Activated Learning: A Mainstream, Whole-Class, EF-Based Self-Regulated Learning Teaching Practice

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Introduction

"Activated Learning" (AL), which has also been called "Executive Skills Feedback and Assessment" (ESFA) among teacher teams in Ontario, and the "EFs2theRescue Pedagogy" in Guare and Dawson's upcoming 3rd edition of *Executive Skills in Children and Adolescents*, is an adaptive EF intervention that aims facilitate high-impact teaching and learning for all children in typical classrooms. It is a self-regulated learning pedagogy that allows teachers to administer novel and complex learning tasks, even with classes that are hard to engage and manage. AL was developed in 2014 by a special education teacher (the author) and has been the subject of numerous talks and workshops across North America. As mentioned above, an in-depth guide to the approach, including assessment samples, charts, case studies, etc. will be published in Guare and Dawson's 3rd edition of *Executive Skills in Children and Adolescents*.

Description of the Program

AL first asks teachers to directly teach their students what EFs are, how they impact performance, and the extent to which that impact is natural and normal. It asks teachers to establish a culture of self- and other-acceptance, self-compassion, and self-understanding though direct teaching and modelling.

With this background knowledge and tone established, AL asks teachers to add a 5-minute metacognitive discourse to their whole-class instruction, in which students and teachers discuss the EF obstacles they will face in specific assignments and co-create strategies to be successful. Then, students receive feedback and assessment on their achievement of the agreed upon strategies. In practice, an AL instructional practice sounds like this:

TEACHER: What will stop you from solving today's math problems?
STUDENTS: We're going to rush and forget to do certain steps.
TEACHER: What EF is that associated with?
STUDENTS: Oh! Inhibition?
TEACHER: What strategy should we use to overcome that inhibition obstacle?
STUDENTS: What if we say the steps out loud while we do them?
TEACHER: That might work, so today *that* is what I will be looking for. I will be watching to see if you slow down and say the steps out loud. I will be making notes!

AL operationalizes EF intervention for high dosage, every-day use, and embeds it into standard classroom practices such as inquiry-based teaching (What will we struggle with?), co-created goals (What will we do to overcome our challenges?) and meaningful feedback and assessment (I'm going to hold you accountable and track your use of that strategy!). The intended outcomes for teachers and students are listed in the program logic model, below (Figure 2).

The central mechanism employed by AL has been studied under the name "mental contrasting with implementation intentions" (Oettingen, 2000). Mental contrasting refers to the process of contrasting one's goals with their specific obstacles. Creating mental contrast boosts success in goal achievement by helping individuals to act more quickly (Gollwitzer & Brandstatter, 1997), deal more effectively with cognitive demands, and execute planned strategies with less effort (Brandstatter, Lengfelder, & Gollwitzer, 2001). Simply put, predicting obstacles and success strategies in advance of performance improves performance.

