

The interactive relationship between implicit cognition and goal pursuit

Fuyuan Qin^{1,*}

¹Melbourne Graduate School of Education, University of Melbourne, Melbourne, 3000, Australia

Abstract. The traditional view of goal is that goals are set and pursued in a deliberate and controlled way, yet in the last two decades, researchers have focused on the implicit cognitive process involved in personal goal pursuit. This article presents contemporary work on this topic and shows a holistic picture of the relationship between implicit cognition and goal pursuit. Research shows that implicit cognition plays a critical role in the process of goal pursuit including the initial activation, the action during, and the eventual outcome. The manner in which implicit cognition influences goal pursuit is interactive and creates either a positive or negative feedback loop. Factors include the implicit need of achievements, implicit evaluation of goal-relevant experience and implicit thoughts promoted by the goal all contribute to the feedback loop. Certain components of implicit cognition are also predictive of goal attainment, such as the implicit importance of means towards achievement. The enriched existing data and findings on the topic offer valuable insights and lay a solid foundation for future research.

1 Introduction

1.1 Background

Research in implicit cognition psychology shows that behaviors can operate according to stimuli and processes individuals are unable to recognize. Over the last twenty years, researchers have extended the topic of implicit cognition and looked at a wide range of psychological phenomena from this perspective, especially motivations. Contrary to the traditional view that motivation in individuals' goal pursuit is inherently intentional, many recent works address the implicit parts of goal pursuit. Research on the relationship between implicit cognition and goal takes two pathways. One is to view unconscious processes as motives to establish and pursue a goal. For example, college students may make decisions regarding future career plans but find it difficult to articulate specific reasons behind these decisions. This part can be traced back to as early as Freud's theory of psychoanalysis that personality was made up of id, ego, and superego. Although distinct from the contemporary notion of implicit cognition, the work of Freud lays a critical foundation for this topic [1]. The other pathway of research focuses on how goals influence cognition in a non-conscious way. A goal might be set consciously in the first place, but it would shape cognition and guide sequential behaviors without individuals realizing it. For example, when a college student who sets a goal to improve academic grades sees someone successful, he or she might unconsciously magnify how college grades help that person. Integrating the two pathways of

empirical works, the following sections aim to present a holistic view of the interactive relationship between implicit thoughts and goal pursuit.

1.2 Definitions of the core constructs

It is necessary to define the terminology before unfolding further discussion. The first terminology is the goal. The author adopts the well-founded definition from Austin and Vancouver that goals are defined as the mental representation of the desired state which motivates an individual to behave towards the attainment [2]. Moreover, literature has distinguished the end state of the goal and the means to achieve the goal [3]. The end-states are usually understood as rewards one receives through goal pursuit, which motivates individuals to set the goal in the first place. The means refers to what one needs to do to get the rewards, which can often be unpleasant, or even painful. The second terminology is implicit, according to Greenwald & Banaji, the memory of one's experience can influence performance even if the influential part is unable to be identified through self-report or introspection, so the memory is "implicit". Thus, what is implicit is unaware to the perceivers yet impacts the perceivers' behaviors in certain ways [4].

2 Implicit cognition guides goal pursuits

Bender and colleagues conducted an online diary study to investigate the relationship between needs of achievement and goal pursuit, where participants were instructed to document their autobiographical narratives

* Corresponding author: 0923139@zju.edu.cn

on the research topic [5]. Researchers recruited participants from an undergraduate introductory psychology class at Barnard College, USA. The daily diary was a course requirement for the students. There were 175 participants recruited and 141 participants remained throughout the study. A total of seven measures were taken throughout the study: implicit achievement motive, explicit motive personal goals, daily goal progress, daily goal attainability, and daily open-ended memory task.

In this study, the daily diary nature makes it possible to examine the interactive relationship of explicit and implicit motives, goal pursuit, and autobiographical memory processes at the individual level. Especially, it presents a vivid picture of how day-to-day changes in participants' goal pursuit and helps researchers to identify the individual differences in the function of implicit and explicit motives in the notion of autobiographical memory. For results, Bender and colleagues first found that implicit needs for achievements were linked with an increased use of agentic words and a decreased use of communal words in autobiographical diary entries [5]. Secondly, they suggest that individuals who are not motivated for implicit achievement would shift their focus from agentic themes to communal topics in the diary in favorable goal-pursuit conditions. On the contrary, individuals who are motivated by implicit achievement tend to maintain their priorities in goal pursuit when the goal pursuit conditions are favorable. In other words, people who are high in implicit motives may show less positive affect in autobiographical diary entries as they still engage in goal pursuit. Finally, Bender and colleagues addressed the limitations of the study, such as the design of the study research design did not allow for conclusive testing of the causal relationships under investigation, and the findings may be distorted as participants become aware of the behaviors observed in this daily diary study [5].

