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Editorial

Fluency-Based Instruction and its Effects on Learning

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The field of Applied Behavior Analysis places considerable focus on the intensive training needs of young children with autism. Less attention is placed on the needs of adolescents and adults with autism who are less likely to make significant strides than their younger counterparts. There is a tremendous need for research demonstrating effective methods of teaching adolescents and adults employable skills in order to live productive and fulfilling lives. This section of the paper focuses on work with 7 adolescents with autism and a history of significant behavior challenges as well as 13 adults with autism. Preliminary fluency research has demonstrated the role of response effort (versus lack of motivation, plateau in skill development, or demonstration of challenging behavior) in achieving competent performance. In order to test our initial hypothesis regarding response effort and performance, we base lined the fine motor skill performance of 11 adults with autism. We found that all but one of our adult learners were dysfluent in one or more fine motor skills (e.g. shake, squeeze, grasp-release, tap). In addition, three of the adults were unable to sustain any fine motor movement long enough to complete a 1-minute baseline. It was hypothesized that, if the learners were dysfluent in the performance of single fine motor movements, then it could be assumed that the performance of more complex skills (involving combinations of fine motor movements) would require even greater response effort.

We evaluated fluency-based instruction (FBI) as a time efficient teaching strategy that having the potential to significantly improve the quality of life for older learners with autism. We focused on building competent performance that would prepare our learners for future job placements. Our preliminary efforts included two pilot studies. The first pilot study [1] examined the impact of fluency-based instruction on the rate of skill acquisition and the rate of challenging behavior of an adolescent with autism learning vocational skills. Results showed that increases in rate of performance of trifolding (folding paper into thirds using a folding machine) corresponded with decreases in rates of aggression and self-injury during performance of the task. Results were replicated with the introduction of fluency-based instruction for envelope stuffing and again for mail sorting, with final rates of aggression and self-injury reaching zero for all three tasks. These findings yielded support for the effectiveness of fluency training in addressing challenging behavior and increasing competence in vocational skills. This has implications for increasing the potential employability of adults with autism.

The second pilot study [2] examined the effects of fluency-based instruction on activities of daily living with learners demonstrating poor fine motor performance. In an adult with autism and unilateral neglect of the right hand resulting from a stroke in infancy, fluency-based instruction in fine motor skills resulted in independent performance of 11 out of 21 activities of daily living. The damage from the stroke resulted in inconsistent use of the right hand, making many activities difficult to perform. Before fluency-based instruction, despite many years of typical instruction, this learner achieved independent performance on only 3 out of 21 activities of daily living. Here we examined the effect of FBI of fine motor skills (grasp/release and squeeze) as related to performance of activities of daily living (ADL skills). We then introduced FBI for fine motor skills over the course of 11 months and retested performance of the same activities of daily living. Without specific instruction of the ADL skills, the learner was able to perform 11 more skills than at original baseline. Training these skills via typical instruction (direct instruction of task analyzed programs for each skill) would have taken years of effort based upon this learner's previous performance history. For him, FBI opened up the world of independence. We have initiated the same conditions with a second subject, an adult with autism and poor fine motor performance with post-test results expected in May.

In addition to the outcome above, we observed a notable difference in learner affect as the learners reached fluent performance. Affect appeared to be more positive at the end of fluency-based instruction. We are currently working on having videotapes of the sessions coded by research assistants in order to determine if objective observers can detect these changes. At present, it seems possible that an increase in positive affect may be a collateral effect of fluency-based instruction, one that has an impact on the quality of life of the learner.

The implications of such findings point to the use of a time-efficient and cost-effective means of educating adolescents and adults with autism. These learners are in need of experiencing fast results in areas of weakness in order to achieve greater independence. Further research holds much promise for a population of individuals that were previously considered to have reached a plateau in the educational/training process.

More recently, similar procedures have been applied to elementary and middle school aged regular education students [3]. Results have also been encouraging. Since the education systems in the US place competency measures based on percent correct alone, we do not factor in time. A student who completes a math worksheet in 2 minutes is obviously more proficient than a student who completes the same worksheet in 6 minutes. Yet, if they both achieve 100% they are considered equal. This is a problem in that students who take longer amounts of time to complete basic skills in the early grades are more likely to have difficulty when those skills need to be applied to more complex material. Below are some graphs depicting the positive effects of fluency building on component skills on the performance of more complex skills. It is this author's opinion that focus on fluency building of basic skills in the elementary years will decrease the likelihood that students will struggle in middle and high school.

In the US, we spend far too much money on education to neglect to implement the simple procedures involved in fluency-based instruction. There is evidence that poor educational outcomes are correlated with the probability of incarceration [4] among other social concerns. It is time to reconsider our educational efforts. The result could make a significant change in many of the issues plaguing our society today [5].

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