Study on the Application of Behavior Change Techniques Classification

Junchi Liu[1],*

[1]*Jilin Institute of Chemical Technology, Jilin, Jilin, China*
*Corresponding author

Abstract: With the enrichment of behavior intervention theories, behavior change techniques have rapidly developed in recent years and have been widely applied in psychological interventions such as group counseling, individual counseling, and teaching practices for subject teachers and class advisers. Based on this foundation, the necessity of coding and classifying behavior change techniques has become increasingly prominent. This paper aims to organize and summarize a large number of existing behavior change techniques, intending to make the classification of these techniques logically scientific and provide intervention practitioners with a directional technical selection tool.

1. Introduction

Behavior change techniques classification is a scientific method of classifying different techniques for behavior change according to applicability criteria, adding new research content to psychological practice applications. Behavior change techniques refer to various principles and methods for reducing and eliminating negative individual behaviors and shaping and enhancing positive individual behaviors. As interventions for behavior change are usually complex and involve many interacting techniques, Kok, Gottlieb, Peters, and others categorized behavior change techniques into applicable categories in 2016, developing a systematic coding classification method. This classification, combining behavior change techniques with Intervention Mapping (IM) theory, was published in the highly influential "Health Psychology Review". Researchers abroad have explored this classification in various directions, such as empirical research, meta-analysis, and systematic reviews, and it has been cited over 310 times. In domestic research, Ye Sunyue analyzed the three most commonly used behavior change techniques in fitness apps. Zhang Qiuxiang summarized the practical value of behavior change techniques in recent years' applications. You Aolin summarized the application progress of behavior change techniques in the field of medical nursing, while other related progress is relatively limited. Combining the current situation of domestic psychological and behavioral application research, this paper consolidates and organizes the existing behavior change techniques into a comprehensive classification system.

2. Behavior Change Techniques Classification

Based on the current situation of psychological behavior application research in China, 87 kinds of behavior change technology under 14 kinds of classification are merged into 9 categories.

2.1. Basic Methods at the Individual Level

Behavior Change Technology Taxonomy is a scientific approach to categorize different behavior change techniques based on applicability criteria, which has provided new research content for the application of psychology in practice. Behavior change techniques encompass various principles and methods aimed at reducing and eliminating undesirable behaviors and promoting positive behaviors in individuals. Given that interventions for behavior change are often complex and involve multiple interacting techniques, Kok, Gottlieb, Peters, and others developed a systematic coding taxonomy in 2016 to classify behavior change techniques into applicable categories [1]. This taxonomy, which combines behavior change techniques with the Intervention Mapping (IM) theory, was published in the influential journal "Health Psychology Review." Researchers abroad have conducted empirical studies, meta-analyses, and systematic reviews on this taxonomy, resulting in over 310 citations. In the domestic setting, scholar Ye Sunyue analyzed the three most commonly used behavior change techniques in fitness apps [2]; Zhang Qiuxiang reviewed the practical value of behavior change techniques in recent years [3]; Yuolin summarized the application progress of behavior change techniques in the field of medical nursing [4], while there are few other relevant advancements. In this article, considering the current status of domestic research on applied psychology, we consolidate and organize the 87 techniques from the 14 categories of behavior change techniques into nine major categories, namely:

Individual change methods refer to behavior change techniques that are tailored around individuals. These techniques prioritize the characteristics of the target intervention recipients and incorporate their needs into the intervention plan. The following introduces two common individual change techniques:

"Persuasion of beliefs" technique is based on the theory of planned behavior, which examines the positive and negative beliefs underlying the behavioral attitude, subjective norms, and perceived behavior control at three levels of each intervention participant. Taking smoking intervention research as an example, the intervention first explores the personal beliefs behind smoking behavior using techniques such as Socratic questioning, such as the belief that smoking is "cool" held by smokers. Then, the interventionist uses techniques such as debating unrealistic beliefs and cognitive homework to encourage smokers to choose new beliefs. Finally, they encourage acceptance of effective positive beliefs to influence smoking cessation behavior.

