

# Using game theory and game psychology to explain the reasons behind academic fraud

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**Abstract:** *The citation in this article comes from the knowledge learned by the author on Coursera (a famous global MOOC website) and some materials collected online. Some specific examples come from relevant reports and the author's experiences in life.*

**Keywords:** *game theory, academic fraud, high school student*

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## 1. Academic fraud - a very common phenomenon among high school students

We are currently unable to obtain some accurate information about how many high school students participate in academic fraud but we all know that it's a very serious problem nowadays. The behavior of academic fraud among high school students is universal, and it does not only occur in one or two places, but also in various countries around the world.

For example, in 2014, there was a sensational cheating incident in the Asian SAT exam, which affected over 10000 Chinese students. The cheating technique in this exam was very ingenious. They took advantage of the time difference between Australia and the Asian exam zones. They sent people to Australia to take the exam because Australia spans multiple time zones and takes the exam about 3 hours earlier than China. When they saw the SAT paper in Australia, they sent the content answers back to the Asian organizers through a series of operations, and then some illegal traffickers distributed these answers to students. This case directly led to the delay in the release of the SAT scores of thousands of candidates from China and South Korea. Later, it was confirmed that the cheating had led to a series of cheating cases, and all the SAT scores of the students involved were cheated. This kind of cheating technique is still very common nowadays. Multiple exams such as IB, AL, and AP in 2024 have been proven to have large-scale cheating, among which I have learned that the most specific one is cheating in the AP exam in 2024. This cheating is even more rampant, with answer vendors running directly to the exam room to buy answers. Many of my classmates have also seen these answer vendors around the AP exam room. Another thing is that there has always been cheating in international competitions. Large competitions like AMC have already leaked their answers before the exam, and even sold them for 9.9 RMB (equivalent to \$1.37) 30 minutes before the exam. There are many examples around me of achieving good results in competitions by buying AMC exam answers. From this, it can be seen that academic fraud among high school students has become very serious. So what is the relationship between this and game psychology? Before understanding this relationship, we need to first understand what game theory is.

## 2. What is game theory and what is Nash equilibrium?

Game theory is a new branch of modern mathematics and an important discipline in operations research. It mainly studies mathematical theories and methods of phenomena with the nature of struggle or competition. To

put it simply, it is the process of how multiple individuals or teams choose their own strategies based on each other's possible strategies under specific research conditions, in order to achieve maximum benefits. Closely related to game theory is Nash equilibrium, where each participant chooses their own optimal strategy and no participant can unilaterally change their strategy to achieve better results.

Let's first use an example to more intuitively demonstrate game theory and Nash equilibrium. There are two criminals who are discussing stealing, and they have been discovered! They are now facing a choice between cooperating or defecting. If both of them cooperate, then the police will not catch them. If one of them wants to cooperate with the other person to defect and report to the police and exaggerate the crimes of their compatriots in front resulting in both being caught by the police. How should they choose of the police, then the person who once chose to cooperate will be sentenced to 15 years in prison. If both of them defect, they will resist each other during their escape, e? We can create a table.



(Extracted from netmap - Prisoner's Dilemma, Betrayal Has Consequences)

We assume that these two criminals are criminal A and criminal B, respectively. If Criminal A chooses to cooperate, if Criminal B chooses to betray, Criminal A will be sentenced to 15 years in prison, and if Criminal B chooses to cooperate, they can both be safe and sound, which is a situation. Another situation is that criminal A chooses to betray. If criminal B chooses to cooperate, criminal A can escape without any punishment. If criminal B also chooses to betray, both of them will be sentenced to 10 years in prison. Let's think about it. In the first scenario, you will either be sentenced to 15 years in prison or have nothing to do. In the second scenario, you will only be sentenced to a maximum of 10 years in prison and you may not be discovered. So, if it were you, which one would you choose? Of course, it was betrayal. If we continue with this train of thought, we will find that both criminals are more inclined to choose betrayal. (adapted from Coursera platform welcome to game theory) This is the Nash equilibrium where both individuals choose to betray in game thinking. So what is the close connection between game psychology and academic fraud among high school students? Next, I will delve into the close relationship between them.

		Prisoner's Dilemma	
		2 Cooperate	2 Defect
1	1 Cooperate	-1, -1	-15, 0
	1 Defect	0, -15	-10, -10

(Extracted from Coursera's "Welcome to Game Theory" classroom)

