

The effect of language prompts and game sports activities on strengthening students' psychological state

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Abstract

This research intends to examine the effect of language signals and game sports activities on the psychological reinforcement of pupils. The education research uses a combination of functional training, linguistic prompt, and sports games. This study used the Mental Health Diagnostic Test (MHT), SPSS statistics, and a sample of 400 college students to determine the results. After the trial, the subjects in the game group demonstrated significantly less anxiety, an inclination toward loneliness, and a tendency toward phobia ($p < 0.05$) compared to those before the experiment. More than 79.65 percent of the 172 boys have a medium or high level of activity, indicating that boys are active and motivated to engage in physical exercise. Among the 228 female students, 156 were inactive, accounting for 68.42%; just 5.26 % of female students have a high activity level, indicating that female students lack athletic activities compared to male students. Substantial changes were seen between the scores of anxiety ($p < 0.01$), loneliness tendency ($p < 0.01$), and phobia tendency ($P < 0.05$) of high-scoring individuals in the game group before and after the experiment. According to the results, there was no significant difference between the game group and the non-game group with low scores in any indicator before and after the trial.

Keywords: language prompt; gaming sports activities; student psychology; strengthening

1. Introduction

With the gradual promotion of the "Healthy China 2030" planning blueprint, the country and society have raised their health expectations for teenagers. Mental health will directly affect physical health (AlJhani et al., 2022). Modern college students are the architects of China's socialist cause and are crucial in determining the country's future development path. Their mental state, words, and actions will directly or indirectly affect them (Al-Khani et al., 2019). Nonetheless, many college students still have outstanding psychiatric issues (Vrij & Vrij, 2020). Language signals and game sports activities have the most significant effect on psychology, as shown in Figure 1. Being the crucial stage of adolescents' physical development and fitness idea construction, colleges and institutions should prioritize sports instruction (Noordin & Khojasteh, 2021).

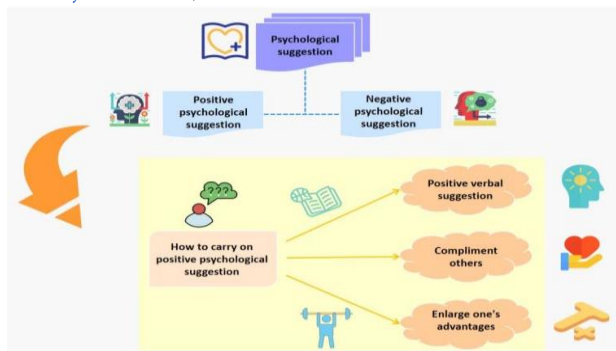


Figure 1. Classification and influence of psychological suggestion

Teaching research uses functional training, language prompts, and sports games based on the game played in public college and university physical education classes, the guiding concept of "health first," and the principle of "specialty entertainment." By establishing targeted teaching objectives, developing new teaching models, optimizing teaching content, and designing interesting and professional teaching content, we can enhance the teaching effect, improve the physical quality of college students, and encourage the development of college students' attitudes toward physical exercise (Aqeel et al., 2022; Arima et al., 2020; Bolatov et al., 2021). This study employs the Mental Health Diagnostic Test (MHT) and SPSS statistics, selects 400 college students, and randomly divides them into the game group and the non-game group based on their natural class to investigate the impact of language cues and game sports activities on the reinforcement of students' psychological state.

In conclusion, physical activity can improve the mental health of college students. Relative to psychological circles in the West, the research of Chinese experts is in its infancy. Using questionnaires and other approaches, this study examines the effect of language cues and game sports activities on the psychological reinforcement of pupils. By establishing targeted teaching objectives, creating new teaching modes, optimizing the teaching content, and designing exciting and professional teaching content, the teaching effect can be enhanced, the physical quality of

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college students can be improved, and the development of college students' attitudes toward physical exercise promoted. The conclusions of this study are significant from both a theoretical and a practical standpoint. Based on this research conclusion, the student's knowledge of mental health is enhanced, and gaps in the literature are filled. Moreover, the practical consequences of this research are essential for enhancing students' mental health. The instructors' responsibility can be a crucial factor in improving the mental health of their students. When the students have access to equitable employment, their health problems will be rectified. The dependability of these study results is essential for better applications. Yet, future directions for this research will expand the corpus of knowledge.