"Tailoring" technique follows the approach of the "transtheoretical model" and customizes different intervention strategies for the stages of behavior change. The transtheoretical model emphasizes the five processes of behavior change stages: precontemplation, contemplation, preparation, action, and maintenance. A change in behavior involves a cyclic process of progressing, regressing, or maintaining from one stage to another, and changes between stages are influenced by the ratio of pros and cons of the problem behavior. Therefore, based on the idea of personalized behavior change techniques, the researchers first identify the level of behavior change stages in each intervention participant and provide personalized interventions that can influence the factors related to the pros and cons of the problem behavior in their respective stages. Taking medication adherence intervention for hypertensive patients as an example, first, the intervention assesses their stage of behavior change through a series of questions to prepare for further personalized behavior interventions. Then, the interventionist identifies factors influencing the patient's medication adherence, such as knowledge about the related diseases, side effects of medication, family support,

self-efficacy, and forgetting to take medication. Finally, combining the personal characteristics of the participants and the factors influencing medication adherence, tailored personalized intervention measures are implemented (Figure 1).
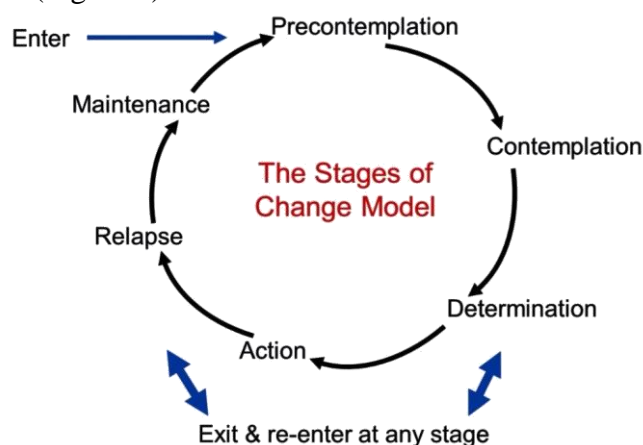

Figure 1: Apply transtheoretical model to tailoring techniques.

In addition to the aforementioned two techniques, individual-level interventions also include "participation techniques," "persuasive communication techniques," "experiential learning techniques," "personalized techniques," "feedback techniques," "reinforcement techniques," "punishment techniques," "motivational interviewing techniques," and "facilitation techniques."

2.2. Methods to Increase Knowledge

Growth knowledge techniques aim to help students effectively master the learning content in subject classrooms or assist group counselors in better understanding relevant knowledge for intervention purposes. Here are two growth knowledge techniques:

The "chunking" technique, which has been studied for nearly 50 years, has been shown to play an important role in the perceptual, learning, and cognitive processes of humans and animals [5]. Researchers distinguish between two forms of chunks: deliberate, goal-directed chunks under strategic control, and automatic, associative, and perception-related perceptual chunks. Goal-directed chunks are more easily processed by learners than perception-related chunks. The implementation of goal-directed chunks includes techniques such as stringing initial strings, assigning additional meaning, and establishing retrieval clues. In various subject classroom teaching scenarios, interveners guide students to use goal-directed chunking techniques to efficiently connect isolated units of knowledge into cohesive learning units.

The "prior organization strategy" technique allows students to effectively connect previously learned knowledge with the learning of new knowledge, thus promoting knowledge transfer efficiently. Kools et al. conducted intervention research on graphic prior organization [6]. Participants were first arranged to learn from a lengthy educational manual on asthma-related knowledge and were divided into control and experimental groups. The control group read the manual normally, while the experimental group had randomly added graphic organizers to their learning materials. It was found that the participants in the experimental group with added organizers completed the reading tasks faster and had a better understanding. For lengthy learning materials, the role of graphic organizers is mainly to represent the logical relationships between concepts within the material and illustrate the structure of parts and wholes. In group counseling activities and classroom teaching, graphic prior organizers can be used to alleviate the negative impact of extensive learning materials on learners.

In addition to the aforementioned techniques, growth knowledge techniques also include "discussion techniques," "application of visual techniques," "elaboration techniques," and "preparation cue techniques."

2.3. Methods to Change Awareness and Risk Perception

Changing perceptions and risk perception methods revolve around factors such as the harm and consequences of behavior, to create awareness among participants, enhance their understanding of behavioral risks, and activate behavioral changes. Below, three risk perception techniques will be introduced as examples.

