Dewey (1938) who placed self-reflection as the crucial educational component of learning and a healthy democracy. The practice of self reflection upon one's own learning and development can be traced to ancient times. Socrates, known as the first great European philosopher and teacher, offered the adage, "know thyself and thou shalt know the universe and God," a phrase which was also carved into the temple of Delphi in Greece (Vyshedskiy, 2014). The Hindu Vedas first posed the quintessential metacognitive question "what is mind?" in the Rig Veda somewhere between 10,000-5000 BC. (Gautam, 1999). It is likely that the development of metacognition is among the distinct cognitive skills involved in mental synthesis that separated humans from other primates as far back as one million years ago (Vyshedskiy, 2014).

Since Flavell's initial call to investigate this phenomena scientifically, research into metacognition has involved many diverse avenues of investigation. Self Regulated Learning Theory, initially developed by Albert Bandura (1997), has pursued investigations of behavior related to problem-solving and self control. This approach has spawned many fruitful insights into how students best learn and how teachers can better facilitate learning. One of the more powerful outgrowths of this line of investigation was initiated by Cassandra B. Whyte (1978), who first described the idea of locus of control. Whyte discovered that task performance improved the more people believed that it was within their power to control the course of events, rather than events being driven by external forces beyond their control. Researchers like ol Dwek (2008, 2013) have built upon this realization identifying the influential power of what Dwek calls mindset and self definition on learning.

How metacognition actually works as a mental process has been a subject of keen interest. Thomas Nelson (1996) proposed the Metacognitive Model of Consciousness as a process where individuals identify object level distinctions from meta or subject level distinctions. Nelson's work indicated that the interaction of these consciously created levels of perception produced understanding and self regulated behavior. From this perspective, metacognition can be viewed as the subjective processes of self-reflection that take place within individuals that propel the creation and attainment of their goals and desires. Aspects of this conceptualization have become central to psychodynamic approaches to development, which see human development as a chain of ever more sophisticated mental representations and interactions with the subjective and objective conceptual representation the self and of one's own personal function (Kegan, 1996).

Other recent investigations from the field of neurology and artificial intelligence have found that the metacognitive aspects of the conscious mind are aspects of cognition that cannot be performed through computation (Penrose, 2010; Chalmers, 1996). Along with experiential sensations, defined as qualia (Chalmers, 1996), the conscious mind also seems to have a special property related to metacognition often described as "understanding". Rodger Penrose (1989) defined understanding as the conscious mind's ability to merge ideas in such a way that new ideas are created that transcend the original constituent ideas. His mathematically derrived descriptions of conscious understanding are closely akin to Nelson's Metacognitive Model of Consciousness (1996).

The idea that conscious thought contains within it special properties of understanding has been a feature of eastern wisdom traditions for thousands of years. In the United States, the study of possible medical applications of mindfulness were developed by Dr. Jon Kabat-Zinn at the

University of Massachusetts Medical Center (Gotink, Chu, Busschbach, Fricchione & Hunink, 2015). Over the years, mindfulness has become a more accepted practice in mainstream medicine, psychology, corporate environments, and now education. New techniques that draw upon metacognitive self-reflection, like mindfulness-based cognitive therapy, use traditional cognitive behavioral therapy and mindfulness strategies to treat depression. (Swart & Apsche 2014). A 2015 meta-analysis of evidence from systematic reviews supports the use of mindfulness programs to alleviate symptoms of a variety of mental and physical maladies (Gotink et al., 2015).

In the west such introspective investigation has historically been the domain of the student-teacher dialectic. First utilized by the Greeks, Plato provided vivid descriptions of his teacher Socrates utilizing the dialectic teaching style in ancient Athens (Cornford, 1945). A dialectic is essentially the back and forth discussion between a teacher and student, where the teacher uses questioning and reason to provoke students to reflect and assess their beliefs. The dialectic approach has moved beyond education and philosophy to become part of several psychological practices, such as Dialectical Behavior Therapy (DBT) and Mode Deactivation Therapy (MDT) that utilize a combination of cognitive behavioral therapy, dialectical, and mindfulness techniques, to treat individuals with personality and behavioral challenges (Swart & Apsche 2014). Some educators have begun to see, particularly for students with learning and neurological disorders, that there is considerable overlap between the fields of psychology and education. This has sparked the formation of the field of Educational Therapy, which seeks to address both the educational and psychological needs of students (Hopkins, 1996).

It is assumed that how practitioners approach metacognition is related to the tradition of the field in which they are working. However, as evidenced by the crossover field of educational therapy, this may no longer be the prevailing case. Thanks to the proliferation of information, educators, particularly those

who work with an expressly metacognitive focus, are able to draw from a wide range of approaches and experiences when addressing the subject of metacognition. How educators approach metacognition and use it in their practice will be important in the development of future pedagogical practice, and is the focus of the section to follow.

Interview Subjects

The first interview subject was the current director of the PAL program at Curry College, the position originally held by Dr. Webb. This subject is new to the position and comes from a research background. Before coming to Curry she designed and evaluated educational programs to support diverse learners in various settings and was commended by the Ukrainian National Ministry of Education for her work introducing the Teaching English as a Foreign Language (TEFL) methodology. She was also a Principal Investigator for the United States Agency for International Development and the Department of Education who oversaw grants, to train educators and study learning and cognition.

The second interview subject was for many years a senior advisor and professor at the PAL program, retiring from PAL in 2016. She has over 25 years of experience utilizing the principles of metacognition with learning disabled students at the college level. In addition, this interview subject is an accomplished playwright and author. In 2011 she was chosen Roxbury Repertory Theater's Playwright Laureate and has recently published a manuscript of short stories entitled *God is a Dog (Lost and Found in Paris)* (2015). During her interview she shared how she was hired by Dr. Webb, then director of the program, over several candidates who this interviewee felt were more qualified. She felt this was primarily because her theories on learning closely matched Dr. Webb's. So, in many ways her insights represent a direct connection to the ideas established by Dr. Webb for the program.

The final interview subject was a senior advisor and professor at the PAL program. She has an extensive background working with students of all ages as a reading, speech, and learning specialist, classroom teacher, diagnostician, counselor, and professional-level educational therapist. She was a recipient of the Lorenz Excellence in Teaching Award. She coordinates Curry's Faculty Peer Support Program and was the senior editor of *Changing Lives Through Metacognitive Relationships: LD/ADHD and College Success* (2010) and co-author of the *Learning Disabilities Reference (2005)*. She is also a contributing book reviewer and editorial board member of the journal, *The Educational Therapist*.

Methods

I proceeded with interviews and then analysis utilizing grounded theory methods of analysis **(**Luttrell, 2010). Each interview took roughly forty minutes and was semi-structured around 10 questions I constructed that I hoped would elicit the meanings my subjects gave to their educational practices and the subtle differences in the ways in which they thought of and utilized metacognitive processes in their practices. Each interview I transcribed and coded to discover preferences in perspective on learning. Initially I color-coded the transcript to identify descriptions of metacognition as intrapersonal, interpersonal or social constructivist. I then coded the transcripts a second time identifying powerful or interesting statements related to practice and a third time for recurring patterns. I then tagged individual passages and statements of interest with their original codes and placed them into visual maps using a computer-based mapping program. I then arranged corresponding statements between interviews into further categories. Finally, I selectively coded responses into broader lines of interpretation and themes that I inferred from the data.

The initial coding consisted of the categories: intrapersonal, interpersonal, or social. Intrapersonal statements were statements that referred to a process of individual self-monitoring or reflection. Interpersonal referred to statements or descriptions of interaction between individuals that support metacognition, such as the dialectic model or mentoring behaviors. Social statements were those that directly or indirectly related metacognition practice to a broader cultural need or imperative. These categories came from perspective differences in practice identified in the broader literature related to metacognition (Pennini, 2006; Darabi, Nelson & Paas, 2007; Downing, Kwong, Chan, Lam & Downing, 2009, Dweck, 2013; Artino, 2008,Schwarz, 2015). The questions developed for this interview I purposefully designed to be open-ended enough to allow the interviewees to choose their definitional perspective without being guided toward a particular practice or perspective by the frame of the question. My analysis showed deep relationships between these three perspectives that transcended such simple a definitional stance or perspective. Several responses contained overlaps of perspectives, which resulted in overlaps in the color coding system I developed.

I constructed the following categories based on statements made by interviewees that they directly identified as important. These initial categories were *listening, conversation, connection, personal stories* and *individualization*. *Transition* also emerged as an underlying theme across interviews. The broad transitions between perspectives helped me to realize specific movements in these underlying pedagogical structure of metacognitive practice. It became clear to me that a central pedological theme for these PAL program personnel was the movement of students from highly individualized personal perceptions of self into broader interpersonal and social awareness and control.

Interpretation

The interviews provided vistas of perspective into the metacognitive educational practice at Curry College's PAL program. Two qualities stood out. First was the unique nature of the metacognitive relationship the interviewees aimed to establish with their students. Second was the transitional quality of their metacognitive educational practices. The practice itself was best encapsulated by interview subject two's definition of metacognition as a "learning conversation," a personal conversation between a student and teacher that evolves over time with the learners, supporting their development and self regulation. Subject two made gradual connections between personal preference, interest and habits of mind to broaden to include insights and connections to research about learning and the mind more generally. The goal of these learning conversations is for the students to apply the developed insights to their personal responsibilities and goals, both individual and social. Through an interactive process of elevating the students' powers of reflection and self assessment, personal improvements in self-regulation are achieved, improving the execution of established abilities and supporting the development of new skills.

The teacher's responsibility in this process is to guide the students through transitional gates between the personal, interpersonal and social demands of their lives in school, supporting the students to develop strategies to meet these demands. Sometimes it is simply just letting the student know of something she did not know before. Various cognitive styles can lead to cognitive rigidity, and supportive metacognition, as it is defined and practiced at PAL, is a well-suited, flexible intervention for addressing the rigidity often found in students with neuro-cognitive challenges. This is because metacognition encourages, illustrates and educates students about patterns of thought and behavior that can be utilized to address their unique learning profiles.

Differences between educators who practice and do not practice metacognition

It was noted by all interview subjects that metacognition is not a concept that is inherently, or even readily, understood by students. Even some educators may struggle to understand the concept. Interview subject one mentioned that for her students, “First they have to know it exists.” Her feeling was that without direct teaching and experience students often do not realize what metacognitive thinking is. Interview subject 3 described this lack of insight as, “problematic,” stating that students “live on this superficial place of understanding and processing.” Subject two said that the problem was not simply a student based phenomenon, but that there were educators who similarly “don’t get it” when it comes to metacognition.