2. Literature Review

The majority of modern students are only children. With increasing age and social experience, they may encounter or create a variety of psychological challenges in their studies and daily lives. Some students have extremely low psychological endurance, a narrow mind, and a weak will; they have trouble learning; their grades are unstable; they are anxious about exams; they are not focused; they have difficulty communicating with others; they run away from home when they encounter something unpleasant; and some even commit suicide. These occurrences directly result from our lack of mental health education (Qu et al., 2021). Not adapting to the new environment, which results in an inferiority mentality, is the primary cause of mental health issues.

Students in vocational schools experience a novel and unfamiliar lifestyle. The failure on the exam has cast a cloud over their minds, and they feel lonely without the care of their parents. Although we have made material and spiritual preparations before attending school, many students cannot adapt to this abrupt change in time and space to the consequences of social reality. Regarding their psychological development, vocational school pupils are undergoing a phase of self-affirmation. In their imaginations, the future and future design are lovely.

Nonetheless, reality frequently impedes the fulfillment of the "ideal self" (Vrij et al., 2021). In recent years, the enrollment growth and employment pressure of college graduates have also affected vocational school students. Faced with the realization that they are about to enter society, for instance, the direction of their future growth becomes a psychological knot. Students in vocational schools are tense and exhausted due to the rapid pace of life and intense academic pressure.

Because modern parents handle their children's concerns, children miss the opportunity to interact with the outside world, resulting in a lack of independence and interpersonal skills. In social life, due to mechanization and automation of production, the division of labor in the production department is becoming increasingly detailed, and in the process of labor, the communication between people is reduced; Particularly with the emergence of the Internet, some students are too dependent on the Internet, estranged from real life, and unwilling to interact with people face-to-face, affecting their normal cognitive, emotional, and psychological position (Liu et al., 2021). Colleges and universities should prioritize sports education as the most crucial phase of adolescent physical development and fitness idea-building.

In their study on the relationship between fitness, psychological resilience, and well-being of college students, Maia et al. (2021). The primary result is that fitness exercise has an apparent positive influence on psychological resilience and well-being and that a moderate overall quantity of exercise is the most beneficial for cultivating and enhancing college students' psychological resilience and well-being. According to Dimitropoulos et al. (2021), Prader-Willi syndrome (PWS) is marked by diminished social and emotional functioning. The development of behavioral intervention measures for PWS patients has the issue of recruiting enough local participants to thoroughly examine the effect of behavioral intervention due to the low prevalence of PWS in children. Yet, PWS has a great need for this type of study, and telehealth may help to fulfill this challenge.

By the use of questionnaires, Gomes et al. (2021) assessed the body image concern and satisfaction, as well as exposure (physical activity and sedentary behavior) and variables (mother's education, age, smoking, and alcohol use). A logistic regression study revealed a correlation between the level of engagement in suggested sports activities and the decrease in boys' anxiety and body image satisfaction. Using the self-questionnaires of 480 college students from two private universities and two public universities in Jordan, Ahmadi and Trost (2022) determined that 50 percent of the college students in the study had moderate to high levels of resilience, 70 percent had some degree of adaptability to depression, and 50 percent had a high degree of awareness of family, friends, and other people's social support. The data also indicate that the support of family and friends is a key predictor of psychological resilience among college students. It is intended that mental health practitioners would better understand the significance of college students' resilience to plan and support their mental health effectively.

3. Methodology

400 college students were chosen as the study sample for this investigation. After the pre-test, the patients were randomly separated into the game and non-game groups based on their natural class. According to Table 1.

Table 1

Basic information of respondents (N=400)

variable	Classification	Number of people	Percentage%
Gender	Male	170	42.5
	Female	230	57.5
Grade	Freshman	53	13.25
	Sophomore	88	22.0
	Junior	116	29.0
	Senior	143	35.75

Teaching research combines functional training, linguistic prompts, and sports games. This study employs the Mental Health Diagnostic Test (MHT) and SPSS statistics, randomly assigns 400 college students to the game group or the non-game group based on their natural class and examines the impact of language cues and game sports activities on the reinforcement of students' psychological state.