"The growth awareness technique" refers to researchers providing members with theoretical knowledge related to interventions. The selection of knowledge content is based on the Health Belief Model (HBM). For example, in the case of interventions to improve disease prevention among vulnerable populations, factors such as disease severity, individual susceptibility, peer pressure, and behavioral benefits are taken into account. On one hand, this technique aims to increase patients' accurate understanding of the harm caused by the disease, and on the other hand, it promotes the effectiveness of proactive actions. The goal is to enhance individual awareness to prevent diseases.

"The scenario risk information technique" helps visitors simulate future accident or loss scenarios. Risk assessment is not only based on statistical data provided by the scenario but also on individuals' predictions about the risk information. Research shows that digital interventions, such as websites, short videos, and computer games, can present risk-related information more intuitively. In the vaccination intervention study for pregnant women conducted by Parsons et al. (2021) [7], a dedicated animation of four minutes was created. The animation informed pregnant women about the consequences of contracting the flu, the protective efficacy of vaccination, and effectively promoted the vaccination behavior among pregnant women.

"The self-reassessment technique" refers to individuals constantly evaluating their cognition and attitudes to maintain challenging health behaviors, such as smoking cessation. Prochaska et al. (2015) found in their study on relapse in smokers [8] that self-reassessment was a significant difference between relapsers and maintainers. Successful quitters internalize "not smoking" into their identity, continuously deriving positive experiences from it, such as becoming more disciplined, capable, and charismatic. Therefore, in future interventions, guiding individuals to perceive quitting smoking as a way to improve themselves rather than just a behavior can better maintain behavioral changes.

In addition to the above three techniques, additional risk perception techniques include "personalized risk technique," "framing effect technique," "environmental reassessment technique," "fear arousal technique," and "self-affirmation technique."

2.4. Methods to Change Habitual, Automatic and Impulsive Behaviors

The habit change approach aims to help people combat ingrained habits that are difficult to change. Two techniques for habit change are discussed as examples: the "cue change technique" based on Wood & Neal's (2007) "habits-goals interface" theory model(Figure 2), which aims to change the cues in the background features associated with undesirable behaviors [9]. When it comes to interventions related to habit change, researchers often design intervention plans based on the assumption of the S-R model (Conditioned stimulus—Conditioned response). According to this model, habits are gradually formed by associating responses with background features, and once habits are formed, perceived background cues can trigger the associated responses without the need for goal mediation. In designing intervention plans for improving habits related to sleep routines, focusing on the automatic triggers of old habits in the background can facilitate the formation of new behavioral habits. For example, in Gardner's (2021) study on weight loss intervention, it was found

that it is easy to develop new habits like eating healthy fruits and vegetables, but the old habit of eating fried food can still be unintentionally triggered in certain backgrounds. For instance, under the background condition of "eating fried snacks while watching TV," the intervention involved replacing the existing fried snacks on the coffee table with dried fruits, effectively changing the triggering cues of the old habit.
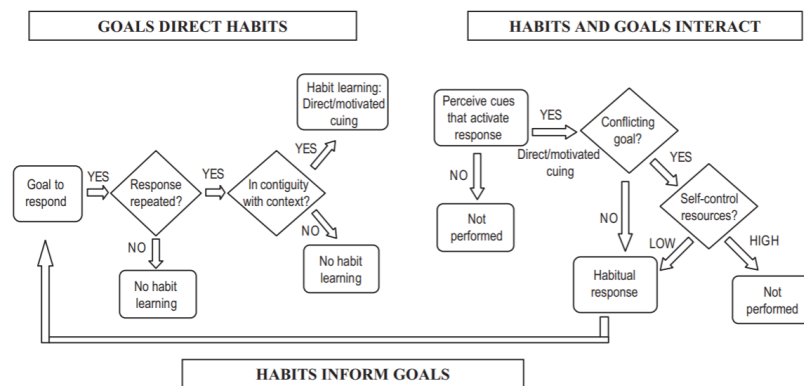

Figure 2: Goal-habit interaction model (cited in Wood & Neal, 2007, P. 850).

The "implementation intention technique" is based on the implementation intention method, which promotes the pursuit of individual goals. It involves pre-setting an "if-then" plan (making if-then plans), which means that when encountering a triggering condition, one will take appropriate actions, treating the plan as a part of daily life to easily accomplish tasks. Research by Gai Xiaosong and Wang Guoxia [11] found that establishing implementation intentions can better help adolescents increase their extracurricular reading behavior. For example, a plan such as "If my friends invite me to play games on the weekend, then I will get up and spend 1 hour reading books" is used to avoid being distracted by friends' game invitations or watching TV. This allows the behavior to be automated without the need for willpower control. In long-term interventions for behavior habits, setting implementation intentions allows individuals to expend less effort and cognitive resources, making it easier to maintain behavior changes.