Another research by Critcher and Ferguson found that the implicit importance of the goal itself and the means to achieve the goal impacts individuals' goal pursuit and is predictive of goal attainment [6]. The research took place at the University of California, Berkeley, and the two goals set for participants were either to get a high GPA in the school setting or to engage in exercise frequently. Seven studies and a pilot study were included, of which Studies 1-4 and 7 are relevant to the goal of a high GPA, and Study 6 is relevant to the goal of frequent exercise. More specifically, Study 1 examined how individuals' implicit importance regarding the means of goal pursuit impacts effective self-regulation. Study 2 is an extension of Study 1 that measures the self-regulatory effect more directly and compares the strength of explicit and implicit importance in predicting goal-relevant behaviors, particularly if the implicit importance of individual academic tasks in college is predictive of the GPAs. Study 3a and 3b build on the previous findings to identify the group that the implicit importance helps the most as a motivator to goal pursuit, and further test the validity of previous studies. In Study 4, the researchers looked into implicit importance's characteristics as a part of an individual's motivational system, especially how it

responds to setbacks and success in the process of goal pursuit. Study 5 extends the investigations in many ways, such as further supporting the argument that implicit importance predicts success prospectively instead of retrospectively. Building on the previous studies, Study 6 shifts from academic success to exercise. Finally, Study 7 tests whether implicit importance combined with implicit evaluation encourages self-regulation in goal pursuit. Critcher and Ferguson unfold notable relations between the implicit importance of the end-state and the implicit importance of the means. More specifically implicit importance toward means is found to be a mediator of the correlation between the implicit positivity of end-states and the behavioral outcomes of effective self-regulation during goal pursuit [6].

While it is notable that implicit cognition plays essential roles in activation and persistence in goal-pursuit, Henk and colleagues' work shows how it is associated with the cessation of goal-pursuit. Earlier research shows that people are likely to cease goal pursuit when there are cues of events eliciting negative affect [7]. Building on these empirical works, Custer and Holland hypothesize that preexisting personal goals and negative affect coactivate to undermine motivation without reaching people's conscious awareness. To test the hypothesis, they have all the participants exposed to the same stimuli that triggered negative affect, and incorporated strategies to test the effects of goal priming and the cessation of the goal by comparing the control and the experimental group. There are a total of five studies conducted on undergraduate students in Holland, and the number of participants varies from around fifty to over two hundred. Study 1 tests whether the priming of the goal leads to sustained accessibility of the mental representation of the goal. Study 2 tests whether declined goal priming would lead to inhibition of the goal. As the results of Study 1 and 2 are both consistent with the hypothesis, Study 3 further investigates whether participants primed with a certain goal show behavioral effort to enhance the opportunity of the goal but cease the effort when the goal is co-activated with negative affect. Study 4 is a replication of Study 3 to rule out the possibility that the co-activation of the preexisting goals and the negative words directly impair goal pursuit. Study 5 is designed to test if the desire for the goal will reduce when the goal is primed to be proximate to the activation of negative affect temporally. Altogether, the five studies show that goal-oriented behaviors may cease if goals and negative affect co-activate unconsciously. However, the researchers discussed a few limitations of the studies, such as it remains unclear whether the participants are totally not aware of reduced goal desire and the ceased goal pursuit, as for the purpose of the research, participants in Study 5 were somehow "forced" to access their awareness to answers goal-related questions explicitly. Further research could study the conditions when people are rendered to be aware of goals, and how it moderates implicit goal pursuit.

3 Goal pursuit influences implicit cognition

Bos and colleagues' work shed light on the association between implicit cognition and goal pursuit from a different perspective than the above literature [8]. On the basis of existing empirical works that demonstrate unconscious thoughts can improve the quality of decision-making, Bos and colleagues want to find out if such unconscious thoughts are goal-dependent [9]. In other words, after encoding information, do people almost always engage in unconscious processes, or do these unconscious processes only take place when there is a relevant goal? The researchers conducted 4 experiments to test the hypothesis, with participants recruited from the undergraduate level of the University of Amsterdam (Experiment 1a, Experiment 2, Experiment 3) and the University of Nijmegen (Experiment 1b). In Experiments 1a and 1b, participants were asked to make decisions regarding the given information and then to recall details of the given information. The purpose of the design is to compare the performance of conscious and non-conscious thinkers under the condition. In Experiment 2, participants were asked to recall and write down behavioral information of a target person given earlier in two conditions: after distraction or after an unconscious process period. In Experiment 3, researchers gave participants information on two different decision-making problems, and two goals correspondingly. The purpose of this particular experiment was to investigate how specific goals impact the unconscious process. The results of the four experiments are consistent with the hypothesis that unconscious thoughts are highly goal-dependent. With a given goal, individuals would have a purpose to process the encoded information, which elicits unconscious thoughts. Otherwise, unconscious thoughts do not take place. The automatic-processed ideas that depend on the goal may then improve the quality of further decision-making.