The difference between teachers who do and do not practice metacognition may also be related to a teacher's philosophy. Subject one described this split in philosophical opinion through a description of a conversation with a colleague:

> She said to me, and this opened up this amazing conversation, she said, ‘I just wanted to give them things to do and tell them to do it, that's what I want to do.’ And I said, ‘I don't want to give them the things to do and tell them to do it... I want to teach them what they could do, and how they could do it. So that when they come to a new situation they can say to themselves, ‘What could I do and how would I do it?’

However, the preponderance of statements made by interview subjects seemed to suggest that while differences may appear philosophical they could likely be the result of educational experience. Subject three stated, “Teachers need to know this, about students, and model ways to remember, retrieve, and apply the information, and both students and teachers need to accept that all brains operate differently.” Subject two’s responses pointed to an even deeper root of difficulty in the capacity of some individuals to understand the concept of metacognition itself:

> It is a whole different way of thinking and approaching education. It is really out of the box.... And for people who think in an elitist or in a factory way, and what I mean by a factory way is implanting knowledge in their head. You know, they are unable to get it, and you know what, that's my biggest problem. They are unable to get a different way of thinking.

It seems entirely reasonable to hypothesize that this rift between educators who do and do not understand the practice of metacognition could be the result of a lack of their explicit education in the subject, as identified by subject one. If correct, this insight suggests a broader need for metacognitive understanding in education. It may be that metacognitive understanding may elude more than just those with neurological challenges. Perhaps broader educational benefits could be obtained from a wider implementation of metacognitive educational practices or, to quote subject one, the subject of metacognition "should be addressed from infancy… to death."

Metacognition as a unique way of processing

Subject two identified metacognition as a unique domain of thinking, something, she asserted, that does not come naturally to all learners. All of the interviewees seemed to indicate that metacognition was a form of thinking or reasoning that, like reading or mathematics, requires certain experiences to develop a set of skills that are more or less difficult for some individuals to apprehend than others. Subject two's statement, "I think that if, unless you do learn differently, or you are really into conversation… you don't get what we do," indicates her belief that some individuals may have had more metacognitive experiences or may be more equipped with innate metacognitive ability to reflect on their learning than others.

Repeatedly my interview subject discussed metacognition in term of a practiced and developable skill. Subject three described it as “part of the process of learning from successes and from errors and becoming an expert learner.” She frequently described her practice as identifying developmental overlaps between her students’ powers of introspection and execution.

If metacognitive ability is different across the population, interesting new questions come to the fore from Subject two’s insight: “What portion of current educators possesses high levels of metacognitive ability?” and “Does our current education and certification process for educators improve their metacognitive reasoning?” Some of subject two’s comments suggest that there may be many teachers with rather low metacognitive aptitudes, underscoring the need to develop both instruments capable of measuring subtle differences in metacognitive ability and programs that can support and develop metacognitive awareness in educators.

Process vs Content

Another broad theme that emerged from the interviews centered on the idea of process vs. content approaches to education. Subject two frequently contrasted her teaching style, described as a learning conversation, with more linear content-based approaches. “I think learning is something you need to engage in.” It was clear that she saw engagement in learning as something dynamic and not simply something requiring a specific degree of effort, like memorizing content, She said, “You can memorize anything, but then what makes you curious?” Subject one also expanded on this idea, declaring the goal of her work was not so much to present content instruction, but to “be shepherding the development of metacognitive capacities.”

Key Features of metacognition pedagogy at PAL

Subject two identified the key features of metacognitive teaching as “deep listening to

stories… connection and conversation." She described this process of metacognitive deep listening as "a circle." The circle is an apt metaphor for metacognitive pedagogy because it insinuates both a cycle and a reciprocal relationship. It was clear that all interviewees felt that a reciprocal relationship between teacher and student was central to their students developing metacognitive thinking. The prevailing feeling was for the intrapersonal metacognitive relationship to develop effectively, a reciprocal relationship that is highly individualized and trusting must be established.

Subject one identified as the most important quality for a teacher of metacognition to have is the ability "to individualize it for the student," adding, "I could teach metacognition all day long, but unless it's meaningful for a student it's going to have no meaning at all." Subject two expanded on how this individualized interpersonal relationship could be achieved by drawing out the intrapersonal metacognitive process:

> The most important thing is they're in control of this. Not me. It's a conversation, but they're in control. So they can reveal whatever they want. And have what they want, you know... And I trust... That on some level they know... And if they don't, they'll tell me.

This idea of an individualized and trusting relationship with the student is clearly in contrast to educational movements that make outcomes more standardized and algorithmic, stressing this far more than the relationships that support deep learning. According to the 2015 National Assessment of Educational Progress neither standardized testing initiatives have not demonstrated any positive impact (NAEP, 2015), and in fact, at the middle school level there was dip in both reading and mathematics scores between 2013 and 2015. It could be possible that the missing ingredient in modern education is the formation of deep interpersonal metacognitive relationship, as described by subject two.

Subject three was the only interviewee to address how metacognition could be approached beyond the one-to-one nature of PAL's set-up for interacting with students to broader classroom environments.

> a teacher will say, "All right there are five reasons for the Civil War," and then... talk and write at the board..., and it would be helpful then for the teacher to say, "All right, five major reasons for triggering the Civil War. How are we gonna remember them? 'Cause I just put all those things on the board?" ... It's important to know these things, so you stop and you just do it.

Interview subject three insinuated that while the insertion of this kind of metacognitive intervention into a class structure makes good sense, she believed that such important metacognitive elements are often left out of lessons for fear of taking time away form the core content.

Differences in approach

My interviews revealed some notable differences in pedagogical technique that are used to promote metacognitive thinking. While each described utilizing the format of a learning conversation, how each of these educators approached these conversations had subtle differences. Subject two identified deep listening to a student's story. Subject one indicated utilizing more abstract scientific learning about the brain. Subject three made several references to directly teaching elements of self regulation.

In her interview, subject one described her technique as, "We talked about self-regulation. I would also talk about executive function…and the frontal lobe development as a way of supporting metacognition," indicating strongly scientifically-based information on brain function as central to her metacognitive teaching strategy, a quality not mentioned by subject

two. For subject two, the most important part of her metacognitive approach was deep listening to a student's story and using that story to help her student make deeper connections to the world. Subject three seemed to take a more practical approach, stating that she attempts to make metacognitive thinking "a normal part of what they do on a daily basis. I constantly ask college students, 'how are you going to remember that?' in hopes that the question will become part of their normal memory so they can learn to ask critical questions."

It is clear that an interactive discussion about an individual's conception of learning is an essential features of each of my interviewees' metacognitive practices, but specifics of what is entailed in this conversation seem to vary based on both the student and educator. However, it is worth noting that these three approaches seem to roughly break out into the intrapersonal, interpersonal and social constructivist approaches identified in the research on metacognitive development offered earlier in this paper. Subject one's statement that metacognitive teaching would be "really hard to translate … into a curriculum," due to its vastness in application, is also reflected in these different approaches.

Relationship and connection

The theme of connection was found across all the interviews, but was specifically identified by subject two:

> Metacognition is... it's about connection. Not only just a connection to yourself, but connection between the two of us. Connection to the classes. How it connects deeply to your life. You know... What works? But what will make you remember. What triggers something good, or bad. And connection to the world, and connection to the people around you.

This idea of making broader, deeper connections from self to world seems related to a process known as the metacognitive model of consciousness (Nelson, 1996), where distinctions between object and subject levels of understanding result in a person's metacognitive ability to step outside or beyond the subject in some more abstract way. This idea of merging concepts to form new functional meta-concepts is related to ideas central to linguistic theories (Chomsky, 2014) and theories of mathematics (Penrose, 1989), only occurring in the domain of self understanding and regulation. It may be that a similar kind of extrapolation is occurring with the self through metacognition, improving the learner's ability to understand a broader world of knowledge, people and action.

Conclusions

This pilot study illuminated several themes related to the practiced pedagogy of metacognition at Curry College's PAL program. At PAL, metacognitive education conceptually addresses transitions through multiple levels of perspective. This is achieved through a "learning conversation" between the student and teacher that specifically addresses what may be a student's rigid cognitive tendencies. Metacognition is viewed as a type of reasoning that requires a teacher to help bring its many features into the full awareness of her students. This metacognitive reasoning is nonlinear and requires direct instruction approached dynamically in a process of reflection. This reflection can be done during progress toward a goal, embedded in subject based learning, personal introspection, and direct reflection on the science of what is known about the brain and how human beings reason to solve problems. The metacognitive approach of the PAL program is focused on developing the students' understanding of their processes and systems of effective learning through these teachers' "deep listening" of their stories and "individualization" of the learning experience. These practitioners all stressed the importance of connection and relationship in co-constructing producing the mental

matrix necessary for a student's development of metacognition.

The methodology I used in this study of identifying intrapersonal, interpersonal and social constructivist modes of metacognitive function and application proved to be effective for evaluating metacognitive practice and pedagogy. Rather than being a clear selected position or approach based on an individual's field of expertise, the practice of metacognition seems to represent the process of moving between perspectives, unifying or connecting the ideas of self with ideas of others and society. The larger usefulness of this investigation came in revealing cyclical movement between the subjective in the moment reflective thinking and the more objective and abstract forms of reflection. Ultimately, more investigation into how to best evaluate and promote metacognitive thinking is required, but initial findings indicate an incredible diversity of approaches and value in investigating the definitions and practices of individuals who practice teaching metacognition.

My future investigation into metacognitive pedagogy will require interviewing not only other practitioners from the PAL program, but also from other programs that may have different approaches to the subject. This will determine if insights drawn from this pilot study remain consistent, and can be more broadly extrapolated. It will also sharpen the focus of research on the various pedagogical approaches so we may better ascertain what the fundamental ingredients of a metacognitive education are.

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Appendix I

Metacognition Interview Transcript
Date: 4/21/2016
Interviewee 1

I: My first question is pretty straight forward, it's: What do you do and how does metacognition factor into what you do?

1: I work in a program that supports students with disabilities in higher education. The students typically have attention deficit and/or a learning disability, and I am the director of the program, which functions like a chairperson in an academic department. Because we're an academic department, but we are also a program that provides courses with a fee. So I'm also managing the budgetary, sort of, fee based programmatic aspect, and I am by first appointment a professor.So I teach the students in the program. So metacognition is a part of our overall programming and it's a part of the curriculum and each and every one of our courses. So I'm working on metacognition from, as a programmatic theme, and and I'm also working on metacognition with my particular students.

I: And how many courses do you teach?

1: So we teach individual students, uhm, and we have a series of, kind of, three courses and there is, there's an introduction course, and then there's a more advanced or follow up course and then there's a part-time option as well. So the first two are full-time, and then there's a part-time, and, uhm, our course credit is,uhm, 3 credits. So when a student takes a course it's as with a typical academic course. It's 3 credits across the first year though. So they spread it out across the first and second semester, and then we as faculty members have a certain number of students associated with the credit, and these very of course. So if I teach four courses as my full load, each of those courses is, uhm, three and a half to four students, that I see individually. I don't see them in groups. Some professors who teach small group and individual students. So there is a different way to sort of put it together, you know it's very confusing so ask any follow-up questions that you want, unless this has to be structured in some extent.