In addition to the aforementioned two techniques, the habit change approach also includes "removing conditioned effects technique," "counteracting conditioned effects technique," "planned coping technique," "early commitment technique," "public commitment technique," and "training executive function technique."

2.5. Methods to Change Attitudes, Beliefs, and Outcome Expectations

Attitude is a stable psychological inclination towards other people and things, which affects our emotional responses and behavioral tendencies. The intervention process often involves the need to change members' attitudes. Here are three attitude change techniques:

The "repeated exposure technique" involves repeatedly presenting a stimulus to an individual to form a simple unconscious preference. Zajonc (2001) [12] views this as a classic conditioning process without aversive consequences and believes that this technique can effectively shape specific behavioral tendencies. However, three considerations regarding the mere exposure effect need to be mentioned:

1) The initial attitude must be neutral. Exposure cannot generate its effect if someone is initially disgusted by something.

2) If there is already conflict between two individuals, increased exposure to each other will amplify the conflict.

3) Excessive exposure can lead to annoyance.

The repeated exposure technique is widely applied in daily life, such as the promotional slogan for urban traffic etiquette, "Every time you obey traffic rules, you cherish life," and TV commercials that are repeated endlessly. These techniques unconsciously shape the preferences of user groups and consequently influence potential behaviors.

The "cultural identity technique" persuades individuals to change their attitudes by focusing on the characteristics of the cultural circle in which they live during the presentation of attitude-changing information. Attitude interventions often face the challenge of insufficient trust from participants, making it difficult for them to accept new attitudes. Kreuter & McClure [13] found in their research that African American women only identified with speeches delivered by African American women, rather than by other white men or women. In addition to the information source, cultural identity techniques rely on the information itself and the information channel as the main carriers.

The "negative consequence expectancy technique" involves assisting individuals in recognizing the regretful emotions related to behavior consequences before engaging in negative behavior. Van der Pligt et al. [14] discovered in their research on interventions in safe behavior that the key element for behavior change is whether the individual can anticipate negative outcomes before engaging in the behavior. In other words, this type of intervention requires the individual not only to possess an attitude of acceptance towards safe behavior but also to be guided to anticipate the regretful outcomes that unsafe behavior can cause. Guidance can be provided through scenario simulations, suggestive cues, and setting implementation intentions.

In addition to the aforementioned three techniques, attitude change methods also include the "classical conditioning technique" that associates attitudes with positive events, the "perspective transformation technique" that increases understanding of stereotype groups, the "argumentation technique" that combines central and peripheral routes of persuasion, and the "experiential learning technique" that analyzes and explains members' past life experiences.

2.6. Methods to Change Skills, Capability, and Self-Efficacy and to Overcome Barriers

Skill training and the cultivation of a certain ability are the goals that most group counseling aims to achieve. Here, two techniques for improving abilities will be introduced as examples: "goal-setting technique" focuses on behavioral change goals. According to a recent study published by Ryan Elmore's team from the University of Denver [15], under the same objective conditions such as the venue, lowering the golf score standard from 5 strokes to 4 strokes, which means one less chance to hit the ball into the hole, can help professional players perform better in tournaments. When we change the goal from "finishing the game" to "hitting the ball harder", the scores improve, indicating that higher goals lead to better performance. In addition to being challenging, behavior intervention goals should also be presented in a clear and specific manner. Furthermore, immediate feedback is provided during the process of individual goal achievement.

The "graded task setting technique" simplifies the ultimate behavioral change goal into progressively more difficult sub-behaviors by setting a series of tasks that gradually increase in difficulty. Most behavior training interventions follow the principle of taking small steps, but the graded task setting technique emphasizes the achievability between the levels. Taking physical exercise interventions for students as an example, the method of improving athletic ability is to have male students do one more push-up each day compared to the previous day. The sub-tasks that make up the overall goal are closely interconnected, creating a step-by-step approach to behavior change.

