Personal Control Beliefs - Comparison Matrix (Literature Review)

Article 1: “Generality of Learned Helplessness in Man.” – Donald S. Hiroto and Martin E. P. Seligman.

Article 2: “An analysis of learned helplessness: II. The processing of success.” – Carol I Diener and Carol S Dweck.

Article 3: “Laboratory-induced learned helplessness attenuates approach motivation as indexed by posterior versus frontal theta activity.” – Samantha J. Reznik, Robin Nusslock, Narun Pornpattananangkul, Lyn Y. Abramson, James A. Coan & Eddie Harmon-Jones.

Comparison of the purposes of each study and the authors’ statements of why the study is important

In both animals and humans, learned helplessness, or the interference with instrumental behavior after inescapable aversive stimuli, has been discovered. The writers of article 1 looked at whether the debilitation caused by uncontrollable occurrences was universal across tasks and motivational systems.

The majority of research in the helplessness literature put their subjects in a condition that was close to, but not identical to, the one in which they were trained: both training and testing employed aversive loud noise and an instrumental problem. The authors of this study describe that they trained their subjects in either instrumental helplessness with loud noise or unsolvable cognitive issues, then tested them in fresh instrumental or cognitive problems that were solvable.

Insolubility in a cognitive activity is formally equivalent to inescapability, because the likelihood of reward (right or wrong, or shock or no shock) is independent of response in both. So we will see if instrumental helplessness or mastery can be transferred to a cognitive task, and if cognitive helplessness or mastery can be transferred to instrumental tasks.

Children who are helpless blame their shortcomings on a lack of competence and see them as insurmountable. Mastery-oriented

youngsters, on the other hand, place a greater emphasis on motivating factors and see failure as manageable. Although previous research has not directly addressed these difficulties, different studies imply that mastery-oriented youngsters tend to regard their triumphs as indicative of future success, even after failure, according to the authors of article 2. In contrast, the research suggests that helpless children are less likely to notice their accomplishments, and even when they do, they are less likely to consider them relevant to future performance. The goal of this study was to learn more about how helpless and mastery-oriented children process their triumphs as they happen, as well as how they could reconsider their successes in the face of failure.

Midline posterior versus frontal electroencephalographic (EEG) theta activity (PFTA) may provide a novel neurophysiological marker of approach motivation, according to research. At rest and during laboratory exercises designed to improve approach motivation, elevated PFTA has been linked to approach related inclinations. Identifying neurophysiological indicators of approach motivation can assist create endophenotypic markers of psychiatric diseases defined by disordered approach motivation and goal-directed activity, as the authors of article 3 point out.

Discussion of the conclusions from the studies

The discovery of cross-modal helplessness in article 1 is of substantial theoretical importance. Initially, skeptics of the animal helplessness findings claimed that failure to leave in a shuttle box after an inescapable shock could have been the result of a competing motor reaction rather than a more general organismic ailment. Using a variety of training and testing scenarios, the authors disproved this peripheral interpretation. These scenarios, on the other hand, were identical in that both pretreatment and testing involved the same unconditioned stimulus - shock and instrumental response. Their findings are the final nail in the coffin for any peripheralist view. Cognitive interference from technical inescapability or operational interference from cognitive insolubility could not be generated by any competing motor reaction. Alternatively, neither frustration, differential tone aversion, nor demand features appear to be able to explain these

disparities. In the inescapable and insoluble pretreatment groups, frustration was higher than in the escapable, soluble, or control pretreatment groups. Humans have learnt helplessness as a result of them. The process has a long-term effect on performance, much beyond the state in which helplessness is originally learned. As a result, they speculate that learned helplessness may be associated with a trait-like system of expectations that responding is fruitless.

According to previous research, success does not appear to protect helpless children from the negative repercussions of failure, as it does for mastery-oriented children. The researchers looked at how the helpless child's perspective of achievement differed from that of the mastery-oriented child in study 2. Overall, the findings demonstrate that if there is a method to minimize one's current performance or be gloomy about one's future performance, helpless children are likely to take advantage of it. Indeed, people do not even need to suffer a negative outcome for this inclination to manifest. The mastery-oriented, on the other hand, are realistically hopeful when they achieve and shockingly unafraid of defeat.

For the first time, a learned helplessness task (i.e., reported uncontrollability across an aversive stimulus) is linked to a decrease in PFTA, according to the most recent study. There was no link between frontal EEG alpha asymmetry and perceived uncontrollability, hence the findings were unique to PFTA. The results of this study, when combined with previous research, reveal that PFTA is sensitive to both attenuated and heightened approach motivational situations, as well as dispositional approach motivational tendencies as measured by resting PFTA. Reduced posterior (PZ) theta values among participants in the Uncontrollable Condition were found to drive PFTA findings in the current investigation, according to follow-up ERD analysis. This finding suggests that understanding the neurophysiology of decreased approach motivation and reduced goal-directed behavior may be particularly important. One of the advantages of PFTA as a neurophysiological marker of approach motivation is that it has been associated to dopamine signaling in the rACC, which has been linked to reward processing and approach-related

motivation in both animals and humans. This relationship establishes PFTA as a reliable indication of essential reward-related brain processes, as well as giving it a neurobiological base that distinguishes it from other neurophysiological measurements.