I: It's semi-structured

1: (laugh)

I: Ah, uhm, I find it fascinating because, uhm, I did go here and it is interesting to hear you describe how you are working it. Uhm,

1: I personally teach four students

I: Okay, oh, that's awesome

1: Individually sessions with four students.

I: Now is it... are those formal sessions?

1: Yes

I: So those are like the three credit?

1: Yup, so each of those students is enrolled in like three credits. I teach each of them for two and a half hours per week.

I: Uhm, I get my next question would be, my next formal questions would be, I guess, How do you define metacognition?

1: I always define it with my students as thinking about our thoughts. I just take a very simple approach to it. That's the simplest definition. If I'm thinking about what is metacognition for myself, uhm, I am thinking about both behaviors... (pause) And, and this is where I go into the literature. So I think there is an aspect of the behaviors that relies on knowledge, and there's an aspect of the behaviors that relies on control. So if we're thinking about what behaviors we can observe, or articulate, the knowledge ones have to do with your ability to have access to an understanding of how your thinking processes work. So we can understand our strategies, we can understand how to use them we can understand where to use them. All of those sorts of aspects about thinking about our thoughts. Uhm. But then there's also the function of being able to control, ah, those behaviors, and this is important with the students that we work with... Because some of our students have a different brain, uhm, functioning. That means that they may not have the same type of neurological or cognitive control that a typical student might have. So that is also important. And I think when we were talking about some of our program goals, metacognition being one another self-regulation, we have to be able to also think about how does self regulation play into metacognition, and being able to control your, your thought processes and answer your neurological functioning. Uhm. In order to support cognition. Means that, uhm, self regulation is part of that. So It's Tricky, uhm, but I'm, for metacognition I simply say to my students it is thinking about our thoughts, but for myself I need to understand that they need to have knowledge about their thoughts and also the control of the functions that support thinking about their thoughts.

I: Okay

1: And you can ask follow up questions too.

I: Oh... If I am not doing well ...Let me know, (laugh)

1: No, I just want to make sure that I am getting, that you don't walk away not having asked a question that you had wanted to ask.

I: I will probably ask if a question, so I am trying very hard to not be a leading question kind of guy. (laugh) You know. I just want to make sure I get everybody's, kind of... raw feelings. But if there is anything you want to add, please...

1: Okay.

I: What role does Metacognition play in education and how do you think it should is be addressed?

1: (Pause)That to me, leads me into, sort of, value... The value arena... So I'm going to go with it... So I think metacognition as a statement, my professional statement... Is what education is all about. Our capacity to learn is guided by a teacher. Who should, and this is where the value part comes in, be shepherding the development of metacognitive capacities, because that is what makes learning self-sufficient. And how should it be addressed? I think it should be addressed at every level, uhm, in a way that is developmentally appropriate for the student or the child of that level. I think it should be addressed from infancy (giggle) to death. And and we, we went, we have theories of aging and development that that support this. I don't know that it's developed as explicitly as I professional would like to see it developed prior, or at all. Prior to higher education, and in higher education, and you had mentioned this in our chatting, our need to be metacognitive is, uhm, highlighted, because we come into an environment where we are expected to function independently. We are typically living away from home, we're encountering coursework that is extremely diverse. That is taught by faculty from multiple disciplines. Who may, or may not, have any training and how to teach and not only is the diversity an issue, the level of rigor is an issue. So that the difficulty of the material is significantly harder than that in high school material, and then the amount of work expected to be done is significantly more. So we've raised the expectations in every single way. Uhm, and so all the sudden, for students our coming here, they must be metacognitive because they must be able to guide their thinking and guide their thought processes to manage all of this. Uhm. And that's why when we look at, uhm, the research on higher education, I think we see that students are, uhm... They're not retaining as we would like them to retain... Anywhere in the country... And in any higher education institutions, and we need to do a better job of supporting students overall. I think certain programs are for certain types of students, but I don't know that there is an intentional curriculum that is woven through the developmental stages that we teach to, across the academic lifespan, in a way that it could be done.

I: So do think that students are coming with less academic, not less academic, less metacognitive knowledge, or ah, I don’t know how to phrase it, I guess what I am trying to say is do you feel that we are losing metacognitive knowledge? Are the students coming up now seem to be less metacognitively aware? Or is it the same

1: Are you asking about sort of...

I: My thought is we have been really pushing high stakes testing to get into college...

1: Hmm, interesting yeah

I: Do we see ah….

1: Different type of student?

I: A different type of consciousness kind of coming in, because the focus has been moved to testing?

1: I think we see a different ta-.. I do.This is my... This is not based on research, this is based on my experience. I think we are seeing different types of students for a variety of reasons. I think we're seeing students who have been parented in a different way then they were parented of 15 years ago, 20 years ago, 30 years ago, and that type of parenting could be influencing the type of development we see in a child and in the students. I think we're seeing, we know we're seeing, students who have a different types of access to information. When we were having our accepted students day, we were just discussing, should we put the encyclopedias away or should we keep them out? (laugh)Because they are old-fashioned. And we decided we will leave them out, and we will leave them as as a centerpiece, because here is a room that bespeaks the history of education. Particularly for students with disabilities in higher education. And a mother went up to the bookcase and she said your daughter, "This is how I had to get information when I was your age." And the daughter had never seen an encyclopedia. She didn't understand how they are structured. She understood nothing about information as it is, uhm, gathered and stored... And access to that information so I have students now who has been accessed information 24 hours a day and I watched them access that information and they are so facile. They are technologically, uhm, they're natives. They can use the computer and they can use the internet to access information faster than that I will be able to simply because their native about process, but then when I watched them access that information I realize they're not being critical consumers of the information. So the speed of their capacities to access it is faster than mine, but their strategy used is is not sophisticated. So they are following, whatever it is the following, they'll go down this trail where suddenly they're in another area all together, and they're not accessing what they originally thought they were going for, but they are not able to extract themselves back out to say, "how did I get here?" So they're not critical consumers of information they have access to. Then the way in which we're teaching them and placed an emphasis on different types of outcomes means that the whole purpose of learning has shifted in a way that I think also impact the way that they're developing. So I would put it in those three categories.

I: That's very interesting

1: I still think standardized testing does have a lot to do with it. I do. and I am trained as a clinician I am trained as a psychometrist. I believe in standardized testing. I also believe in

education, and some of the practices that we're engaging in I think are mutually exclusive. I'm not sure that you can measure all students the same way, and provide individualized education for all students. I think we are losing some of the education in a quest of a standard indication of set education.

I: Do you see metacognition as conscious, unconscious or a bit of both and why?

1: Oh..Uhm. .Both So I think clearly we are understanding more about how the way in which the brain is functioning and develops. And the brain itself is metacognitive before our cognition knows the brain is being metacognitive. That is clear. We have the capacity to put together representations of our environment in a way that is higher order in processing, and we do that without even knowing that we're doing it we do it. We do it developmentally before,uhm, language is even accessible as a way of guiding our thought process. So if we look at raw brain research it shows that it can be, uhm ,subconscious. If we look at theory. I think the theorist that I fall the most in alignment with now is probably Vygotsky, and his idea of how we use language to structure our thoughts as it as a tool that begins with a social tool and then become a tool that is a cognitive tool. That makes really solid sense to me and continues to be an easy way to apply theory to the students that we see. That is where metacognition become conscious. It is through the capacities and in my mind through the capacity to use language and to use thoughts to guide our over all thought processes.

I: Uhm,

1: Did I explain the why well enough for you?

I: Ya,no if you want to say more you can...What do you consider the most important element of metacognition?

1: Uhm, ah I need a little more information to answer the questions most important element for engaging in metacognition? Or..,

I: I kind of purposely left that open to see where, what, where what you find you find

1: Yeah, yeah.

I: What do you find metacognition... I guess I would reflect it back on you. Is are there elements that are internal individual, are those more important than the social educational elements?

1: Hmmm… Even those questions took me in another direction. I guess I will think about it in practice, so as I apply, uhm, in our educational settings, this framework of metacognition, and asking our students to think about their thoughts... That looks different with each and every student. And I think if I go back to your previous question of, ' is metacognition conscious or

subconscious or both', I think it has to be both. And with our students we have to understand that though we can define metacognition, that we can talk about thinking, about a thought. We talked about self-regulation. I would also talk about executive functions as of,of and the frontal lobe development as a way of supporting metacognition. It has to be individualized, so I think that capacity to make it individually relevant is the most important capacity, that's what I think I would take it into education and say, "I could teach metacognition all day long, but unless it's meaningful for a student it's going to have no meaning at all."

I: Hm, then that sort of flows good with my next question which is, How should teachers approach metacognition with students?

1: With students?

I: Yes.

1: Well it depends on the level. I depends on the point of development. It depends on the student. It depends on the day. It depends on the teacher. It depends on everything... There are some days that my approach to metacognition is so vastly different than it would be the next day. Only because the student is different from day-to-day. Uhm, I'm working with a student who is having an acute anxiety and that makes that it hasn't totally different than it did when she wasn't experiencing anxiety, because we were managing different types of physiological and cognitive responses on her end. Uhm. With some of my students metacognition is a very verbal. It's a very much... That we talked about it, and it is grounded in language. But some of my students have a hard time reading the language of that they want to use to describe their thought process. So it's me giving them words, and then they sort of repackage them, into their own aspect of what it means for them, it's fascinating to me that if it's so highly individualized. Uhm, so I would say, from the teacher's perspective, that's the most important thing... Is to be able to individualize it for the student.

I: Uhm,How should students approach their metacognition education?

1: Should? Well, first they have to know it exists, right. I remember having this discussion actually with, uhm, a faculty of higher education and we were co-teaching a course and it came down to, that we had a fundamental difference. We're talking about the presidential elections. A fundamental difference in how students should approach learning, and she said to me, and this opened up this amazing conversation, she said, "I just wanted to give them things to do and tell them to do it, that's what I want to do." And I said, "I don't want to give them the things to do and tell them to do it... I want to teach them what they could do, and how they could do it. So that when they come to a new situation they can say to themselves, "what could I do and how would I do it?" Because if I give him a set of things to do in one situation and tell them to do it,

that thing same set might not apply. It is so much harder, though, on the teacher, I believe, to do the metacognitive work. To take the time to teach the students to understand what metacognition is. So first the student needs to know it even exists and then start to be guided in such a way to apply it to his or her way of learning... And what a wonderful way to apply it to understanding others. Uhm, if we can understand, by Theory of Mind, that we have a mind that learns in certain ways, and can adjust to the world in certain ways, than one we see another mind behaving differently then that's a way of understanding individual difference. And yet how can we work together? So I think there has to be a starting point of even knowing this exists, but I'm not even sure that students… I'm not really sure that students know it exist.