In addition to the above-mentioned techniques, methods for improving abilities also include the conventional coaching technique of "directive practice," the technique of providing challenging tasks for active mastery experiences, the technique of stimulating self-efficacy through verbal persuasion,

the technique of guiding members to perceive their physical and emotional states, the technique of promoting members to learn through correct and positive attributions, the technique of linking correct actions with immediate rewards using the "contingent reward technique," the technique of changing cues to protect members from impulsive temptations, and the technique of promoting self-monitoring for members to recognize their progress.

2.7. Methods to Reduce Public Stigma

The methods of reducing public stigma aim to eliminate biases and discrimination between individuals and groups, as well as between different groups. The following two techniques are used as examples to illustrate the methods of reducing public stigma:

The "Stereotype-Inconsistent Information" technique challenges stereotypes by providing multiple positive examples from biased groups. However, caution must be exercised when using this technique in interventions, as individual positive examples alone do not lead to a change in bias. Bos et al. found that when people encounter an inconsistent member within a biased group, they tend to view them as a "subtype" within the overall stereotype, rather than challenging the entire stereotype. It is only when a greater number of different inconsistent members appear that people begin to question and improve their stereotypes. For example, when addressing stereotypes of a specific group in individual or group counseling, it is necessary to present not only positive examples like Martin Luther King Jr., but also include numerous positive figures like Kobe Bryant.

These techniques work towards reducing public stigma by challenging stereotypes and promoting a more nuanced understanding of stigmatized individuals or groups.

"Empathy training techniques" allow individuals to imagine how they would feel if they were on the receiving end of prejudice. For example, having healthy children wear blindfolds to experience a day in the life of a visually impaired child can help them empathize with the discriminated group and reduce prejudice. Batson (2002) conducted empathy training by guiding participants to watch drug addicts' self-narratives and found positive outcomes. A crucial point to consider in practical applications of interventions is to guide the discriminators towards empathy instead of sympathy. Empathizing with the experiences of the stigmatized group can lead to understanding, acceptance, and support, whereas sympathy based on one's own perspective can result in pity and distress. Therefore, individual guidance is essential in empathy training interventions, as it directly enhances the effectiveness of stigma reduction.

In addition to the aforementioned two techniques, methods for reducing public stigma also include "interpersonal communication techniques" that promote intergroup contact, "cooperative learning techniques" that foster collaborative work, "conscious regulation techniques for reducing impulsive biases," and "techniques for reducing inequalities in social class, race, and gender" at a broader societal level.

2.8. Methods to Utilizing Social Influence

Categories 8, 9, and 10 of behavior change techniques belong to methods that utilize social influence to intervene from an individual's social perspective. This includes the "behavior change through social influence method" that starts from individual social forces, the "behavior change through social norms method" that improves the social atmosphere of an individual's environment, and the "behavior change through social support and social network method" that takes an individual's social interactions into account.

The methods to change individual behavior through social influence encompass influencing individual behavior through social factors. Representative techniques, such as "providing social comparison opportunities," improve an individual's mindset and abilities through upward or

downward observation of others. Suls mentioned that different directions of social comparison have specific effects and can promote behavior change. For individuals facing misfortune or threats, downward social comparison enhances self-efficacy and subjective well-being, fostering a positive mindset and the acceptance of treatment changes. For individuals seeking self-improvement or personal development, upward social comparison can establish goals better, bridge the psychological distance between individuals and role models, and stimulate self-improvement motivation. For example, freshmen attending study sharing sessions given by outstanding senior students. Other techniques include "social support techniques," "resisting group pressure techniques," "shifting the focus techniques," and "mobilizing social support techniques."

Methods to Change Social Norms involve influencing individual behavior by the norms in their immediate environment. The "Entertainment Education technique" uses pro-social messages embedded in entertainment media to create social norms that can influence specific behaviors. For example, the famous American children's TV show "Sesame Street" often conveys healthy and positive social norms through entertaining theatrical stories. The Elaboration Likelihood Model (ELM) can explain the mechanism behind this: individuals are attracted to narrative stories in entertainment education, which reduces counter-arguing against the persuasive educational messages within. Other techniques include "Mass Media-Role Modeling technique," "Behavioral Journalism technique," and "Mobilizing Social Network technique."
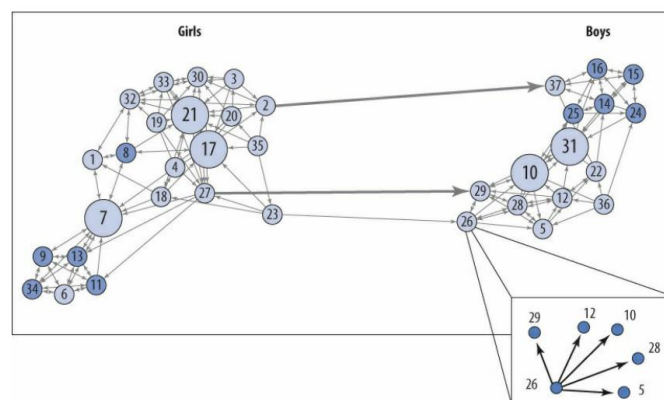

