

Implementing Applied Behavior Analysis to Address Academic Frustration

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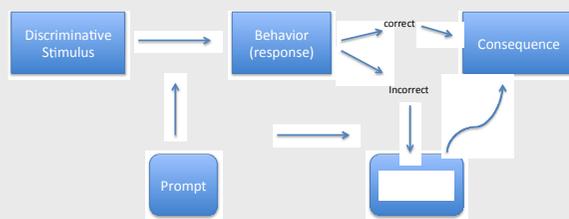
BACKGROUND

CRITICAL THINKING SKILLS

- Critical thinking skills are higher order cognitive skills that require judgment, analysis, and synthesis and are not applied in a rote or mechanical manner. (Halpern, 1998)
- Critical thinking skills are highly important to a successful future economy and population.
- Halpern argues that students should be prepared for the effort of critical thinking so that they will persist despite frustration.
- Information has to be selected, interpreted, digested, evaluated, learned and applied or it is of no use.
- Without critical thinking skills, students may face the problem of having the answers but not knowing what the answers mean.

APPLIED BEHAVIOR ANALYSIS

- ABA is typically used to address problems that autism spectrum disorder (ASD) presents with.
- Typically, ABA with ASD students involves 40 hours per week of early intensive behavioral intervention, involving a curriculum that emphasizes language skills, and intensively applied behavioral procedures.
- Because ABA is a form of behavior modification, and has such a high success rate among ASD students, some psychologists and educators have wondered why is it not being applied to other learning opportunities that involve difficulties in learning. (Axelrod, McElrath & Wine, 2012)



Behavior model used in Applied Behavior Analysis

RESEARCH QUESTION

- Does Applied Behavior Analysis training reduce frustration during critical thinking and problem solving in college students?

ASSUMPTIONS & PREDICTIONS

- With the correct application of intensive applied behavior analysis the student will independently draw their attention to their frustration when learning a new concept and thus be able to address in an appropriate manner resulting in continuation of learning.

METHODOLOGY

- Thirty college students participated in this study. Each participant was briefed on purpose and methods.
- ABA was conducted by the author, who has experience in using ABA with ASD children.
- Subjects were tested in a 20-30 minute session in Andrews University Cognitive Psychology Laboratory.
- Subjects were given insight problems (as a laboratory critical thinking task) one at a time
- Subjects' level of frustration was tracked using warmth ratings and self assessment manikins.
- When subjects showed substantial frustration, they were asked to stop wait 10 seconds and immediately return back to work after making another frustration/ warmth rating (experimenter-controlled) or were able to take 10 seconds independently if they feel themselves increasing in frustration.
- Subjects received verbal praise as a motivation for independently rating themselves/ taking 10 seconds, and completing a problem correctly.

Example Problem:

Jack is looking at Ann but Ann is looking at George. Jack is married but George is not. Is a married person looking at an unmarried person?

A) Yes B) No C) Cannot be determined

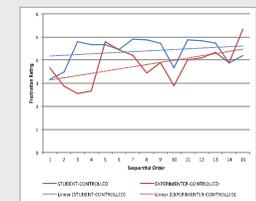
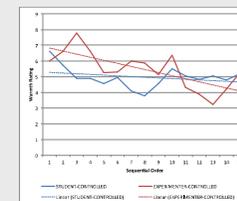
Explain your answer:

Observations: Because this problem cannot be solved mathematically, it would often elicit frustration. Often the subject would choose "C" feeling fairly confident in their answer, only after being told "no" did their frustration ratings go up and warmth ratings go down.

Signs of frustration often included any kind of verbal action, (sigh, mumble, words) or physical actions (face palm, hands through hair, banging desk), no movement (giving up, staring), and often times nervous laughter. I counted anything that was not the task at hand as frustration.

RESULTS

After examining two groups of subjects (one where students had control over when they took breaks from the task and one where the experimenter had control), results suggest that when the student is required(experimenter-controlled) to take ten seconds after becoming frustrated their level of frustration increased quicker while their warmth ratings decreased. This was compared to subjects having the *option* of taking the ten second break, where subjects showed a lesser rate in increasing frustration, and a more consistent warmth rating. However, no significant differences were found between the two groups for warmth ratings, frustration ratings, or frequency of frustration (all $t_s < 1$).



IMPLICATIONS

While Applied Behavior Analysis is often frustrating even when used with autistic children, these results may suggest that experimenter (or teacher) control is not the most efficient way of decreased frustration during critical thinking with college students. This pilot indicates that further research is required on which aspect of Applied Behavior analysis would be the most efficient way to reduce academic frustration to increase learning within college students (Axelrod, et al, 2012).

Future studies may examine

- Targeting specific behavior and developing specific instructional methods
- Higher rewards
- Group settings

REFERENCES

Axelrod, S., McElrath, K. K., & Wine, B. (2012). Applied behavior analysis: Autism and beyond. *Behavioral Interventions*, 27, 1-15.
Halpern, D. F. (1998). Teaching critical thinking for transfer across domains: dispositions, skills, structure training, and metacognitive monitoring. *American Psychologist*, 53, 449-455.