

※ 考生請注意：本試題不可使用計算機。請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

本試題有兩大部分：第一部分為短篇科學文獻閱讀與 6 題簡答題，佔分(50%)；第二部分為研究論文閱讀與 3 題簡答題，佔分(50%)。

第一部分：短篇科學文獻閱讀與簡答題 (50%)：閱讀下面科學報導文章，依據文旨回答問題。

A well-known aphorism, ascribed to Benjamin Franklin, is "time is money". But a paper published in Psychological Science by Francesca Gino of Harvard and Cassie Mogilner of the University of Pennsylvania suggests precisely the opposite. Dr. Gino and Dr. Mogilner asked a group of volunteers to do a series of what appeared to be aptitude tests. As is often the case in such experiments, what the volunteers were told, and what the truth was, were rather different things.

In the first test they were asked to make, within three minutes, as many sentences as they could out of a set of words they had been presented with. What they were not told was that each of them had been assigned to one of three groups. Some volunteers' word sets were seeded with ones associated with money, such as "dollars", "financing" and "spend". Some were seeded with words associated with time (e.g., "clock", "hours", "moment"). And some were seeded with neither. Thus unknowingly primed, the volunteers were ready for the second test, which was mathematical. They were given a sheet of paper with 20 matrices which each contained 12 numbers, two of which added up to ten (for example, 3.81 and 6.19). They had to write down, on a separate answer sheet, how many of these pairs they could manage to find in five minutes. They were also given a packet of money and told they could reward themselves with a dollar for each pair they discovered.

Crucially, they were not asked to show their workings on the answer sheets—and the matrix sheets, on which those workings might have appeared, carried no identifier and were ostentatiously discarded once the test was done. Nevertheless, by hiding an identification code in a sample matrix on the answer sheet, Dr. Gino and Dr. Mogilner knew which matrix sheet each candidate had been given and thus who had cheated and who had not. They found that 88% of those who had been primed with money-related words in the first test cheated, as did 67% of those given neutral words. Of those primed with time-related words, though, only 42% cheated.

This led Dr. Gino and Dr. Mogilner to suspect that self-reflection played a part in controlling unethical behavior during the test. They therefore conducted a third test in which, for half the volunteers, there was a mirror in front of them when they were sitting and doing the experiment. Volunteers primed to think about money cheated 39% of the time when a mirror was present but 67% when it was not. Those primed to think about time cheated 32% of the time in the presence of the mirror and 36% in its absence—results that are statistically indistinguishable. Finally, a fourth experiment asked primed volunteers to fill in a questionnaire before tackling the matrix. In among "filler" questions intended to disguise what was happening this asked them to rate how they felt about self-reflective statements like, "Right now, I am thinking about who I am as a person." As in the previous tests, those primed with money words cheated more often than those primed with neutral words and far more often than those primed with time words. But whether someone cheated was also related to how strongly he felt about the self-reflective statements presented to him in the questionnaire.

It seems, then, that thinking about time has the opposite effect on people from thinking about money. It makes them more honest than normal, rather than less so. Moreover, the more reflective they are, the more honest they become.

問題：

1. 在第一個測試，除了有一組受試者接受金錢言語暗示，另外兩組各接受何種言語暗示? (8%)
2. 請解釋在第二測試中，接受不同分組的受試者發生不同比率欺騙行為的原因? (8%)
3. 在第三測試中，接受金錢暗示的受試者又分成兩組，為何各有不同機率的欺騙行為? (8%)
4. 請解釋本文中第四實驗的用意為何? (8%)
5. 本文所述一系列的測試可支持下列那些暗喻(複選)? A. 君子愛財，取之有道 B. 重賞之下，必有勇夫
C. 金錢為罪惡淵藪 D. 一寸光陰一寸金 (8%)
6. 請給本篇短文的一個適當的英文標題。(10%)

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第二部分：研究文獻閱讀與簡答題 (50%)：有 3 個問題 (問題 7, 8, 9)

1. Please answer the questions 7 and 8 in English or Chinese based on the following paragraphs adapted from "Functional task constraints foster enhanced postural control in children with cerebral palsy" by Jennifer M. Schmit, Michael Riley, Sarah Cummins-Sebree, Laura Schmitt, Physical Therapy 2016 Mar;96(3):348-54. doi: 10.2522/ptj.20140425. Epub 2015 Jun 25.

Cerebral palsy (CP) has been found to be associated with disruptions in postural control and subsequent postural instability. Postural control during quiet (ie, unperturbed) stance in CP has also been studied. During quiet stance, children with CP typically exhibit a larger amount of postural sway (eg, greater sway area and path length) than children with typical development (TD), and their postural sway typically is more variable. Additionally, children with CP have been described as exhibiting temporal patterns of postural sway distinct from those of children with typical development, reflecting a decrease in the postural sway irregularity that is believed to be an indicator of less effective physiological control.