I: You're definitely hitting a,a soft spot for me. Because ah, I, working in a sub separate program, which is my program is mostly for kids who are mostly on the autistic spectrum. Technically they should all be, according to, according to the brochure, but they all struggle with that social piece, but one of the first thing you have to get them to realize is that we are all different here. Jimmy needs a scribe and you don't need a scribe.

1: Right

I: You know, ah that us such a major piece of my work. But enough about me(laugh). Do you see shortcomings or weaknesses in metacognition?

1: In metacognition?

I: Or to metacognition?

1: Of metacognition? Uhm...Not sure I understand that question?

I: Do you… Is there anything about metacognition that is a weakness to it?

1: To it? Or to the way we think?

I: Ah, again your, well, ah wha, maybe just split it. Let's start in the pedagogical, sort of as a teacher, is there any weaknesses you see in using it as an educational strategy.

1: (Pause)I think it is by definition so entirely large that its strength is also its weakness. That if you have a construct that is so huge. Thinking about our thoughts. That could mean everything and it does mean everything and, uhm, that's a weakness because you can't teach all of thinking about our thoughts. There's no way to possibly do that. You have to choose isolated task, and isolated events within which to teach thinking about our thoughts. So I think because it is so big, uhm we're automatically, uhm. That's the weakness. It's going to be really hard to teach this, it's going to be really hard to translate something like this into a curriculum, it's going to be hard to translate something like this into a program. Ah, we have a program here that is staffed by 22 very different, individually different, and high achieving faculty members, and

they're each going to do it in a different way, and so I think that is the weakness, that is that it is so large. My... yeah.

I: Ah, what questions do you feel are critical to metacognition?

1: To teaching metacognition?

I: To, to yeah,

1: To understanding metacognition?

I: Yeah, let's keep it to the teaching then, of metacognition. Because I feel like that ah, helps to frame it for you.

1: Yeah... I think the type of question that I use is the Socratic Question. So asking the student a question to which he or she already knows the answer. Uhm, but in so asking the questions, making the thought process illuminated for the student, and making sure that that is clear. Uhm. So I think that using Socratic questioning is critical, uhm, to developing metacognition, but also that explaining what I… Being a mirror for a student. As they are engaging in an activity in a metacognitive way, I'm asking them to answer a question that they already know the answer to, and in so doing I can say this is what you just did. This is how I saw you engage in this process, and this is the answer that you gave. What does this tell you about yourself as a learner?-" Oh, I already knew how to do this, but I didn't know I knew how to do this." So to me I think Socratic questions are essential. I think questions that I reveal the mirror of what I'm seeing are essential, uhm and questions that guide, ah you know, by definition guide a student to think about his or her thoughts those are the sorts of questions.

I: Uhm. And so my last question, What do you see for the future of Metacognitive research, or even what would you like to see?

1: Hmm. I would like to see, ah, an integration of... An intentional integration of research, theory and practice. Uhm. I would like to see us be intentional about using brain research to inform pedagogy. Uhm. Using pedagogy to inform brain research, using brain research and pedagogy to inform curriculum and vica versa. And taking in relevant theories to guide us. As that makes sense. I also would like to see an intentional development of the capacity to be metacognitive throughout development. From childhood, early childhood, even infancy onwards. I would like educators to speak to each other instead of operating in different developmental silos. I think Early Education is separated from pre-k separate from k-five, six through eight, nine through twelve thirteen onwards... and the Graduate degrees or even the worst (laugh) Right? We are so... We and embrace and espouse different theories, practices and approaches to education at all of those areas, and there's no integration between the different developmental silos... And I think that's very disappointing.

Appendix II

Metacognition Interview Transcript
Date: 4/21/2016
Interviewee: 2

I: Alright. My first question

2: Yes.

I: What do you do, and how do you use metacognition in what you do?

2: Okay. Uhm. I guess the most important thing I do is. So many different things... But to really listen to the student's story. That every story. That there is a similarity in every story and there's a difference. And what I mean by listening, I mean deep listening. To really kind of hear what the story was... Not only what their struggles were, but how they overcame their struggles. So I constantly... We, starting at the beginning, concentrating on their strength. and stuff, you know, and then they make a list,and then they have what they struggle with, and kind of what their goals are. But that always changes. I hate goals... I'm the type of person who, I'm not really goal oriented because as people grow. What they want, hopefully changes all the time. So I think really deep listening is really, really important to metacognition. Uhm. To someone's story, you know… Those little things in a story you might not notice. When their eyes sparkle. You know...What brings up a smile. When they look down. I mean noticing everything, Not only what they say, but their body and how it reacts. I think that's is one of the most important things in the beginning... Uhm. And I guess the most important thing about metacognition is that it's a conversation. It's a learning conversation. A lot of times I talk about... An, and it's about… What I see about metacognition is... It's about connection. Not only just a connection to yourself, but connection between the two of us. Connection to the classes. How it connects deeply to your life. You know... What works. But what will make you remember. What triggers something good, or bad. And connection to the world, and connection to the people around you. You know... Sometimes people struggle so hard that they get disconnected, and not only from themselves but from other people. So I guess, I guess the three most things, important things are deep listening, ah, to stories, connection and conversation, a circle.

I: I like that. Here's my, (laugh) obligatory, How do you define metacognition?

2: Yeah, metacognition is basically, uhm, learning how you learn. And in that, uhm, really understanding your own story, and your own passions, and Uhm.. How to make a learning work for you. Not only learning how you learn, but how do reengaged... and relove learning, because your life isn't quite.. You've been slapped (slapping her hand) so many times. You start to say, "I hate learning!" You know... Which is not true. Nobody… Everybody loves to learn! But that love of learning is taken out of you. So I guess... I guess... uhm, to re-stimulate somebody's curiosity and love of learning.

I: Awesome...OhmI'm breaking my third wall,

2: You can break your third wall here,

I: but I'm totally, I'm totally down with that!

2: (laugh)

I: What role does metacognition play in education how do you think it should be addressed?

2: Uhm, I think you, learning how you learn and learning how to connect with your work is what education should be about. Who you are... Deeply... And how you connect with how you learn...And how you connect with curiosity. I mean you can memorize anything, but then what makes you curious, what makes you go out there and say," yeah, that is really interesting that Columbus was a rapist and a pig, but how am I going to find out more about that?" You know. Is so I guess, I guess that whole thing about curiosity is really important. Uhm. And to stimulate sombodies curiosity and engagement in learning. You know**. I think learning is something you need to engage in**. You know. And when you've been disengaged most of your life because you learn differently it is hard to re-engage yourself again. People are in college because they want to, but they don't know how to make it possible for them, so...

I: Uhm.

2: And I never would have told you any of this when I started by the way, this is… I've grown to learn. You know. You had me when I was an infant! (laugh)...A infant to metacognition.

I: Well...I think that your earlier answer kind of hits on that, that you see it as a growth thing. Uhm. My next question is do you see metacognition as a conscious unconscious or a bit of both in terms of how you engage in it?

2: I think everything is a bit of both. So… Sometimes it's conscious, sometimes it's unconscious and I can help a student bring it into their consciousness, and sometimes,that, students are doing things they are saying things and all of a sudden they have an, "Ah ha", moment. You know. Like, "uh, okay. I'm doing it again," and, " I'm saying I can't, when really I can." You know. Uhm... I mean it is sort of like writing. You know, Writing is unconscious… When I write, I kind of... You know, the story kind of tells itself, it is so strong in me. And I don't know what it's about. And then after I write, I say "Oh, my God...This is what it's about. Then two years later I say "NO!" This is what it's about.(laugh). So I think that... I think that, like everything else, metacognition is unconscious and conscious, but that bringing to consciousness, changes as you grow, and as you look at yourself. What you write. What you say. What you learn... I think they play with each other.

I: Uhm… Do you, what to do you consider the most important element of metacognition?

2: (pause) Being seen. The, the...I think that, uhm, for a lot of my students, they're never really seen. You know... Their learning disabilities, disability, is seen. But they aren't seen. I think really seeing somebody. I mean really seeing them. Not just listening, but seeing them. Seeing who they are. That engagement help them see who they are... And I think that that is a very important part of metacognition. You know... Uhm, you know...Simple things, you know, uhm, how you light up when you talk about, uhm, dancing... Or... Or, or listening to a story they wrote and really saying, "Oh my god, you know, look what works in this story." Just seeing them as a whole person. They get, they get to feel seen and I think there is nothing in the world like feeling seen. So I would say as a teacher that's the most important thing. And for them…. Uhm... **When someone else sees you, you begin to see yourself.** So I, I guess, those two things are really important.

I: Uhm, well on this one I think is going to go right along with that, How do you. How should teachers approach metacognition with students?

2: I think, uhm, I think the beginning is just kind of simply getting to know a student. Asking them questions. I think questions are very important. Not questions like, "Da-data-da-data.Whatdayahdo? " What about this, you know but really question… I a student says, uh, "I like playing football," What about playing football do you like?" What do you, you know. Kinds of keep those questions going. What was the question you just asked me again?

I: How should teachers approach meta-cognition?

2: Oh, so to keep the questions really going. You know. And not questions that have 'a','b', 'c', 'd' answers but questions that are more soul reaching. Uhm...Are really important you know. Uhm...The teacher. Uhm... That teacher made me feel terrible. What did that teacher do that made you feel terrible? What was it that made you feel terrible? What was it that you would have liked that teacher to see? I mean... What ever they say just keep the questions going. And they'll... And... Some of them are more ready to do it than others. I mean I am not going to say that every student is ready for metacognition. However, just the questioning makes them think. Like, this person is interested in me. You know and even if they can't answer some of the questions. You know... And I don't ever make it an... That's okay... If you ever figure it out let me know. You know. Even though they can't answer I think that just being questioned in that kind of way is sort of like, even in this interview when you ask me questions it makes me feel like I have something to say. (laugh)So yeah. Oh, Phil I want to introduce you…

3 (PAL Professor walking by Professor Gabow's office): Actually, I met you at Lesley whenever that was? Last year. I was part of…

I: Oh, yeah that's right you were part of the group

3: The peanut gallery

I: I got to sit with, yes. How are you doing.

3: It is nice to see you

I: It is nice to see you too.

3: I am glad you are here I am glad you are doing what you're doing

I: Oh, thank you.

2: You know Phil just told me he was one of my first students here, and now he is my exit, uhm ah you know.

I: I'm here exit ticket. (laugh)

3: (she makes a circle with her hands) The circle of life.

I: I was thinking the same exact thing, and was thinking of the same exact physical motion.

3: Its nice

I: Yeah.

3: Your like the guardian angel that just came in

I: (Uncomfortable laugh) I don't know if I'm the guardian angel but..I'm here. (3 Leaves) Oh-oh

2: What happened?