Figure 3: The bridge builder in social network theory.

Methods to Change Social Support and Social Networks intervene in behavior by focusing on an individual's social interactions. The "Development of New Social Network Linking technique" disrupts existing behavioral connections in social networks by introducing new members. Social network theory suggests that it might be difficult to bring about change when a high proportion of social network members are very similar to each other. For example, in Valente's (2007) study, a social network diagram depicting smoking behavior among classmates showed deep blue nodes representing smokers and light blue nodes representing non-smokers(Figure 3). The study found that it would be challenging to quit smoking when smokers are embedded in a deep blue network of fellow smokers. Therefore, when intervening in an individual's smoking behavior, it is important to first understand their social network, identify bridge individuals (light blue individuals within the deep blue social network) who can promote smoking cessation behavior, and introduce a significant number of non-smoking new members into the smoker's network to facilitate smoking cessation behavior. Other techniques include "Enhancing Inter-Network Connections technique" and "Peer Education technique."

2.9. Methods for Changing the External Environment

Methods for behavioral change in the 11th to 14th categories are all interventions from a macro-environmental perspective beyond the individual level, which belong to the category of changing the external environment. These methods include "changing behavior through changes in individual environmental conditions", "changing behavior through changes in individual organizational characteristics", "changing behavior through changes in individual community problems", and "changing behavior through changes in policies that individuals are subjected to in order to advance policy reform agendas."

The "Basic Methods for Change of Environmental Conditions" target behavioral change by intervening in external factors. Brownfenbrenner's ecological systems theory suggests that people are influenced by the ecological environment at all levels. "Participatory problem-solving techniques" allow the intervention subjects to be directly involved in the behavior change process and have high influence in target setting, problem diagnosis, and solution generation. For example, allowing primary school students to suggest classroom management improvements to their teachers; reporting curriculum expectations to school leaders; and writing letters to mayors with ideas for city improvement. Other techniques for changing environmental conditions include "system change techniques," "coercive techniques," "propaganda and lobbying techniques," and "technical assistance techniques."

"Methods to Change Organizations" focus on changing an organization's structure and nature to influence individual behavior. "Team building and interpersonal relationship training techniques" provide team-building training before each team action to achieve the group style required by the team organization, during which individual behavior change interventions can be carried out. For example, psychologist Marc Brackett's "Ruler" emotional intelligence course for children changes the atmosphere of the classroom before each class. By creating a contextual atmosphere through a series of team-building activities, the optimal results can be achieved by demonstrating the use of emotional intelligence under different teaching scenarios. Other techniques for changing organizations include "sensory transformation techniques," "organization diagnosis and feedback techniques," "structure redesign techniques," and "increasing stakeholder influence techniques."

Methods to Change Communities influence behavior from both individual and collective perspectives. The "Problem-posing Education Technology" encourages individuals to identify and address the current issues within their communities, leading to behavior change in the process of problem-solving. The application of Empowerment Theory empowers every resident in the community by giving them opportunities and mobilizing them to become volunteers. Through this problem-solving process, individuals are supported with educational enlightenment, resulting in changes in their own behavior while the community develops. Other techniques for changing communities include "Community Assessment Technology," "Community Development Technology," "Social Movement Technology," "Alliance Building Technology," "Social Planning Technology," and "Perspective Transformation Technology."

3. Conclusion

The classification of behavior change techniques establishes a comprehensive framework and provides a systematic and practical tool for psychology. These techniques are categorized based on their logical architecture, allowing for a detailed differentiation and empirical application of each technique. Various fields of psychology have their own development directions for the application of these techniques. In group psychological counseling, they can be used as a source for designing new group counseling programs. In school educational practices, they can supplement methods for nurturing students' physical and mental development. In individual psychological counseling, they

serve as tools and skills to guide visitors towards taking positive actions. In corporate human resources training, they provide technical guidance for improving group and individual relationships. It is important to note that psychological intervention practices should not be limited to the use of a single technique. Combining and applying multiple behavior change techniques in various situations is the future direction of development.

