

# MACS301 Homework 1

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## 1 Deviant Aggressive Behavior

1. After examining four prevalent theories of socially deviant aggressive behavior, it is necessary to discuss the social policies that could reduce such behavior on the condition of each theory's accuracy. For Theory I, which argues that aggressive behavior is promoted through an environment that rewards such actions, a social policy to resolve such a problem would be one that rewards peaceful behavior and punishes deviant aggressive behavior. For example, those who perform a kind service to someone else could either receive a monetary or societal benefit and those who perform deviant aggressive behavior can be punished through manual labor or a fine.

For theory II, which believes that deviant aggressive behavior is developed as an expression of hostility towards personal authority figures after undergoing personal unhappiness, a potential solution would be for individuals to understand how their emotions and behavior is projected onto others in an inappropriate manner. It would therefore be important for a social policy to be created so that people who are unhappy about their current life situation can have easy access to professional help (therapy or human resources). In the case that the targets of deviant aggressive behavior are not responsible for the perpetrators' unhappiness, these professionals could help the latter to realize their misguided emotions and focus on fixing the real reasons for their unhappiness. If the authority figures are responsible for their unhappiness, the professional helpers can teach them to more effectively communicate with these authority figures and potentially mediate such exchanges.

For theory III, which believes that deviant aggressive behavior is the natural response for minority individuals that are systematically oppressed by society's rules, a potential social policy that could resolve this issue is to enact certain policies that would minimize the marginalization of different groups. For example, the affirmative action policy has allowed marginalized African American and Hispanic populations to have an opportunity to be appropriately represented in higher education. By giving more opportunities to marginalized communities, there would likely be a decrease in deviant aggressive behavior on the condition that theory III is correct.

For theory IV finally, which argues that deviant aggressive behavior is socialized through contact with a deviant subculture, a potential solution is to create a social policy that would remove such influences of these different subcultures. For example, an awareness of the hegemonic masculinity or white supremacy cultures could allow social policies to target these specific cultures through a ban on hate speech that might foster violence or other aggressive deviant behavior against specific targets.

2. After examining a series of "experiments", the recent debate on mass gun shootings has been particularly telling for the theories on deviant aggressive behavior. In terms of the four prevalent theories, it would seem that all theories would seem to play a role in this display of deviant aggressive behavior.

In terms of theory I, there seems to be a particular aspect of massing shootings that give legitimacy to this argument. For many potential shooters, there is sometimes a desire for the recognition of their deviant aggressive behavior. Given that the appearance of their face and name on different forms of media would occur in response to their behavior, it is possible that many eventual mass shooters feel that they are rewarded for their behavior. Therefore, a social policy was created for news outlets to not reveal any identifying features of the mass shooters in order to attenuate these effects.

While theory II is notably shakier in explaining mass gun shootings, it is possible that gun shootings are caused by bullied individuals who want to attack their oppressors, who in turn could be considered to have a position of authority over these individuals. The eventual hostility

towards their bullies could then lead to deviant aggressive behavior by these victims and result in mass shootings. As a result, there has been increased awareness in schools about the consequences of bullying as well as the implementation of school counselors/teachers who are responsible for the well-being of their students.

For theory III, a potential justification for this belief can be found in the fact that many eventual mass shooters were social outcasts. Given that society in school is dictated by interpersonal skills, there is an inevitable hierarchy in which certain socially awkward individuals are rejected from the rest of this society. As a result of their social position, these outcasts reject a system that allows for their marginalization and subverts its authority through a mass shooting. In an effort to counter this manifestation of the theory, children are starting to be taught to be altruistic to one another and support marginalized individuals regardless of differences.

Finally, the presence of theory IV on this subject could be potentially proven with how the normalization of guns and violence in movies/video games have been used as a possible explanation for increases in gun violence. While there is little empirical evidence for this actual effect, there have been certain attempts to ban these pseudo-violent outlets and have age restrictions for these entertainment mediums.

## **2 Waiting until the last minute**

- a) Given that people often wait the last minute to do a given task, the inevitable question is why this behavior occurs. One possible reason is that people disassociate from themselves in the future and therefore will not feel inclined to work until they are at the point in which their task relates to their present self. Another potential reason could be that people might have competing tasks that take priority at the time. Furthermore, it is possible that people subjectively value immediate rewards (relaxing and watching television) as higher in value relative to better future rewards (less stress as the due date comes closer). Finally, it is possible that people tend to avoid pain as long as possible until it becomes unavoidable in order to avoid the greater pain of the consequences that come from not filling one's obligations.