### **3. Deep Relationship between Academic Fraud among High School Students and Their Game Psychology**

The reasons for academic fraud among high school students are very complex. As an international high school student in China, I have a good understanding of the specific situation of Chinese students. Let's take Chinese high school students as an example. Firstly, our generation of Chinese children have been highly expected by their parents since childhood. Of course, every parent has high expectations for their own children. However, the difference between Chinese parents and parents in other European and American countries is that their expectations for their children are entirely focused on academic development, while other European and American countries hope for their children to develop comprehensively. Under the influence of this educational environment, some Chinese children have become arrogant and strive for self-improvement. They believe that no matter what they take or do, they should be the best and be what other parents call "other people's children". After they grow up, especially after 9th grade, they will find that there are too many excellent people around them. If everyone looks at the "best", but the "best" is only a title that only a few people can obtain, and not so many students can achieve it, then what should the remaining students who are not the "best" do? Some students may feel inferior and unable to lift their heads, while others may transition from "confident" to "conceited.". What is "conceit"? Conceit is always feeling that one is stronger and smarter than others. Under the mentality of arrogance, they will crazily compare themselves with others, which is a game mentality. Arrogant individuals may be more likely to dominate game psychology because they are overly confident in their own judgment and may be more willing to take risks and take proactive actions. On the other hand, if they lack basic judgment, they may make some unwise decisions - academic fraud. They started cheating in order to become the "number one" and resorted to any means to become the "academic achievers" in the minds of others. My classmates around me have such examples. For example, he is not good at math at all. He and other classmates went to buy math competition answers such as AMC and AIME, and entered the school's honor list through this way to "help" further education. Such examples are very, very common among Chinese children (although they cannot be counted, everyone knows this is very serious in private). Many classmates around him and netizens who attend international schools often complain to me that "Buy Award Brother" directly connects to good schools, and even some people are confused and ask "what to do if the whole class has bought the answer for the big exam, and I am the only one who didn't buy it".

There is another reason why academic fraud has developed so severely. Let's imagine that your classmate cheated. Wow, he won the city's first place in the exam, and to exaggerate, he won the world's first place. Then

he successfully passed the exam and qualified to enter a top university. At this point, we will definitely feel psychologically unbalanced and say to others, "Who said it's cheating? Why?" If a classmate cheats like this and doesn't seem to have received much punishment in the short term, then someone will definitely follow suit. By taking such a shortcut, the immature mentality and strong competitive desire of high school students lure them one by one to join the army of academic fraud, and the number of academic fraud will naturally increase exponentially. Among them, there is also a crucial factor. Most international examination bureaus and many well-known academic institutions cannot guarantee that academic cheating will not occur. Criminals always have ways to operate, for example, illegal institutions can deceive examination bureaus or academic institutions through various means to successfully obtain the trust of examination bureaus or institutions and set up examination centers to leak questions and engage in academic fraud. They can also seize loopholes in examination rules and use various methods to help "bad students" in need cheat. As long as there is demand, there must be supply. Under the manipulation of students' unfair game psychology and the efforts of criminals, academic fraud has become increasingly severe. In summary, this kind of "leading bird" has triggered an unfair "game mentality" among the group, leading to things developing uncontrollably and ultimately resulting in irreversible consequences!

I also discovered something, this phenomenon was found around me. For example, when a classmate was discussing a topic with him, he understood everything and said everything, and explained the topic to everyone very reasonably. At that time, everyone praised her "you are really amazing", but soon after his chat records were exposed, everyone realized that he achieved good grades by buying answers. From this, it can be seen that some students who engage in academic fraud are not only seeking further education, but also due to their excessive vanity, hoping to psychologically "defeat" those who are better than them. This is also the result of the erroneous guidance of "game psychology". That's why some people say, "Why bother those people who buy answers? They're not as good as us anymore."

Let's explore the benefits of game psychology for students with moral bottom lines. Firstly, game psychology may make high school students more proactive and motivated in their academic pursuits. They may realize that achieving good academic results and honors can bring them greater competitive advantages in areas such as further education and employment. This psychological drive will encourage them to study harder and pursue higher academic achievements.

However, game psychology may lead to high school students being overly anxious and tense academically. They may worry that their grades may not be outstanding enough, or that their academic achievements may not be recognized. This anxiety and tension may affect their learning status and effectiveness, and may even lead to the idea of giving up. So we also need to relieve stress appropriately and maintain mental health. Game psychology can motivate high school students to strive and strive, but if high school students do not treat game psychology correctly, it can actually lead them into psychological internal friction or onto a wrong path, such as academic fraud. Therefore, high school students should view the relationship between academic pursuit and game psychology correctly. To make them understand that true academic pursuit requires honesty and hard work to win, rather than relying on improper means or excessive anxiety.

#### **4. Flower world, do not sink and applying game passion to the right place !**

In the vast world, what we can do is limited, and one person's power cannot change anything. The only thing we can do is to stick to our true intentions in the world of flowers and flowers, manage ourselves first, and then persuade others! Firstly, we need to control our improper game mentality and apply it in the right way. For example, if he is better than me, I want to learn from him. Of course, we also need to understand that everyone is excellent and hardworking, and we may not be able to surpass most excellent people. We should act within

our capabilities and not turn our "game mentality" into jealousy. Driven by jealousy, we can win through academic fraud and other biased means. Academic fraud is like the prisoner's effect, where both parties could have achieved better results but suffer together due to some distrust and evil thoughts. So, as high school students, we should start from ourselves, eliminate academic fraud, and first do our best to persuade others!