As a hot research technology, moving target tracking technology has been widely used in various fields. With the help of low cost, low power consumption, self-organization and high error tolerance of wireless sensor networks, moving target tracking based on wireless sensor networks also has broad application prospects.

References

[1] Kok, G., Gottlieb, N. H., Peters, G. J., Mullen, P. D., Parcel, G. S., Ruiter, R. A., Fernández, M. E., Markham, C., & Bartholomew, L. K. (2016). A taxonomy of behaviour change methods: an Intervention Mapping approach. Health psychology review, 10(3), 297–312. https://doi.org/10.1080/17437199.2015.1077155

[2] Ye Sunyue. The effectiveness of smartphone physical activity-related applications and their behavior change technologies [J]. Chinese Journal of Health Management, 2019(02):161-164.

[3] Zhang Qiuxiang, Duan Yinglong, Ma Guiyue, Ding Siqing, ZHONG Zhuqing. Application of intervention mapping in health promotion [J]. Journal of Nursing Science,2020,35(11):109-112.

[4] Wilkin, H. a, Valente, T. W., Murphy, S., Cody, M. J., Huang, G., & Beck, V. (2007). Does entertainment-education work with Latinos in the United States? Identification and the effects of a telenovela breast cancer storyline. Journal of Health Communication, 12(5), 455–469. doi:10.1080/10810730701438690

[5] Gobet, F., Lane, P. C. R., Croker, S., Cheng, P. C.-H., Jones, G., Oliver, I., & Pine, J. M. (2001). Chunking mechanisms in human learning. Trends in Cognitive Sciences, 6613(June), 236–243. doi:10.1016/S1364-6613(00)01662-4

[6] Suls, J., Martin, R., & Wheeler, L. (2002). Social Comparison: Why, With Whom, and With What Effect? Current Directions in Psychological Science. doi:10.1111/1467-8721.00191

[7] Parsons, J. E., Newby, K. V., French, D. P., Bailey, E., & Inglis, N. (2021). The development of a digital intervention to increase influenza vaccination amongst pregnant women. DIGITAL HEALTH. https://doi.org/10. 1177/ 20552076211012128

[8] Prochaska, J. O., Redding, C. A., & Evers, K. E. (2015). The Transtheoretical Model and stages of change. In K. Glanz, B. K. Rimer, & K. Viswanath (Eds.), Health behavior: Theory, research, and practice (pp. 125-148). San Francisco: Jossey-Bass.

[9] Wood, W., & Neal, D. T. (2007). A new look at habits and the habit-goal interface. Psychological Review, 114(4), 843–863. doi:10.1037/0033-295X.114.4.843

[10] Batson, C. D., Chang, J., Orr, R., & Rowland, J. (2002). Empathy, Attitudes, and Action: Can Feeling for a Member of a Stigmatized Group Motivate One to Help the Group? Personality and Social Psychology Bulletin. doi: 10.1177/014616702237647

[11] Bos, A. E. R., Schaalma, H. P., & Pryor, J. B. (2008). Reducing AIDS-related stigma in developing countries: the importance of theory- and evidence-based interventions. Psychology, Health & Medicine, 13(4), 450–460. doi:10.1080/13548500701687171

[12] Zajonc, R. B. (2001). Mere Exposure: A Gateway to the Subliminal. Current Directions in Psychological Science. doi:10.1111/1467-8721.00154

[13] Kreuter, M. W., & McClure, S. M. (2004). The role of culture in health communication. Annual Review of Public Health, 25, 439–455. doi:10.1146/annurev.publhealth.25.101802.123000

[14] Richard, R., van der Pligt, J., & de Vries, N. (1995). Anticipated affective reactions and prevention of AIDS. The British Journal of Social Psychology / the British Psychological Society, 34 (Pt 1), 9–21. doi:10.1111/j.2044-8309.1995.tb01045.x

[15] Elmore R, Urbaczewski A. Loss Aversion in Professional Golf. Journal of Sports Economics. 2021;22(2):202-217. doi:10.1177/1527002520967403