- b) A generalized explanatory model is that people operate under a pleasure-pain principle in which people seek to avoid pain and pursue pleasure. The quantification of these pleasures and pains can be different for each individual, but there are certain objective stimuli that generally lead to pain, such as doing homework or performing obligations. Therefore, people who generally don't like work will avoid the pain of performing these assignments until it becomes necessary in order to avoid a worse feeling of pain. This problem would likely be exacerbated if there are other activities that would likely give them more pleasure at a specific period of time.
- c) Another alternative model is that people procrastinate because people generally have multiple obligations that they are simultaneously committed to. In universities, there are often multiple school assignments, projects outside of school, and social obligations to perform every week. This problem would in turn force people to only be able to do one assignment/obligation at a time, causing people to only do a given assignment at the last minute when that specific obligation takes priority over other assignments that are due at a later date. This might give the appearance of procrastination, but this outcome is the result of competing obligations in which people have to decide which one takes priority in a given moment.
- d) With the two models, the pleasure-pain model and the competing obligation model, there are multiple predictions that can be considered for each model. In terms of the former, it would seem that people would likely procrastinate less as they get older. Given that the pain of waiting until the last minute would eventually give a significant amount of feedback to people, which in turn would allow them to realize that it is generally more painful to procrastinate on an assignment, it is possible that people tend to procrastinate less as they get older. Another prediction is that people will respond differently to given stimuli as they become older. In terms of work, it is often the case that people can become more future-oriented and passionate about their work or their overarching goals, allowing them to see the pleasure that comes from working on the assignments. Therefore, specific assignments that originally gave pain will actually give pleasure as one gets older, leading people to procrastinate less on assignments that appropriately stimu-

late them. However, this prediction is different from the prior one in the fact that people would still try to avoid other painful stimuli that would seem tedious invariant of time (grading papers is probably never fun).

In terms of the latter model, one prediction is that people inevitably become busier and have more obligations as they become older. These issues could be an increased workload or having romantic or familial obligations. As a result, this model predicts that people will tend to procrastinate more as they get older because they have more to worry about and have to prioritize specific assignments or obligations that are due sooner. However, it is possible that the workload one experiences is not necessarily linearly positive for the rest of one's life. For example, people might have more work every year as they grow older until they eventually retire. At that point, their workload has decreased so much that there is no need to procrastinate on a given task. Another prediction is that people will either have to drastically change their schedule to accommodate an increased workload in addition to procrastination. This change might manifest itself through hanging out with friends less as well as organizing one's schedule to better prepare for the increase in workload such as starting more quickly on projects that are impossible to procrastinate on.

A test for each of these models would therefore be possible since they have different predictions despite their similar outcome in terms of procrastination. For example, a longitudinal data analysis could determine how rate of procrastination changed over time. If the first model were accurate, it would seem that both of its predictions would lead us to assume that leaving things to the last minute would decrease as one grows older, especially for school assignments or exciting projects. If the second model were accurate however, there should be evidence that people would increasingly leave things until the last minute as they get older to accommodate other obligations. Therefore, a difference in model formulation can lead to very different predictions despite a similar outcome.

### 3 Selecting and fitting a model

1. a) When the sample size  $n$  is extremely large, and the number of predictors are very small, it would be more valuable to use a flexible model. This is because there are only a small set of predictors to appropriately capture the relationship between the outcome and predictor variables (making an inflexible model not be very useful), and the large number in the sample will allow for the flexible model to make accurate predictions for other samples.  
b) When the sample size  $n$  is very small and the number of predictors are very large, it would be better to use an inflexible model. This is due to the fact that a larger number of predictors makes it more possible to more accurately capture the relationship between the outcome and predictor variables, and the low number within the sample will cause the flexible model to overfit the data and to not be generalizable to a larger dataset.  
c) If the relationship between the predictors and response is highly not linear, then it seems that a more flexible model would better to capture the general relationship between the predictors and response. This choice will avoid the problem of too much bias from using a more inflexible model.  
d) If there is a high level of variance in the error terms however, then an inflexible model will be better to use since it would be negatively affected by the large number in variance errors. An overly flexible would cause the data to be more erratic and not generalizable to other data sets.
2. The reason the squared bias and the variance curve respectively decrease and increase in value at a decreasing and increasing rate is due to the fact that there is a bias variance tradeoff as the flexibility of a model increases. The variance curve is a straight line because changes in flexibility cannot reduce the error values any further. For understanding the training MSE, the training mean squared error will decrease as the flexibility increases since its flexibility will ensure that each point in the training dataset are captured. For the test MSE however, a more flexible model is helpful until the model begins to overfit the data so that it picks up a lot of noise.