Figure 1: Activated Learning Program Model

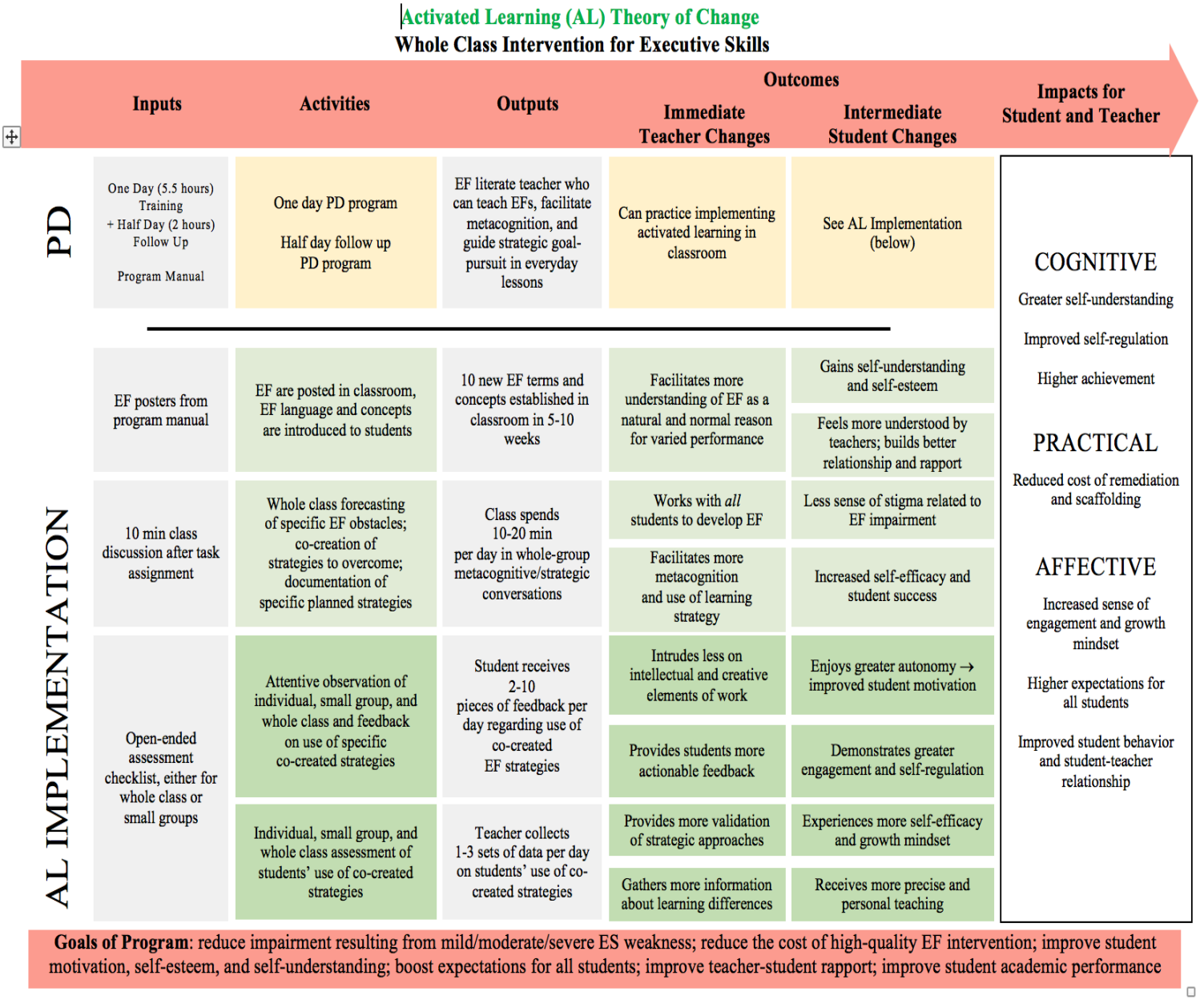

Figure 1. Model of the theory of change for Activated Learning, including outcomes from both teacher training and program implementation.

Objectives of the Activated Learning Intervention

EF weakness impacts learning directly and through its effect on the classroom context in which learning takes place. Activated Learning aims to change learning outcomes for students by providing adaptive EF support, and by changing maladaptive classroom processes and dynamics.

Objectives for Students

As educators abandon simple worksheets and explore innovative teaching approaches, an old problem of teaching and institutional schooling has become impossible to ignore: kids. Teachers struggle to engage, motivate and elicit optimum performance from their students, particularly when delivering challenging or creative lessons.

> *It is a balance. Sometimes my students can handle creative lessons and sometimes they can't. Much of the time, my students just need to be kept busy. I can always trust my class to write in their journals, answer questions, do math pages, and read, so I come back to those types of tasks a lot. I want to use new and creative approaches, but I deal with a lot of "behavior" and the fancy stuff doesn't always work with my group.*
>
> *(Teacher at Central Senior School, Lindsay, ON)*

The more teachers ask of students, the more they challenge attention, flexibility, emotional control, initiation, inhibition, and organization. These qualities are the executive functions, a set of processes that work alongside creativity and intellect to enable adaptive responses to novel or complex situations. They allow children to learn, work together, express their good ideas, and succeed at school. While kids are naturally curious, creative, and energetic, they are also capable of much less mature execution than the adults who plan and direct their school experiences.

Executive skills develop naturally throughout childhood and adolescence according to age-related increases in the activation of dopamine-rich frontal and striatal circuits (Tau & Peterson, 2010), though they assume a natural variation of strength and weakness in different

individuals. Even the most capable students, and most adults, have one or two weak executive skills that will impair performance to some extent. As well, everyday factors such as over-exposure to screens, lack of exercise, improper sleep or nutrition, sickness (Swing, Gentile, Anderson, & Walsh, 2010), or stress (Southern Education Foundation, 2015), can suppress or even permanently impair executive skills (Bethell, Newacheck, Hawes, & Halfon, 2014; Burke, Hellman, Scott, Weems, & Carrion, 2011; Hostinar, Stellern, Schaefer, Carlson, & Gunnar, 2012; Shonkoff & Garner, 2012; Shonkoff & Phillips, 2000), creating patterns of lackluster performance, misbehavior, or dramatic over-reaction in response to the least sign of negative feedback. Often comorbid with ADD, autism, giftedness, learning disabilities, fetal alcohol syndrome, as well as low SES, especially weak ES predict academic failure, troubled relationships, anxiety, depression, conduct disorders, health problems, risky behavior, and, eventually, incarceration (Hackman & Farah, 2009; Moffitt et al., 2011). The inattention, inflexibility, poor emotional control, and disorganization encompassed by executive dysfunction account for over half of all variance in school performance (Visu-Petra, Cheie, Benga, & Miclea, 2011).

Research in Canada, the US, and Australia, suggests that most qualified teachers are unprepared to fully understand and address the needs of students with poor attention, inhibition, organization, or emotional regulation (Bekle, 2004; Bussing, Gary, Leon, Garvan, & Reid, 2002; Jones & Chronis-Tuscano, 2008; Martinussen, Tannock, & Chaban, 2011). The majority of Ontario teachers have only basic special education training, and receive special education PD much less often than training related to content areas like math or technology (EQAO, 2016). Many teachers, however, feel that additional training is necessary to be productive with an integrated student body (Scruggs & Mastropieri, 1996).