I: I don't know (laugh)

2: You should have a tape recorder

I: Oh, no I am recording right now and having it type what you are saying out

2: Oh, cool. (laugh)

I: Cause I've learned I can't write fast enough... At all... And if I was listening to that I wouldn't be making eye contact with you or anything like that and ah...

2: Cool.

I: So this typing thing does not work super awesome but it does get enough information down there for me that it is technically taking more notes than I would have ever been able to.(laugh)

2: Good. Good.

I: So, ah anyway, ah so that's why I'm doing this sort of wierd thing on my computer, you know uhm, because I'm desperately trying to figure out a way that I can be a PhD interviewer and not look like a complete idiot.

2: Well you don't.

I: Okay. Well that's good, so far so good I guess. My evil plan is working.

2: Yeah.

I: Okay, uhm, this one might be a little redundant but I am just going to put it, How should students be approaching metacognition?

2: Uhm, I think it, depending on age, I have older students who are 24 or 23 and older, and I have younger students. I, I tell them... I kind of tell them that this is going to be a learning conversation. And for them, how much they want to reveal is up to them. Uhm. And that, for once in their life this is all about them and what they want. If you want me to do, everyday, time management with you, and that is all you want, with a little conversation, that's fine. Because that is what you need now. And we get the conversation in there... You know... "How did it feel to be on time with your work?" or "Did you hate yourself when you were"...So, whatever. They're in control. They're the, they're the power here. I am not the power. They are, and they let me know what they want, and what they need and... And, uhm, I don't direct them. I might say, "you said last week," this. I might say, "Well I notice." But I don't direct them. We hired somebody here who said... Well her thing was directing them. And I thought, "My God why did we hire her?" But, you know…. That's really… I don't re-teach things unless they want me too… "Michelle I don't understand this, let's talk about this". We talk about their subjects a lot. I

mean... We talk about their classes in a way, like, “What did you learning from your class? What do you like about it? What related to your life?” Just is,it's just, sort of, to help them get engaged again. But, the most important thing is, is they’re in control of this. Not me. It's a conversation, but they’re in control. So they can reveal whatever they want. And have what they want, you know... **And I trust.**.. That on some level they know... And if they don’t they’ll tell me. “I don’t know what I want today?” okay. Let’s talk about ah...Trump, What do you think, you know (laugh)

I: I bet you he’s been a hot conversation, he’ s been a hot conversation...

2: Thank god my students aren't that. Aren't actually. They’re more Bernie Sanders and I’m more Hillary. You knows o. But...

I: Uhm..Do you, ah, do you see any shortcomings or weaknesses to metacognition?

2: **(**Pause) You know the biggest problem I have with metacognition is academia and the way they misperceive what we do. I think that if, unless you do learn differently, or you are really into conversation, uhm, you don’t get what we do. We can tell them one hundred times what they do. What we do. We can explain it in a million different ways and still, they, they ...I don’t know what it is…

I: I wish you did cause…

2: It is a whole different way of thinking and approaching education. It is really out of the box.I mean Goddardt does it, and I was really glad to go to Goddardt. And it's really out of the box education. And for people who think in an elitist or in a factory way, uhm, and what I mean by a factory way is, implanting knowledge in their head. You know, they are unable to get it, and you know what, that’s my biggest problem. They are unable to get a different way of thinking. That has been my problem all my life. I has been my problem with my plays. Some people will walk out of my plays and say “That was great!” and some people will walk out of my plays and say...“That was? What! One thing should follow another!” You know, “What do you mean?” and they are so upset because it is against a whole… It’s not linear thinking. Okay. And I think people are so trained to think in a linear manner that they are totally unable to understand metacognition...And that’s my problem. Not with metacognition. I... I think it's this brilliant thing that, uhm, Dr. Webb and whoever, you know... I mean… When I first came to this job I

knew nothing. You know. I applied for this job this job and I was teaching in the inner city schools. And I was teaching art to kids who got in trouble. And it was called “Crisis intervention program” and when I came I called it an art program I will not call it crisis intervention thank you very much... And uhm... I got this job and I don’t know if you know this, but I got this job because Dr.Webb was in the same, which I did not know by the way, was in the same elementary school with me. And I got the position. My program got the position over hers. So when I applied for this job on a whim, because I was totally unqualified, by the way, or what they think is qualified… Or the world would think as unqualified she was curious to meet me because she knew I got the job over her... I had no idea. So I came I with my theories. Well they happened to be the same theories as her. You know I believe in a strength based program, I believe in looking at, you know. I had no idea that that was what this was. I, I said that metacognition wow, I mean you know, that sounds kind of interesting, and I got the job. Over a lot of other people. Because Dr. Web, I think is a smart woman.

I: I would agree there

2: And so, uhm that's how I got the job. So you know it's uhm, it's just ah… What was your question again?

I: Oh, it doesn’t matter at this stage (laugh) It was something... About what do, what are kids responsibilities in metacognition? Let me move to the next question, but let me move to the next question okay.

2: Okay.

I: I think that you have kind of addressed this one already, already but it kind of goes right to the heart of something you said that.. Uhm, What questions do you feel are critical to metacognition?

2: (sigh) I think there are initial questions that are critical like, “What do you love?” “What are you passionate about?”. “What do you feel you are good at?” But after that It is really looking at the student and asking questions to get them underneath that. Well, you know, as I said, you know, ‘I love dancing. “But what about dancing?” “I feel so good when I move my body?”and what makes you feel good? I feel alive. Oh, so that makes you feel alive. Let's looks at other things that make you feel alive. So it's sort of like the initial questions are like very

simple. Oh, and I don't believe in really complicated questions either. I, I don't. The simpler the questions. "What are your strengths... What do you like? And then once they answer them... Once you really listen to them... You figure out the next question. So that's it.

I: And my obligatory last question is where do you see the future of metacognition research?

2: I would like to see more research into metacognition. I do not think there has been enough. Uhm. I would like to see it brought into every educational facility. I would like metacognition to be the top. Connection, metacognition and engagement to be at the top of everybody's list in education. Not, not the bottom the top. And I think that good research would find that to be true. Uhm, and I am hoping it will.

I: As a person researching I feel there is a ton of research out there. I think it goes back to your original point the people who are into this liner pattern of education are not-

2: They won't get it. And that's my problem we need different people. We need a better balance in education. You know, I mean, we need more people to think out of the box because there are more and more students who are outside of the box. And...Uhm… If we don't have people, it is sort of like, having a bunch of black students and white teachers. If we do not have mixed teachers, students don't have somebody they can look at and say, ahh, I know this person.

I: Right

2: You know, yeah he is going in circles, but you know I get the attachment. You know. If we don't have people who are like that we will never get anywhere.They need to see that there are people who think outside of the box. The need to see that there are people who, who don't think linearly...They think in circles. Uhm... People don't like my plays because they can't connect… You know I'm… I will tell you another story, and this is really part of that.... and answer to that... I had a student, uhm, I can't remember her name right now, but I will call her Vivian. And I took her to see this dance by Bill T. Jones. He is a great choreographer that I love, and we're watching him dance, and it's really, you know, out of the box. Okay, and the people behind us start going crazy afterwards…"Oh, where's the story? And what happened? I don't understand What happened? What? What? You know? Why didn't this follow this? Why was he just standing there? That not dance!" and Vivian turns to me and says, do you hear them? She

said, “That's what I dealt with all my life.” She said,”You know I was a dancer and I... They wanted to put me in that box. And of course they don’t understand Bill. Bill T. Jones, by the way, is one of the most famous choreo- choreographers, you know, choreographers, ever. but here we were, and there they were. And they were the minority. However, in education, they are the majority.

I: They are a vocal minority too.

2: Right, right and they are a majority. So I think that she said it all. She said, “see that, back there. That’s my life. Those people have been in my life, all my life. Screaming at me.” And it just became so clear to me… And that was just, that was many years ago. But that was the point where it all became very clear to me... And she, and she does dance therapy and does all this stuff now, but you know... It was hard for her.

I: Hmm.

2: She’s brilliant, by the way, but it, you know, it was hard. So I do think that there, mostly around research, you need to understand there needs to be more people who think, who understand metacognition, and think like that. I am not saying we all have to be same. But I think there needs to be a balance, in order for research, or anything else, to work. There needs to be a balance. The dean still has not a clue. She won’t tell you that, but I’ll tell you. The dean still don’t have a clue about what we do.

I: (laugh) Well that is too bad because I remember when I was here and it was like “the dean has no clue”, but it was okay because we had Dr. Webb. And she was older and probably...(laugh).

2: That dean had more of a clue than any dean we have had since....

I: Oh my gosh.

2: He had more of a clue than any dean we had since.

I: Wow that’s terrible.

2: I don't think she would say that, or Ned would say that. By the way. That is just my opinion. And everybody else who thinks like I do, but hey...

I: Well, uhm, is there anything else that you think is important to ah my research? Or for me to know about metacognition?

2: I think you're important for your research. I think that YOU are important for your research. I think that that is what is going to make the research alive and valuable. Uhm. And so that's what I think.

I: It is one of the things that brought me to this research is that I realized what a freak of nature I actually am (laugh).

2: But you know what there are many of us out there.

I: Well I just I've been, I looked back like, you know, like, I suddenly realized I was one of the first people to go through the special education program at my highschool you know. That's why they put me in that, sort of sub-separate classroom, which is kind of funny, because now I am teaching, running one of those. You know, but it is definitely interesting in that department of… You know...If you are using metacognition you really like, you actually have adopted that mindset, you can't help but make what has happened in the past consistent with what is happening in the future. You know.

2: Right, and I think it is so great you went into this. You know I just think it is so important. You know...And I think you will have a voice.

I: I hope so, just gotta make sure I write it out. (laugh)

2: You'll do it. Phil you have come so far

I: It is amazing that I am even here, even when I was here I was like there is no way… (laugh)

2: That's right.

I: I'm doing education. But here I am still doing it. And it is partly because of people like you. Being able to see people who, speaking of, being able to see people who don't fit quite the the mold.

2: Right

Appendix III

Metacognition Interview Transcript
Date: 10/2016
Interviewee: 3

I: Approach metacognition. My first question is for you to just give a background about what you do and how you use metacognition in your practice.

3: Hold on one sec.

I: Sure.

3: So you might use parts of this transcript verbatim, right?

I: Yeah.

3: Okay. All right. There you go. There's that. (Presents written answers to the questions) That takes care of that.

I: Okay. Thank you.

3: I'm also going to inject one little piece before we roll into that 'cause it's related, because, as I said, I'm an educational therapist and there are very few of those on the East Coast. It's very much a California national organization, and I brought you this in case you're interested to know what that means.

I: I would very much be.

3: The definition of an educational therapist is a professional who combines educational and therapeutic approaches for evaluation, remediation, case management and communication advocacy on behalf of children, adolescents and adults with learning disabilities, or learning problems. I just thought it might be interesting for you to know that because it's a whole person approach.