Students' mental health is measured using the Mental Health Diagnostic Test (MHT) developed by Chen et al. (2021). It contains 100 items and is divided into eight subscales, such as learning anxiety, anxiety about others, loneliness tendency, self-reproach tendency, allergy tendency, physical symptoms, phobia tendency, impulse tendency, etc. Using a 0.1 scoring system, the scores and total scores of the eight subscales reflect the mental health of the students (the lower the MHT score, the higher the mental health level). The reliability coefficient of the scale ranges from 0.84 to 0.88, the retest reliability coefficient is between 0.78 and 0.86, and the validity exceeds 0.71.

Utilizing online literature databases such as the China National Knowledge Network, the full-text database of

China's excellent doctoral and master's degree research, the Chinese journal database, the full-text database of China's necessary conference research, and the Internet, relevant literature for this study was obtained (Mani, Magnotta, & Jacob, 2021). Retrieve and query the literature on sports activities and psychological resilience both domestically and internationally, read, analyze, and study the collected data, and sort the literature purposefully to become familiar with and comprehend the relevant research results, provide reference and theoretical support for confirming the research content, and enhance the research content.

The experimental intervention administered a pre-test to determine the psychological health level of the subjects, then randomly separated them into the game group and the non-game group based on their natural class, and conducted the intervention for eight weeks. Data The SPSS statistical program was used to examine the homogeneity of variance of the pre-test data, and the paired sample t-test was employed to compare the pre-test and post-test means (Gibson, Pritchard, & de Lemos, 2021).

4. Data Analysis and Findings

Using the SPSS statistical software's cross-table tool in descriptive statistics with grade and exercise volume as variables, Table 2 displays the distribution of activity volume by grade. As shown in Table 2, 61.75 percent of the 400 students polled are engaged in little activity, 26.25 percent in medium activity, and just 12 percent in significant activity. Over 60 percent of college students lack physical activity. It demonstrates that the proportion of first-year students participating in high-activity sports is the highest. This is because first-year students have just separated from high school, cramming education, their autonomy has been released, and they have a new sense of a new environment and new friends, resulting in a strong desire for sports.

Table 2

Activity distribution by grade (N=400)

Activity volume	Freshman (53)		Sophomore (88)		Junior (116)		Senior (143)	
	Number of people	Percentage%	Number of people	Percentage%	Number of people	Percentage%	Number of people	Percentage%
The small amount of activity	31	7.75	50	12.5	78	19.5	88	22.0
Medium activity	12	3.0	30	7.5	30	7.5	33	8.25
A large amount of activity	10	2.5	8	2.0	8	2.0	22	5.5

The number of sophomores and juniors has reduced due to improved grades and familiarity with the environment. It may be associated with the steady increase in learning tasks, the rise in other communicative activities, the

decline in sports enthusiasm, and the manifestation of inertia. After entering the senior year, the proportion of students with significant activities has grown again, which may be attributable to the fact that seniors face nearly a

year of practice and research writing, the increase in time available for allocation, and the increase in sports desire (Simmich et al., 2021). According to the preceding information, college students lack physical activity, which

may pose concealed risks to their bodily and mental health. Using the cross-table feature of SPSS's descriptive statistics with gender and exercise volume as variables, Table 3 displays the activity scale by gender distribution.