One of the largest longitudinal studies of EF weakness concluded that interventions yielding even small improvements to individual capacity for EFs could dramatically improve society (Moffitt et al., 2011, p. 2694). Given the amount of time children spend at school, surely the everyday work of classroom teachers can contribute to that improvement. So how do EFs grow? Studies show, generally, that EFs develop quickly in the preschool years, continue a steady but slower pace of growth that is related more to complex tasks during the school years, and become more efficient during adolescence (Hughes, 2011). This development is optimized in in calm, structured, and stimulating environments, when good nutrition and sleep habits are in place (Hostinar et al., 2012; Shonkoff & Garner, 2012; Swing et al., 2010).

In familial contexts, the mechanisms that support EF growth include scaffolded problem-solving, modeled mindful verbal reflection on thinking, and a sensitive engagement style that permits children to have a sense of agency and impact (Carlson, 2003). These approaches are available to a limited extent in the classroom because of high student-teacher ratios, pedagogical and curricular goals that often do not prioritize calm and structure, and students who arrive at school stressed, hungry, and tired. Teachers' ability to provide the "ideal" conditions for learning are often exceeded by the level of EF impairment.

One hopeful option has been the evidence that small-group or individual training programs providing repeated practice for individual executive functions can yield changes to specific EFs in isolated testing. These changes, however, have yet to prove transfer to school performance (Hitchcock & Westwell, 2016; Klingberg, 2010; Melby-Lervag & Hulme, 2013; Soderqvist et al., 2012). There is no easy solution.

Teachers' priority regarding executive functions, therefore, is the same for any disability or learning challenge; to provide as much structure, stimulation, and support as possible, and also

to foster in students the capacity to self-advocate, learn strategies to work around limitations, and to believe that they can succeed no matter what level of disability they face. By providing teachers with a feasible, universally designed, inquiry-based, research-based, adaptive tool for intervention, Activated Learning aims to reduce the impairment children experience at school and provide a context in which they feel success is possible.

Objectives for the Classroom Climate

Brown and colleagues (2010) describe a perspective on school effectiveness that accounts for the gap between our students' actual achievement and what our schools, curriculum, and teachers hope they will be capable of. They summarize research from the 2000s that has begun to focus on the complex classroom-level processes, interactions, and relationships that mediate the effect of trained teachers and research based curricula on academic outcomes. Activated Learning aims to modify the pedagogical approach of teachers in a way that improves the classroom climate.

The best approaches to building non-cognitive skills are integrated throughout the day, not only in separate lessons (Diamond & Lee, 2011; Farrington et al., 2012). Students demonstrating poor EFs, however, can be overwhelming for classroom teachers, and hard to relate to and work with. Their maladaptive behaviors are often mistaken for symptoms of poor character (Gaier, 2015) and they often seem intentional (Elik, Wiener, & Corkum, 2010).

Classroom teachers need a better way to handle their students' EF diversity. Attempting to provide support in whole class situations, teachers often initiate interactions that suppresses EFs further. Accepting feedback graciously is hard for anyone; in school, children receive feedback surrounded by peers, with, sometimes, a foggy sense of what was expected in the first place, from an adult who may not understand their perspective, equipped with only emerging

emotional regulation. Qualitative studies show that classroom feedback follows patterns of rewarding/ punishing, approving/disapproving, and providing specific academic or creative help (Tunstall & Gipps, 1996). So, in addition to the discomfort related to timing, context, and intent of feedback, the content of it often communicates a loss of confidence, conveys disrespect, appropriates student thinking, or repeats ineffective teaching.

When teachers become overwhelmed by off-task, inattentive, or disruptive student behavior they often fall into "cascades" of over-simplification in which best practices are abandoned and replaced with safer lessons that are more didactic and controlled (Klusmann, Kunter, Trautwein, Ludtke, & Baumert, 2008; Muller, Gorrow, & Fiala, 2011; Yong & Yue, 2007). As the classroom becomes more deprived of work that is creative, engaging, and meaningful (Blase, 1986), students respond poorly, and the phenomenon intensifies. A paradox familiar to any teacher is the student who seems to put in very little effort and tolerate novel tasks poorly, but who complains of boredom and acts out.

"Activated Learning" (AL) articulates an instructional and assessment process that makes student learning in classrooms more fair, transparent, and useful, and reduces teacher intrusion on the creative and intellectual aspects of the work. AL builds a collaborative system of EF support into every day instructional practice, proactively equipping students to be independent agents of their intellectual and creative potential. This promotes feelings of competence, creativity, and autonomy, key factors related to motivation and engagement (Deci & Ryan, 2000; Jonassen, 2000). Students of AL teachers work as partners in the process of learning, building self-efficacy, knowledge, and relationships based on mutual respect. When classrooms are well managed and running smoothly, their teachers tend to stick with more challenging, engaging, and

meaningful teaching approaches longer (Bruce & Flynn, 2013), making it possible that an effective whole class intervention for EFs is the gateway to 21st century goals of education.

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