Comparison of topics suggested for future study

During the debriefing in experiment 1, no subject indicated that he had figured out the study's aim or what was expected of him. It is worth noting that the generality of these effects is limited. Both activities, as varied as they are, were clearly understood as part of the same experiment by the volunteers. The authors had no way of knowing if any of the learned helplessness had been carried over into the real world. The increased experimental generality of their effects should be determined in future study using unobtrusive experiments. They claim that learned helplessness is a paradigm for man's despair. As a result of this hypothesis, our approach for inducing debilitation should also elicit symptoms associated with moderate depression, such as self-devaluation, psychomotor slowness, melancholy, and so on. Future study should address these questions.

In experiment 2, the helpless children are unable to recognize or recall the true magnitude of their achievement. They underestimate the amount of challenges they have correctly addressed as compared to mastery-oriented people. As a result, there is less success to act as a buffer from the start. Furthermore, the success that the helpless children recognize is not as effective as the mastery-oriented children's. Although both helpless and mastery-oriented youngsters judged their performance similarly (a little above average) after only experiencing success, the similarities ended there. Their assessments of how well most children would perform on the identical assignment revealed that the helpless children expected most children to achieve admirably, whereas mastery-oriented children predicted most children to perform just mediocrely. This shows that the helpless children regard most other children as more capable, or that they are comparing themselves to a distinct set of children. If the helpless children compare themselves to a more proficient group rather than the standard, it will require a better performance for them to be effective than it will for the

mastery-oriented youngsters. For example, if the helpless children continuously compared themselves to the very best students in the class, achieving success by social comparison criteria would be more difficult than if they compared themselves to average peers. This field of inquiry could be lucrative in the future.

In experiment 3, contrary to expectation, perceived uncontrollability did not modulate frontal EEG alpha asymmetry, another frequently used neurophysiological index of approach motivation. Research on frontal alpha asymmetry has typically examined this index at rest, during laboratory paradigms designed to elevate approach motivation, or during paradigms designed to elevate avoidance or aversive emotional states (e.g., viewing negative pictures); anticipating public speaking (see Allen & Reznik, 2015; Coan & Allen, 2004; Nusslock, Walden, & Harmon-Jones, 2015 for reviews). To the author's knowledge, no other studies have looked at frontal alpha asymmetry during laboratory tasks that were particularly designed to lower approach motivation or generate a state of learned helplessness in the way that the current study did. Although it is difficult to interpret a null result, one hypothesis is that, while PFTA is sensitive to both heightened and attenuated approach motivational inclinations, frontal asymmetry is more influenced by laboratory tasks than approach motivation. This hypothesis will need to be tested in the future.

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Comparison Matrix (Literature Review)

Situational specificity of laboratory-induced learned helplessness in humans

	Article 1	**Article 2**	**Article 3**
Title/Author(s)	"Generality of Learned Helplessness in Man." - Donald S. Hiroto and Martin E. P. Seligman.	"An analysis of learned helplessness: II. The processing of success." – Carol I Diener and Carol S Dweck.	"Laboratory-induced learned helplessness attenuates approach motivation as indexed by posterior versus frontal theta activity." – Samantha J. Reznik, Robin Nusslock, Narun Pornpattananangkul, Lyn Y. Abramson, James A. Coan & Eddie Harmon-Jones.
Purpose of the study	The goal of this study was to see if the debilitation caused by uncontrollable occurrences was universal across tasks and incentive systems.	The authors' goal with this study was to build on their earlier work on learned helplessness.	The influence of perceived uncontrollability (i.e., learned helplessness) on PFTA was investigated in this study.
Research Question(s)	Is learned helplessness a specific state which only impairs performance in situations	This research paper was aimed at determining more clearly how helpless and mastery-	1.What are the effects of learned helplessness on posterior versus anterior theta activity (PFTA)?

	similar to original training, or does it impair a broad range of behavior?	oriented children process their successes as they occur and how they might reevaluate their successes in light of failure.	2. What are the effects of learned helplessness on frontal EEG alpha asymmetry?
Sample Population(s)	Ninety-six undergraduate students, consisting of 51 men and 45 women. The subjects were assigned into 1 of the 12 possible groups generated by the four experiments each with the three pretreatment contingencies. There were 24 subjects in each experiment.	56 male and 56 female 4th–6th graders.	Seventy-four participants (mean age = 19.21 years; 40 females) completed the study.
Limitations	Both activities, as varied as they are, were clearly understood as part of the same experiment by the volunteers.	One could argue that mastery-oriented children's assessments of their performance are unrealistic	Due to the inverse problem, determining the specific anatomical location of an EEG signal is challenging. That is, a huge number of distinct dipole sets in the

	We do not know if any of the learned helplessness made it out of the lab.	since they do not change their assessments after a series of unsuccessful trials.	brain can result in the same scalp EEG distribution. It was difficult for the authors to distinguish which sets of dipoles in the brain led to the scalp EEG in their data since they measured the distribution of EEG on the scalp.