Table 3

Activity volume by sex

Activity volume	Boy		girl		Total	
	Number of people	Percentage%	Number of people	Percentage%	Number of people	Percentage%
The small amount of activity	92	53.49	156	68.42	248	62.0
Medium activity	45	26.16	60	26.32	105	26.25
A large amount of activity	35	20.35	12	5.26	47	11.75
total	172	100	228	100	400	100

Table 3 reveals that about 79.65% of the 172 boys have a medium or high level of activity, demonstrating that boys are physically active and willing to participate in physical exercise activities. Among the 228 female students, 156 were inactive, accounting for 68.42%; just 5.26 % of female students have a high activity level, indicating that female students lack athletic activities compared to male students. They favor quiet and dislike sports, which may result from their delicate and quiet personality and inherent physiological conditions. Therefore, college and university physical education departments should modify the guidance and requirements for college girls' physical activities and combine in-class and extracurricular advice and encourage girls to actively participate in various sports to increase their essential physical fitness and health index. 61.88% of the 404 pupils are engaged in a minor activity, 26.24% are involved in a medium activity, and less than 12% are engaged in a significant activity.

More than 60 percent of college students do not engage in sufficient physical activity during regular hours. Among the 230 female students, 68.26% are employed in light physical activity. This demonstrates that the gender disparity between men's and women's activities is significant. The survey results mentioned above are comparable to the data anticipated in the study. Because

the questionnaire is sent via the online survey website, ensuring the sample's entire accuracy is impossible. In addition, respondents frequently dress better and more appropriately when answering survey questions. Hence, the gathered samples may not be as ideal as the activities. So, we should gradually foster students' interest in sports by modifying how they are taught and evaluated in sports and raising their sports participation to get a healthy physique and increase their psychological resilience. Rather than relying solely on physical education classes, appropriate mechanisms should be established to encourage and urge female college students to participate in various sports activities to improve their physical quality and activity enthusiasm significantly.

The results of the variance homogeneity test indicated that there was no significant difference between the variances of the two experimental groups. The subjects in the game group reported lower anxiety, loneliness tendency, and phobia tendency after the experiment, and the change was statistically significant ($p < 0.05$) compared to before the trial. The ratings on the other content measures did not differ much. As demonstrated in Table 4, the propensity of subjects in the non-game group to experience loneliness and physical symptoms rose significantly after the experiment compared to before it ($p < 0.05$).

Table 4

Comparison of MHT test results between two groups of subjects before and after the experiment (M+S)

MNT scale	Game group		No game group	
	Before experiment	After the experiment	Before experiment	After the experiment
Learning anxiety	5.5±1.9	5.6±1.9	5.3±1.7	5.1±1.9
Anxiety to others	5.6±2.0	5.3±2.3*	5.2±1.7	5.3±2.0
Loneliness tendency	3.8±2.0	3.4±2.1*	3.4±1.7	3.9±1.9*
Self-blame tendency	5.4±1.6	5.3±1.8	5.4±1.6	5.2±1.8
Allergic tendencies	5.4±1.7	5.2±1.6	5.1±1.3	5.2±1.5
Physical symptoms	5.2±2.3	5.1±2.4	4.4±1.9	4.9±2.3
Terrorist tendencies	5.9±2.0	5.5±2.3*	5.2±2.6	5.3±2.6
Impulse tendency	5.1±2.1	5.3±2.2	4.7±1.9	4.8±2.1
Full scale	57.0±7.1	56.5±8.15	55.5±7.1	56.0±10.1

Note: * $p < 0.05$, ** $p < 0.01$

Tables 5 and 6 provide statistical assessments of the development of the top 20 and bottom 20 pre-test scorers in the high-score and low-score groups, respectively. The scores of anxiety ($p<0.01$), loneliness tendency ($p<0.01$),

and phobia tendency ($p<0.05$) of the high-scoring participants in the game group were significantly lower after the experiment than they were before the trial, and the difference was either very significant or significant.

Table 5

Comparison of MHT test results between two groups of subjects with high scores before and after the experiment (M+S)

MNT scale	Game group		No game group	
	Before experiment	After the experiment	Before experiment	After the experiment
Learning anxiety	7.4±1.2	6.9±1.8	5.8±1.6	5.5±1.8
Anxiety to others	7.4±0.8	6.1±2.0**	7.2±1.2	7.0±1.6
Loneliness tendency	5.9±1.2	4.4±1.3**	5.3±1.2	5.3±1.3
Self-blame tendency	6.5±1.6	6.4±1.8	6.8±1.4	6.7±1.9
Allergic tendencies	6.7±1.2	6.5±1.3	6.4±0.8	6.6±1.2
Physical symptoms	7.7±1.8	7.5±1.7	6.4±1.2	7.2±1.8*
Terrorist tendencies	8.7±1.2	7.8±1.1*	8.1±1.8	7.8±1.9
Impulse tendency	7.1±2.3	7.4±2.1	6.5±2.2	6.9±1.7
Full scale	68.4±3.4	66.5±4.3	65.7±3.6	65.9±5.7