An inherent assumption underlying the large body of work on postural stability in CP is that during quiet stance, the priority is to reduce postural sway variability to the greatest extent possible. However, stance is not achieved and maintained solely for its own sake but rather is achieved and maintained to facilitate goal-directed tasks that are superordinate to (above and beyond) the control of posture (functional play or suprapostural tasks). Examples of functional play (suprapostural) tasks include everyday activities such as standing while holding a lunch tray, writing on a chalkboard, or swinging a baseball bat. Coordination of postural control with a functional play task may require the modulation of postural sway to avoid interfering with and, in some cases, to directly facilitate functional play activity. In the context of functional play activity, the postural control system must coordinate the physical demands of posture with the functional requirements of the task. The success of postural control, therefore, can be defined in terms of its impact on the achievement of functional play goals. As such, no singular description of postural control can be used to characterize a "healthy" system or a system that is not healthy.

Because functional play tasks are everyday activities, studying postural activity during functional play task performance may be a way to achieve the functional context necessary to develop a more applicable and valid understanding of postural control. This consideration is especially critical in studies of the movement behavior of children with impairments given that differences between children who are healthy (controls) and children with neurological impairments could indicate, in part, a change in postural control strategies or constraints, rather than simply a decline in the function of the postural control system. Although the pattern of movement used to successfully complete a task may be atypical in populations with established motor deficiencies, it may not be ineffective.

Recent work by Volman et al illustrated the influence of functional context on motor behavior in CP. Children with CP reached to press a light switch to turn on a light (functional task context), reached to press the light switch without turning on the light (semifunctional task context), or reached to a marker (nonfunctional task context). Reaching kinematics were improved in the functional task context, indicating that when a task is functionally more relevant, motor performance will be more precise and less variable, even in children with movement pathology. These findings are buttressed by those of other clinical studies in which task context was manipulated by varying object availability and object affordances. For example, after a cerebrovascular accident, people produced smoother, faster, and more forceful movements when reaching for their favorite food or for an active telephone instead of a spatial location or a stick.

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Additionally, mimicking of a task (pretending to eat food in a saucer with a spoon) resulted in motor performance that was less with a spoon) in patients with multiple sclerosis.

Comprehensively, these studies illustrated that different motor behaviors can emerge in task-relevant conditions. The purpose of this study was to investigate postural stability in children with CP during the performance of a functional play task that engendered a more functional context for balance control than quiet stance. Specifically, we evaluated postural control during a functional play task that required precise control of manual activity in a cohort of children with CP and peers who were matched for age and exhibited TD. We hypothesized that if the functional play task context used in this study promoted dynamic functioning of the postural control system, the postural sway irregularity associated with CP and other differences in postural behavior between children with CP and children with TD would be attenuated during the performance of a functional play task. Modulating control strategies in response to suprapostural task constraints could reflect a system with adaptability—a response to the constraints imposed by functional play tasks, despite a pathological state. Such a response reveals aspects of motor control that might remain intact in children with CP.

Question 7. Please summarize the background and purpose of the study. (15%)

Question 8. Please state the hypotheses and rationale of the study. (20%)

2. Please answer question based on the following paragraphs adapted from “Perspectives on active video gaming as a new frontier in accessible physical activity for youth with physical disabilities” by Jennifer L. Rowland, Laurie A. Malone, Cali M. Fidopiastis, et. al. *Physical Therapy* 2016 April; 96(4):521-32.

One promising approach to promoting physical activity and addressing common physical activity barriers in youth with physical disabilities is AVGs, also called “exergames,” which refer to a category of video games involving movement or in which movement is encouraged by the game controller that could involve motion-sensing cameras or handheld versions, mats, or boards. Active video games have garnered recent attention as a “gateway experience” to motivate players to increase the intensity and amount of daily physical activity. Specifically, a few years ago, the American Heart Association convened a planning committee to examine the influence AVGs might have on health promotion and health behaviors and described AVGs as a “gateway experience” to physical activity, meaning they open the door to interest and participation in other types of physical activity as a result of playing the games. The panel, which included health care providers, behavioral researchers, and professionals from the active-play game industry, concluded there is a promising future in developing games and technologies focused on increasing physical activity participation, energy expenditure, and the incorporation of abilities and interests of diverse and targeted populations.

Given the emerging evidence supporting AVGs as a means of improving cardiovascular and functional outcomes in youth with physical disabilities, the application of AVGs as a tool for home- and community-based physical activity in this population represents a new frontier in accessible physical activity for youth with disabilities.

Question 9. Please summarize the message of these paragraphs in Chinese. You may not translate the paragraphs word by word. (15%)