I: Well, I was actually very fascinated by your card 'cause when I saw it like, "Oh, educational therapist. What a great way of saying what you do." So that's fascinating, that it's a deeper... So,

you started with your degree out in California, are you originally from California?

3: No, not at all. Jane Adelizzi at PAL, sort of the Johnny Appleseed of the East Coast. She brought it east. Look at that crazy rain. It sort of rains and then it doesn't.

I: That's good. My wife will be happy.

3: It's so quiet. You don't even hear it. No, I started in speech pathology, actually, University of Connecticut, and then I moved on to reading and classroom, master's, and then I picked up LD certification, and then I saw that counseling was part of it so my doctoral was in counseling and I like the idea of working with slightly older people 'cause I've been working in middle school, and that's when I made my shift to working with college students, starting in the counseling area and working in the... I was a counselor at Berkley College of Music, and private practice, and then I was part time in the psych department at Curry, and then worked my way over to PAL.

I: Awesome.

3: And that's where I met Jane Adelizzi, who's an educational therapist. As a matter of fact, you might be interested in this. Every now and then, about every five years, I say, "I wanna do some research." And then in between I say, "Don't do that. That's too hard," and then I go, "Yeah, I'm ready." And one day I went to the library and I looked up therapeutic teaching, because even in the classroom I saw that as critical and I wasn't hearing people talk about that, that there was more than just what happened cognitively, and I came up with the PAL book. That's the only thing that came up for me under therapeutic teaching when I looked it up...

I: Oh, the relationship, metacognitive relationship book? Is that the one you're talking about? Or...

3: Not the newest one, the older one. I forget the name of it... Closer Look. Anyway, so that's when I found out about educational therapy, which looks at the whole thing, which to me, is really interesting. And, by the way, I'm gonna go off on little tangents, I guess, from time to time, but by the way, when we talk about metacognition, and I'm thinking about it again, I'm realizing that possibly... I don't know when the word was first used, but to consider that learning is just a thinking thing, to me, creates an image of something from the neck up, which, to me, doesn't make a lot of sense based on modern science. [chuckle] So that's why I might have leanings toward maybe someday, altering that word slightly, I don't know what it would be. Anyway, so that's kind of where I come from and what I do. Does that answer that question?

I: It does. If there's anything else that you wanna add about your technique, in terms of how you actually approach it, but there are a lot of questions that are gonna be related to that.

3: They are. I must say five times that use the word, how [chuckle], so I can throw that in later.

I: Okay, good. 'Cause as I'm doing research that's the kind of stuff we look for. [chuckle]

3: Okay. Yeah, prime me. [laughter]

I: All right. How would you define metacognition?

3: That was the question I started with when I sat down to type this and I thought, "Wow, that's a big question." Because I feel like there's just a huge storm around that and, to me, it's not three words. It's not thinking about just thinking about thinking. It's got to be more than that, so I'll just read what I have, okay? This is what I came up with yesterday. metacognition in the realm of education as of June 22, '16... Ask me next year. Maybe it'll change, but this is where I am today. These are the choice of words that came to me. Conscious awareness of one's learning processes including thoughts, feelings, and actions. That's the psychology part coming in. Recalled from the past and in the moment. And a lot of definitions don't have recalled from the past. It includes the understanding that each person perceives and learns differently and that we construct and personalize understanding from our own experiences. It includes lots of selfs. Self observation, self reflection, self questioning, self monitoring and self evaluation in the service of effective information processing, storage, retrieval and application. And that's not very short but...

I: It doesn't need to be short. Can I just maybe do a follow-up on your conscious awareness.

3: You can do whatever you want 'cause you're the researcher.

I: Thank you.

3: If I don't wanna do it I'll say, "Nah, I'm not doin' it."

I: All right. I'm sorry. I'm being goofy.

3: I am too, so that's why it's curious that we're being taped 'cause I'd rather fool around part of the time but...

I: That's okay.

3: I'll behave myself. You can see why I'm a friend of Gabo.

I: Right. Well, wait until you see me try to transcribe this sucker.

3: That's why I thought it might be helpful.

I: Well, that will be very helpful.

3: I've done transcribing. That's torture.

I: Right. It doesn't help if you have a language disability. [chuckle] And you're interviewing Gabo who's like going off here and there. She was great. She was great but then afterwards I was like, "Holy smokes... "

3: How am I gonna do that?

I: "I didn't hear any of this... I didn't hear any of that."

3: Actually I'd love to read what she said 'cause she's fantastic.

I: And I forgot the question. Tell you what let me...

3: Follow up.

I: Let me move to the next one 'cause I think it flows with what you've just said in terms of what the role of metacognition in... What is the role of metacognition in education? What role do you think it should play and how should it be addressed?

3: Is it okay that I pull from here?

I: Sure.

3:'Cause then you have less to transcribe.

I: [chuckle] However you wanna do it. Whatever makes you feel comfortable.

3: Okay. Students need to know how well they understand something, how effective their strategies are for remembering, retrieving, and applying it and a lot of the time they don't [chuckle] And that in itself can be problematic. They live on this superficial place of understanding and processing, and speeding along so... You wanna say something?

I: Keep going.

3: Teachers need to know this about students and model ways to remember, retrieve, and apply the information and both students and teachers need to accept that all brains operate differently. It's a rather large understanding Teutonic shift in some things maybe if everybody were to accept that. You think? Oh sorry.

0I: I think that's huge.

3: It's part of the process of learning from successes and from errors and becoming an expert learner. Which you know is a term, it's a thing. With idiosyncratic and intentional strategies that work for the individual. It is best addressed explicitly every time there's something new to learn. The magic word is how. How much do you know about this? How much do you remember about that? How does this apply to your life? How are you gonna do this? How are you gonna remember that? How effective was it last time you used flash cards? All of those. Just bring it out there and address it explicitly. Those are my thoughts on how.

I: How do you think it should be applied directly in the classroom? Do you like kinda the pull out style that they do at PAL where you're like the learning coach? How do you think that education would be best to address metacognitive?

3: I think everybody should do it all the time. I think it should become common parlance, especially in the classroom, because a teacher will say, "All right there are five reasons for the Civil War," and then blah-blah-blah-blah-blah, fall asleep, blah-blah-blah-blah-blah, talk and write at the board at the same time while you're supposed to be taking notes, blah-blah-blah, and it would be helpful then for the teacher to say, "All right, five major reasons for triggering the Civil War. How are we gonna remember them? 'Cause I just put all those things on the board." Or on that PowerPoint, or said them, "How are we gonna remember them?" There are five things, stop and do it. It's important to know these things, so you stop and you just do it. And of course, we do it in PAL all the time. "What do you think you need to know for this thing that's coming up? What do you think are the main points? How are you gonna remember them? Go home, ask yourself." Everywhere, all the time, I see it as, all-pervasive.

I: So do you see that as the most important, pedagogical piece of it, is just adding that extra component of how you're going to memorize this assignment? Or is there, 'cause I know you're labeled as an educational therapist, is it the emotional... Is the emotional connection... I'm messing this question up. Let me restart. But is it... In terms of pedagogy, okay, 'cause you're kinda just talking about pedagogical approaches, how you would see it approach in the classroom, other people maybe see it as addressing a lot of the emotional needs, which would be a little bit different than just how would you remember the strategy. Do you see those as blended or how do you parcel out the emotional components of metacognition with the practical strategic components?

3: That's a big question, because we haven't talked about the emotional components. I haven't, yet. And I haven't really thought about that beyond accepting that there is an emotional component but... It's not just the question of how're you gonna remember it, but it's all of it. This is kind of a hard question because the emotional part is whether you're interested or not and how you feel about the professor, and the course, and how you feel about all of it, what's going on here. So part of it is, how can we make this interesting so that your affect is engaged? So, I haven't really thought about that in terms of metacognition, except that how you feel about it is part of it. Because how you feel about it affects your engagement. How you feel about it determines whether you buy into learning it at all. [chuckle] So, I'm not sure where to go with that.

I: Well, what would you say is the most important personal practices of metacognition?

3: I wasn't quite sure what you meant about that? How did I say... Okay. Oh, I forgot that.

I: Okay. Do you wanna say something about that?

3: Yeah, I would because obviously I've thought about it. Oh yeah, that was a big deal. metacognition is not just something that happens in the moment. To me, that's a form of reflection in action, in the moment, and that is very important. And metacognition is not just what you're thinking, which is why I often tie together thoughts, feelings and actions, that's something that you hear about a lot in psychology. That's who we are. We seek alignment of thoughts, feelings and actions so we put it all together and then there's a certain authenticity, a

certain peace that comes with that, putting it all together. So it's that, but also my sense of what I read when I think about metacognition is not a lot of people talk about the impact of the past. So it's reflection on action in the past, so its thoughts, feelings and actions about who you were in the second grade and how you still see yourself. I had a student, six foot six, funny, smart, break down when I said, "Who were you in the second grade? How is it that you keep playing out the same thing that you're doing?" So reflection on action in the past and of thoughts feelings and actions is to me, a critical pedagogical practice. And then when you say, "Why". This was actually a big deal to me, this part right here. Because, this is how we become aware of the unconscious patterns, mindsets, assumptions, language and habits drawn from the past that influence processes now. This helps to highlight what has worked poorly or worked well in the past and what might work poorly, work well now. That to me is a big deal and I feel like I'm working with that all the time. There's a person in the room and there's the past, and somehow we have to get there. We have to bring those two together. However, humans resist change, [chuckle] and the concept of shift, which is one of those cognitive constructs, that I think, is very related, and are naturally guided by the law of least effort. So where it takes extra work to excavate and slow down and take the time in the classroom or wherever you are, to notice what's going on and think about what has. We stay stuck in the old ways 'cause it's easier, and we resist change. So this is a gentle, personalized process of revelation and yielding to gradual change, as needed. I like that one. So that's part of it.

I: All right, I'm getting confused as to what questions I am... Chuckle]

3: That was part of four, those were part of pedagogical practices and why.

I: Okay, so then what did you see... Then I am at the right spot, I have thumb on the right spot. What are the most important personal practices of metacognition? In other words, in my mind... And I know that what I was trying maybe parcel out there was, metacognition as a relationship with which you're using with your students and you have a pedagogy in terms of how you're gonna approach the learning of the metacognition and kind of slowly reveal that slow reveal process that you were talking about, What do you see as the most important practices of the individual should do in terms of your personal practices, in your personal approach towards metacognition? What should the individual's approach be?

3: The student?

I: Yes, or you're... I don't know if I wanna put in the student. You can even put it for yourself in terms of when you're approaching maybe a new situation, and thinking metacognitively, how do you personally become aware that you are using metacognition. Are you aware that you're using metacognition. Because metacognition can be seen as a pedagogical approach to education, but it also can be seen as a personal style of thinking. So that's what I'm trying to see. What do you see as personal attributes that would be important for metacognition?