Note: * $p<0.05$, ** $p<0.01$

The score of physical symptoms of high-scoring participants in the control group increased after the experiment compared to before it ($p<0.05$). There was no significant difference in

the scores of other content scales. Before and after the trial, there was no significant difference between the game and non-game groups with low scores on any indicator.

Table 6

Comparison of MHT test results between two groups of subjects with low scores before and after the experiment (M+S)

MNT scale	Game group		No game group	
	Before experiment	After the experiment	Before experiment	After the experiment
Learning anxiety	3.5±1.5	3.1±1.7	4.6±1.5	4.2±1.8
Anxiety to others	3.9±1.2	3.8±1.2	3.3±0.8	3.6±0.9
Loneliness tendency	3.4±1.7	3.3±1.9	3.3±1.7	3.3±1.9
Self-blame tendency	4.8±1.4	4.3±1.7	4.4±0.9	4.0±1.1
Allergic tendencies	3.7±1.2	3.7±1.6	4.1±1.1	3.8±1.7
Physical symptoms	2.6±1.8	2.7±1.3	2.9±1.1	3.1±0.7
Terrorist tendencies	4.4±1.9	4.4±0.7	3.6±1.1	3.8±2.1
Impulse tendency	4.1±1.1	4.0±1.2	4.5±0.8	4.5±2.1
Full scale	48.9±1.8	46.4±4.8	46.9±1.8	47.3±12.3

Note: * $p<0.05$, ** $p<0.01$

5. Discussion and Conclusion

A sports game is a game based on sports that combines the essential life and labor skills of running, jumping, and throwing of the human body with various primary sports forms, creating multiple body movements according to the needs of national fitness and school-quality education, formulating the story with educational significance and competitive competition rules. It is engaging, well-liked, instructional, competitive, fair, scientific, pragmatic, and secure (Metaferia, Futo, & Takacs, 2021). Game-based sports activities can entice college students to join sports,

inspire their initiative and passion for participating in the exercise, and more effectively play out the fitness and mental health benefits of physical exercise due to their qualities. According to Table 4 of the study's findings, the MHT scores of the game group before and after the experiment are not only essentially stable, but the content scales of anxiety, loneliness, and fear have also fallen dramatically. Research demonstrates that play-based physical activity can lower college students' stress, loneliness, and fear and is conducive to maintaining and improving college students' mental health. However, the scores of the loneliness tendency scale and physical

symptoms of the subjects in the non-game group increased after the experiment ($p < 0.05$), indicating that the physical activities in the non-game group can not only improve the mental health level of college students but also make them feel not amusing and harm their mental health.

Further statistical examination of the high-score and low-score populations revealed no significant difference between the indicators of the game group and the non-game groups before and after the experiment for the MHT low-score population with good health levels. Research demonstrates that competitive sports can contribute to sustaining mental wellness (Northcott et al., 2021). However, the MHT high-scoring individuals with poor mental health levels in the non-game group continued to increase their physical symptom scores after the trial, indicating that college students found pure and uninteresting sports activities quite painful. Those with high scores and poor mental health gain the most from game sports activities. After the experiment, their anxiety ($p < 0.01$), loneliness ($p < 0.01$), and phobia ($p < 0.05$) levels were significantly lower than before the experiment. This demonstrates that increased exercise during a game can enable players to participate in group activities, improve their mental health, and enhance their ability to play sports.

The results of this study confirm the conclusion of prior studies that physical activity can lower stress response, regulate emotion, and improve mental health. Sports instruction in the form of games that college students like will boost physical health and vitality and also improve college students' ability to communicate with one another. College students can find happiness beyond the simple and mundane study and life, as well as confirm their worth through exercise, to obtain a sense of ease, fluency, satisfaction, fulfillment, and experience of accomplishment, and boost psychological confidence, demonstrating an overall positive state of mind (Francis, Duke, & Fujita, 2022).

With the rapid expansion of the social economy and the accelerated speed of life, many city dwellers lack enough social contacts. The intensifying socialization process in contemporary society necessitates everyone to cooperate with others as soon as they enter society. The first prerequisite of the United Nations Educational, Scientific, Cultural, and Health Organization for contemporary individuals is the capacity for interpersonal cooperation (Du et al., 2022). Participation in certain team sports is exhibited collectively. Therefore, engaging in physical activity is a cooperative process of close cooperation with others and active participation in the cooperation of others. This multidirectional

interpersonal communication and engagement can satisfy psychological demands for connection and belonging and positively influence attitudes, values, and worldviews. Sports activities are always conducted in a social setting and include constant interaction.

Intercollegiate athletics necessitate constant communication, cooperation, and coordination between students and their classmates. While acquiring and developing sports skills, college students must collaborate to finish a variety of sports, including basketball, volleyball, and football (Jia, 2021). Moreover, such participation would enhance the psychological quality of participants and their adaptation to the modernization of society (Xu et al., 2022). Current research findings indicate that those who persist in sporting activities are better equipped to build deep relationships with others than those who quit in the middle. Sporting events consist of a succession of random actions. When participating in sports, intense and stressful confrontations induce specific psychological pressures. It demands that players muster higher willpower, overcome the contradiction between their physiology, psychology, sporting events, and environment, perform the assigned tasks, and attain unification. Their will has matured and improved invisibly throughout this process (Lee et al., 2021).

There is a close relationship between leisure sports and economic development, and economic growth will necessarily foster the growth of leisure sports. People have more leisure time, greater freedom, and more leisure opportunities due to the advancement of the economy and technology. Leisure sports are humanity's greatest gift, enabling individuals to achieve significant spiritual strength and enhance their quality. There are no age or gender restrictions on recreational sports, which can boost physical and mental health and provide infinite entertainment. The outlook for the development of leisure sports in China and the rest of the world is promising, and they will become the most fashionable lifestyle in the world. Playing sports can alleviate college students' anxiety, loneliness, and fear. Those with high scores and poor mental health gain the most from game sports activities. The results of this study confirm the conclusion of prior studies that physical activity can lower stress response, regulate emotion, and improve mental health. Sports instruction in the form of games that college students like will boost physical health and vitality and also improve college students' ability to communicate with one another. Their anxiety, loneliness, and fear scores were much lower after the experiment. Future research can examine the effect of traditional sports games on the psychology and learning of pupils.

6. Theoretical Implications, Practical Implications, and Future Directions

This research is conceptually significant because its findings are novel. The study is unique in the corpus of knowledge since it extends the literature by demonstrating that a student's mental health and well-being can influence their psychological condition. In addition, this study increased our understanding of how trustworthy sports games affect kids' mental health to improve their psychology. The findings relating to the linguistic cue and its effect on athletic activity are novel to this study. This research will significantly enhance the body of knowledge by expanding the existing literature, which will be utilized in future investigations.

This study has important and dependable practical ramifications. The research revealed that by establishing specific teaching objectives, developing innovative teaching models, optimizing teaching content, and generating engaging and professional teaching content,

teachers may enhance the teaching effect and improve the physical quality of college students. Similarly, our study has demonstrated that different types of games must be handled to enhance the development of college students' attitudes toward physical exercise. According to these results, student performance can be improved over time. Teachers and parents are obligated to enhance their pupils' mental health.

The study contributes novel and noteworthy findings to the body of knowledge. These findings can serve as a guide for future research. However, there are some recommendations for future work by the researchers. Students must assess the moderating effect of parental support on the relationship between sports game participation and students' psychological state. So, the researcher must collect data from a different region to validate this study's conclusions. This study collects data from students' perspectives, and it would be prudent for future research to collect data from the teachers' view on the sports games, linguistic prompts, and students' psychological state.

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