3: I think my response is that you'll hear it elsewhere because somehow I don't see this is as a separate question. It's not resonating for me.

I: All right.

3: I see it as all the same. It all has to do with understanding how you process, and all the influences and factors that come to play especially when something's new or something's hard.

I: So the next one, I think, you didn't have too much of a problem with. Do you see metacognition as conscious, unconscious, or a bit of both? I think you mentioned that a little bit. Do you wanna expand on that? Or?

3: I think what's interesting about the unconscious part is that's often from the past, and that's why the past is a critical piece of it because you've been doing something for so long, or you were traumatized so often, or you were so young, or you developed certain memories about which you're not aware anymore, and they serve as automatic thoughts, feelings, and actions. So, I think it's important to go back there and find them, and bring them to the light of day. That's the unconscious part. It doesn't take a couch to do that but it does take delicacy and gentleness and safety and trust. It's very therapeutic, it's very psychological. It's very personal, and it's very scary to do that, and it's transformational to do that. So, I often think that some of the magic at PAL is that we take the time and have the relationship to go there.

I: My next question is, what do you consider the most important element of metacognition?

3: Yeah, I said awareness. You have to be aware of what you're doing and why, and whether this is an automatic thing, or it's a mindful thing. It makes a big difference. First you have to notice what you're doing. And as I say... I love this John Dewey quote. Do you know that?

3: No, I was not...

3: I don't even know where it came from. It was used in one of my doctoral classes. I wrote it down, I've been using it ever since all these years, and I don't know the source. "A problem well stated is half solved". This morning I googled you and I saw the interview that you did a couple years ago with Ann Bergen, and I thought that your description of the student with ADHD was really on point because the student's perception was, "I've now been labeled ADHD, therefore, I can't attend."

[chuckle]

I: I get it.

3: [chuckle] So that was his definition of the problem. But if you redefine the problem as, you have this diagnosis, just what does that mean? And how does it play out for you? And in what circumstances? And how are we gonna work with that? That's redefining the problem. So a problem well stated is half solved, and you have to bring that to the level of awareness or nobody's communicating with each other or operating strategically.

I: So kind of on that line then, how should teachers approach metacognition with their students?

3: Well, as I said, explicitly and often, that's how. They can be tucked into almost everything.

Imagine if you use the phrase, "How is it that... " You could tag on almost anything to that. How is it that you're standing in line, but falling on the floor? How is it...

[laughter]

3: How is it that you got dressed and walked past your backpack? There's so many questions that...

I: How is it that I told you that as your way onto the bus, you're gonna grab your pass to the amusement park? We went on our last day to Canobie Lake Park, and I had one of my students, who did not take his medication, and I'm like, "Jonathan, just remember, we're gonna grab our pass as we go off the bus." All my other guys, he just runs off the bus. And then he's like, "Oh no, I forgot my pass." I'm like, "Yeah, yeah. How is it that you managed to forget your pass?" [chuckle]

3: And that's where if you have time, that's where you pause and you actually consider that, and you roll it back two minutes before it stopped, what was everybody doing? What were you doing at that moment? How could we have played that differently? 'Cause in that moment you lost focus. I just think that's a fascinating place to go. Let's figure out what you were doing instead. I don't know. I just think that's all really interesting. So as I say, to me, it belongs as a normal part of daily education. Sometimes you can do it out loud, and that is interesting because then you get to hear how other people process something, including the teacher, who shouldn't be treated as a separate, elite person. And sometimes doing it in private is the safer way to do it, but it can be done all the time. You know why it's not done all the time? Because we worry so much about covering content. Don't you think?

I: I think you might be onto something there.

3: 'Cause it takes time.

I: How should students approach metacognition? What would be the best way for students to come to the metacognitive learning experience?

3: Well, as I say here, depending on their developmental level, provide model questions in some form that's appropriate. They're easy to remember. Again, make it a normal part of what they do on a daily basis. I constantly ask college students, "How are you going to remember that?" In hopes that the question will become part of their [0:28:22] *normal* memory, so they can learn to ask critical questions, and depending on their age and developmental level it would determine how many. Or, even the child running off the bus. Bus stops. We all pause, what's the question we need to ask right now? Where's my pass?

[chuckle]

3: I don't know, just asking good questions, just getting in the habit of checking in and tuning in to the awareness via questions. That's what comes to mind for me.

I: Do you see shortcomings or weaknesses to metacognition?

3: Well, as I said, here, I think the word has problems on a number of levels. One of them is that people don't know what it means. They can't remember it, and that's too bad. I think that's kind of a shame. I can't tell you how many parents I've talked to who say, "What's that?" That's the title of our newest book, our most recent book, and people don't even know what it is. I see that as a bit of a problem. And also, I worry a little that it's treated as something from the neck up. Cognition is a purely mental, pre-frontal cortex thing, and it's not just that. So some of my concerns have to do with the use of the term.

I: And then they slap meta on the front of cognition and makes it even more abstract.

3: 'Cause it sounds so good. Sounds so good.

I: What do you feel are the critical questions for metacognition?

3: I've considered writing an essay or a research piece on the similarities, differences, umbrella concepts or not umbrella concepts of so many related terms that are floating around. And so, I said, "All right, metacognition, what comes to mind when I think about what I've been reading that seems to relate?" And I ended up creating a list that went down, this is so good. So this is metacognition right now. I created a list that went down and they seemed to be related to metacognition, and it included reflection, which to me is probably the critical umbrella, by the way. Mindfulness, which is only part of it. Awareness, which is critical. Problem solving, which is huge. Critical thinking, which involves lots of things. The issue of change, habits and shifting and the resistance. Information processing, which might be the big umbrella too. And self direction, which needs to happen because it's an interior activity.

3: And then, I said, "All right, so what about this whole thing called self regulation?" And Nilson in that book on self regulation, she sees them as basically two things. And I thought, "All right, well, let's assume that that's true." And I'm an executive functioning geek. I've done advanced training in it, I'm fascinated by how many more of them are developed each year and what it all means. And then I started to say self regulation, and I went horizontally. See, that's metacognitive, and I said, "Well, why did I do that?"

I: But wouldn't, if you had done that on purpose.

3: I have no idea why I did that. But somehow, there's something in there.

I: Right. Well somehow, you're talking about metacognition and you're going up and down as a bullet point, and then you talked about self regulation and you wrote a paragraph, or at least that's how it looked to me, which as a researcher in this field, I found that very fascinating. [chuckle]

3: You know what this says to me though? It says to me blah, blah, blah, blah, blah, blah, blah, blah, blah.

[laughter]

3: That's what it says to me because I think this is where we have serious confusion. Some people are calling it self control, the whole marshmallow thing. Some people call it focus. It's hugely related to ADHD. Some people call it motivation. Some people call it engagement. Deferral of gratification, that's the marshmallow thing too. Some people don't even talk about emotional intelligence 'cause they're too busy talking about...

I: Self control. [chuckle]

3: Self control. Or, that's too far out or something. Self discipline, will power, grit, perseverance. I think it's fascinating that some people call it character. That's sort of the old term. That fascinates me. Self efficacy is kinda where it came from. And then, somehow executive functioning is separate, which it isn't at all. So to me, this is a wee bit of a mishmash.

I: You wanna expand on why you think character is such a fascinating term that got thrown in there?

3: I don't remember all that I read about that. I know that Paul Tough, T-O-U-G-H, in his book "How Children Succeed", talked about that, and I hadn't really read about that before. But character education is the theme that's tucked into self control. And self control obviously impacts many things. I think it comes more from the psychological realm, before the educators got into it. It was the old psychology term. That's really all I know about it, because I half dismiss it. I have trouble with that term. It seems like a really all pervasive kind of term to talk about somebody who doesn't sit and organize one's thoughts, and figure out how to sit still for how many minutes. That's a rather large label to put on somebody. I'd love to hear your thoughts on it sometime.

I: I'm almost afraid to say anything. But, I'll tell you what, I'll share my thought after this last question, 'cause this is really my last question, is which I didn't send you which was... Oh wait, actually, no wait, this is not the last question. I have one other question. I have two more questions. But first off, where do you see the future of metacognitive research?

3: Well, as I sit here, there are two biggies and one related that come to mind. One is the whole issue of meditation, which I find fascinating because a lot of research was done in the '70s. Herbert Benson, remember him? The relaxation response? I went and heard him, I thought it was fascinating. He's still around, he's in Brooklyn. But the whole idea of how meditation can impact your body. And then what's going on with your body impacts how you feel, what's going on with your body and how you feel impacts how you think. And so now it's coming back again. There are some '70s things that are coming back again and I think meditation is one of them. And of course now we've got much better brain research, so we can document a lot, specifically biologically what's happening, so I think that's a hot item and in large part because metacognition takes slowing down. There's a time factor for it and that's part of the reason I think it doesn't happen so much with people. They don't take the time, you go to sit down and think that, work that, analyze that, takes a little bit of time. And meditation also teaches you how to be at least aware, so they're highly related as far as I can see.

The concept of neurodiversity is not new. But because of brain research there's now more scientific validation for it and that's gonna play out in a million ways, but specifically in terms of metacognition there's that foundational concept that everybody's brain is different and it seems sort of obvious that metacognition would tie in with that, but so often teachers assume that students learned the way they learn or do things the way they do it. And teachers have got to come on board that their brains are different too. And I've been waiting for that to happen for a really long time.

I: Me too. I think it's a two-way street too, 'cause kids need to be aware that there are different learning styles, different modalities of thinking. But we end up with these teachers who think everybody needs to learn this way, with a classroom of diverse learners who are all trying to learn diversity and in the most linear way possible, which is not... My classroom is predominantly kids who have social pragmatic difficulties, and it is incredibly helpful when they all start talking about how they pay attention or how they see things and have one kid go, "What? Really? You didn't see that connection right there?" And the other one goes, "Oh you can't spell?" [chuckle] And they can see the smorgasbord that is consciousness and learning. It's fascinating.

3: But so much of the time the teacher is excluded from that conversation.

I: Or trying to. I didn't realize how often I allow dissent, I guess. People to question each other's learning styles not... 'Cause it has to be done in an emotionally safe way, but have people say, "Well, wow, why do you do it that way?" And it's okay for kids to ask those questions. The aids that I have in my classroom right now they don't get that at all, they think that I'm committing blasphemy or something when I'm having kids talk about... Like in recently we did their autobiographies and as a side thing I was trying to think of having a way that they would talk about their events in their childhood with their parents, that they wouldn't know about. So they could actually learn something about themselves that they had no idea about.

So, I had a couple of questions on there like, "What would your parents have called you if you were a girl rather than a boy? Or?" And one of them, I put, "Were there any complications with your pregnancy?" Well, I should've realized I was opening up kind of a can of worms 'cause every single kid in the classroom had some sort of premature birth, low amniotic fluid and they're coming out with all the... And my aids were mortified that we're having this discussion in class. I had a girl with CP in the class who her complications around birth, it basically left everybody sitting in the class going, "Whoa," I thought it was great. [chuckle] I thought it was a great eye opener for kids to really see, "Wow, so that's how all of this kinda ties together." But I also thought it was interesting just to my aides where like, "I can't believe we're having this conversation with kids. We should be getting ready for our class." [laughter]

3: One thing I did mention I found myself talking about it under future research and it probably didn't belong there, but this is what I wrote, "It's a large 'aha' moment when I talk about the differences between students brains and professors brains." We talked about it, "We look at their neuropsychological testing and develop a profile, strengths of areas," you know about that, "Where they're less strong, and then compare it with a professor or two." So, we guess as best as we can from the evidence of how the professor does certain things, there's often a mismatch.

I: So the student profile the professor? Is there...

3: Yeah, they guess.

I: Based on what they've learned from...

3: What they see.

I: Learning about their own testing. That's wonderful. [chuckle]

3: So for instance, I'll hear about a professor who goes fast, that's a fairly straightforward one. Talks fast, does things fast, moves on fast, and you're constantly missing things. That's a processing speed thing. How does that compare with your processing speed? We can look at that. And that's a powerful one right there.

I: Yeah.

3: Or highly, highly, highly variable. Look at the syllabus from this professor. It's nine pages long, 10 font. Highly, highly, highly variable is that your strength, that kinda thing. And then I mentioned, well, because I raised the issue of processing speed that this is a fascination for me, too, because so many bright students have processing speeds that don't score as highly as some of their verbal scores are. And it's one of the least researched cognitive areas in this whole realm.

I: It's the easiest one to comprehend. When I saw it with that, I was in total agreement with you 'cause...

3: And it could make a big difference to know that.

I: Well, and to go back to the point about just understanding that there are diverse learning styles, that's a great spot to start.

3: I don't think I knew until a few years ago that some people who seem to process things faster weren't just smarter than I am, 'cause that was sort of an issue for me. My processing speed is not my super strength, not that it's super low but it's not my super strength, and other people process faster than I am and they'll talk fast. And God, that was an aha moment for me.

I: I've had a student, one of my last classes a few years ago I had this one kid, slowest processor I've ever had. Literally, you'd say, "Hey, Dan, how you're doing?" And he'd go...

3: "Let me think about that." [chuckle]

I: "I'm okay." And this is an emotional behavior class, so a lot of the guys in there... The fun part about being in an emotion behavior class is, everybody's incredible honest with everybody at all times. So it's like, "What's the heck is wrong with him? He never talks." Okay, so, when he first came in sixth grade, he was... He had a lot of behavioral problems just because of his processing speed. But other kids in the class over time suddenly realize this kid is brilliant. We'd be sitting

around in class, and I would ask certain classes, he would be like, "Na, na, na, na, na." [chuckle] And you'd call on him, and it would be... You'd have to wait a couple of seconds, and he would nod, he would give you the answer. This was a kid who was picking up all of the information. He was labeled autistic. I don't... He had some very autistic tendencies, absolutely, that slow processing piece definitely falls with the diagnosis of autistic, but he picked up non-verbal communication just fine. So when people were patronizing to him thinking that he was not processing fast, he understood that, so then knowing that, you see where his behavior comes from. But, having a classroom where you could have that openness.

So that's why I'm thinking just in terms of processing, I know that having him in my class opened the minds of about 10 other kids in the class as to what that learning difference really looks like. Here's a kid who can't write, he doesn't talk. Okay, yeah, he can tell you what 27 divided by a 172 is without writing a single thing down. And I think that we don't have enough experiences like that 'cause we're charging from one thing to another.

3: I'm sure you heard this in the halls of PAL, but people saying, wouldn't it be great if everybody knew their neuro-psycho educational profile? How many people walk around thinking that IQ is a single score? There's so much the world needs to know about what that profile could look like and all these conversations. Imagine... This is part of the neurodiversity thing with teachers, too. The teacher who starts off on something goes on tangents, talks and writes, a lot of working memory, multitasking, not clarifying key points or separating the spatial perceptual, this is a big point, this fits under... Who doesn't do that. It's really helpful for students to know that their brains operate that way and my brain doesn't, and therefore, it's okay for me to say, "Could you slow down?" Or something. Imagine if that the whole neuro diversity concept really filtered down to everybody invo1ed. It's not there yet.

I: And that was one of the things that made a huge impact on my life was just, "Wow, I'm not retarded." [chuckle] And honestly, my work, I've seen it doesn't even matter. I've done that with kids who did score first percentile in different areas. But just knowing that it's, "Oh, there's a scatter here." Knowing that there's strengths and weaknesses and you can use your strengths to combat your weaknesses, or at least avoid your weaknesses.

3: And then how to accommodate, how to ask for this.

I: Right. Know that I need that bullet point up there please.

3: And ask for it.

I: Right.

3: It's life changing.

I: Is there anything, any point that... Is there any question that I haven't asked yet that you think I should ask for this interview?

3: Why is it called metacognition? That's a point of fascination for me.

I: How would you answer that question?

3: Well, it's stepping back to self observe and it is looking at your thinking. And my guess is that some years back people separated thinking from other operations, that's my guess. I haven't looked at it. That's for you to figure out, you can tell me how we thought that thinking was just thinking 'cause thinking isn't...

I: Well, I like to relate it back to the old Skinnerian box or the idea that consciousness is separate from behavior, and you don't need to know anything, like the whole behaviorist line where you don't need to know what's going on inside the skull, you just need to know what is your operate conditioning. What are your behavioral draws and adversives? [chuckle] I think that that has had a huge impact. When I look at your two lines there, your metacognitive line and then your self regulation paragraph, I was thinking that that was the thought that came to me. It's like, "Look at this, the metacognitive piece is just sorta flowing down in a cascade of ideas, and the self regulatory piece, which seems to be tied to the behavior piece is all in this nice formula... Formed the lines of a paragraph." Maybe that has nothing to do with it, but it is... I feel like one of the reasons of why I'm doing this kind of research is that's where I feel like there is a big split. But, there are many splits in metacognition. One is in this idea of consciousness thinking, and then the other is in the realm of self control and behavior. And there are two different aspects. You're giving me that...

3 I like hearing this.

I: That's why I'm doing this research. I'm hoping... 'Cause I'm at the end now, so you can ask me questions.

3: Okay, good.

I: We can riff off wherever. But that's what I'm trying to figure out is, I feel like right now, I love the concept of metacognition. I think that's one of my favorite words. When I work with kids, I throw out metacognition 'cause for the exact reason why you don't like it, because it such a weird, ugly, disgusting word. When you write it on the board, it takes up six feet. But it has no meaning for kids. You know what I'm saying? It's not tied. It's not like character. You mentioned we're gonna say we're gonna build character, well that is a loaded term because it could mean so many different things. metacognition, in a lot of ways is so huge that you could put anything. But in a sense, it is what it says. It's learning about learning. It's stepping outside the learning process and looking back at it. And I feel like that can keep on. I think that that in itself is something that needs an area of research. It's that unusual quality of human thought that it allows us to stand outside whatever it is we're trying to figure out and look at whatever it is that we're looking at as an individual thing instead of a conglomeration of parts.

3: Have you ever thought of morphing the word slightly, or you really like it?

I: Oh, I'll morph it. [chuckle] I'm a middle school teacher. I'll take any word, whatever. [laughter] I'm dyslexic. Words, whatever. They seem so completely fluid I don't understand why people get so tied to words and think that that's... For me, that has been a recurring theme in my

life in terms of, I have a meaning of whatever the word was in my head, and you have a meaning of whatever the word you have in your head and they're not really lining up. And so, I will mis-speak and I always make the assumption that I'm not understanding you, which is I think the benefit of being LD. Over the long term, you develop this sort of, "Okay, I must have said something wrong, or described that thing wrong, or haven't put it in the right framework." But other people don't, I've found. There are certain individuals out there who... They know a lot, and they know what they know and they defend what they think a certain word means.

And it just, you know what I mean, take politics to, what is a liberal? Like out there, some people who will tell you, "I am a liberal. Woo hoo!" And then there are some people who would tell you, "Oh my gosh, you can't possibly be my brother in law." [chuckle] But it's that kind of thing, we can't actually sit down and talk about certain... You can't talk politics with certain people because as soon as you use a certain word that is defined one way by one group or everybody assumes they've got the right definition. And I, as a middle school teacher found that it's great to mess with words.

3: The thing that comes to mind as I think about your experience with it and my experience with it is... And I might be wrong. That was a word that was life changing for you in a very positive way, so you have positive associations with it way back at a tender time in your life, it made things a lot better for you. So, your associations with it are pretty positive at minimum. And so you see it through a certain color. Glass. My experience with it is watching a lot of parents not get it. And I want them to get it because it's important for them to understand what we do and an awful lot of parents don't understand what we do. And that word is problematic in that process.

I: If you were gonna change the word, what would you change it to?

3: I don't know.

[laughter]

3: I haven't come up with it, but I think that would be really fun. Maybe sit around with a bunch of people and drink a few beers or something, you would come up with...

I: Be a study in it... There's a research study in it. [chuckle]

3: Yeah, what would the word mean?

I: We'll have a research conference.

3: Well, what you might find... Well, one thing I said, is that as I was processing this, which I thought was really interesting to do, I found that the word 'reflection', I'm a big reflective practice supporter of many things related to reflective practice. And to me, metacognition is a form, or certainly related to reflective practice, so I lean that way. So, I don't know how you'd combine the words, but I do lean that way. And as I also mentioned, reflection is a word that educators already use and that's a good thing. Write a reflect... Let's do a one page reflection on... And it's personal. And it's often about how you... It's getting there. So, I lean that way.

I No, and that would be a term that I think parents could understand. I'm kind of torn, I guess to go back to my life, 'cause I don't know if a word is gonna do it, I think people have to do it. But they have to have the experience, 'cause I... And I'm sure you must see with the kids at PAL all of a sudden just to be immersed in one mindset and then all of a sudden have people kind of open up this doorway of a more open... An open mindset, I'm losing my proper vocabulary but just to have the experience of how that thought process worked, your point about having put those questions in that person's mind, so that your voice is in there. So next time I'm about to get off the bus I'm gonna hear, Lori Fox's voice in my head.

3: What was that word... Oh, yeah. Pass.

I: Pass. Bus pass, that's right.

3: Tell me about pass.

[chuckle]

I: Yeah. I swear, I had Ned Bradford's voice in my... From way back when I first had him.

3: Yeah, but see that, that's part of this too. Who in the past? What in the past? A lot about the past influences how you are now, what you're doing now. And you had a great experience with him.