Moore and colleagues' work explored how the experience of goal pursuit affects the subsequent implicit attitudes, especially if one would evaluate goal-relevant stimuli more positively without awareness [10]. Earlier work shows that the activation of goals elicits implicit positivity toward the goal, thereby promoting goal pursuit [11]. Moore and colleagues focused on the experience of personal goal instead of the activation because an individual's experience of goal pursuit varies widely, and it is worthwhile to investigate how these experience interacts with goal-driven implicit cognition and influence not only the current but the further process of goal-pursuit. The contention here is that the successful experience relevant to the goal pursued would lead to enhanced implicit positivity towards the goal. Findings like this would explain the mechanism of why individuals repeatedly strive towards ambiguous goals, such as to make more money, despite the accumulated experiences of successful goal attainment. Researchers designed a computer-based experiment with a primed goal, manipulated experience of success and failure, goal-relevant stimuli, and measurements of the automatic evaluation. Fifty-four undergraduate students participated in the study, and the results show that participants who experienced success regarding the goal they primed earlier in the study exhibited more implicit

positivity toward the goal compared with the other conditions. Interestingly, the pattern of the results is somehow in contrast with previous literature that the experience of success might decrease implicit positivity. Such distinction may be explained by the difference in the type of goal and the nature of experience in pursuing such a goal. It would also be valuable to further distinguish the conditions immediately versus a delay after experiencing success and a delay in future research.

Similar to the above study, Spruyt, and Tibboel's work investigates whether the implicit evaluation of stimuli depends upon the extent of goal-relevance to such stimuli [12]. In other words, is the implicit evaluative stimulus that is goal-relevant processed more pronounced compared to stimuli that are goal-irrelevant? 77 students from Ghent University participated in the study. During the study, participants are asked to complete four blocks with each block consisting of 16 goal-induction trials and 40 evaluative priming trials. Using the evaluative prime paradigm, the data demonstrates that an automatic evaluation of stimulus depends on the goal relevance. One possible mechanism behind the phenomenon is that due to the arousing nature of the goal-relevant stimulus, it attracts attention unconsciously.

4 Discussion

The cognitive process behind individuals' goal pursuit is complex interactions between consciousness and non-consciousness. A wide range of implicit cognitive components are addressed in the empirical work above, including implicit need for achievement, implicit attitude, implicit evolution, and implicit coactivation of goals and negative effects. Implicit cognition first motivates the initiation of goal pursuit [5]. Then implicit evaluation of the goal such as its importance would facilitate the persistence of goal pursuit. In certain conditions, implicit motives can be stronger than explicit motives, just as illustrated in the literature that implicit importance better predicts self-regulatory behaviors and success during goal pursuit than explicit importance [6]. On the other hand, the established goal can shape and guide attitudes unconsciously, which then contribute to the outcome of goal pursuit.

The effects of implicit cognition on goal pursuit suggest several prospective directions for future studies. From a functional perspective, exploring effective interventions to regulate implicit motives may facilitate individuals' behavior regulation and goal attainment. Indeed, research shows that by providing information on believability and diagnosticity, it is possible to update and revise an individual's implicit evaluation of a stranger, such findings imply the potential viability of intervening individuals' implicit importance [13]. Yet, the nature of implicit cognition such as it is hard to capture and measure makes it difficult to intervene. Literature also addressed other hindrances in intervening implicit cognition, including lack of long-lasting effect and the irony of making implicit process explicit in certain cases.

Researchers can also further investigate the interactive manner of implicit and explicit motives and their effects on individuals. For example, DeYoung and Tiberius argued that conflicts between an individual's conscious and unconscious values in goal pursuit will not only decrease the likelihood of effective effort toward attainment but also undermine the person's psychological well-being [14]. Based on this argument, the key to resolving such psychological problems and boosting an individual's well-being is to better integrate the implicit and explicit components in personal goal pursuit, yet how to gain integration for such a complex system of goals and remain consistent is still an open question.

Compared to enriched research on the influences of implicit cognition on goals, research in the opposite direction - how goals influence implicit cognition, seems to attract less attention. While there is less empirical work, existing findings on this topic are still indispensable. For example, activation of goals and experience of success in goal-pursuit enhance sequential implicit positivity, then the implicit positivity would play a role in promoting further goal pursuit, which creates a positive feedback loop. However, it seems such a mechanism is not generalized to all conditions of the goal, just as Moore and colleagues mentioned that in some studies, successful experiences can have the opposite effect on goal pursuit, particularly the decreased implicit positivity [10]. Such differences in results are intriguing because they suggest the potential room for further investigation on this issue. There may be overlooked variables that contribute to the distinction in the results. For example, is the goal merely a milestone or the eventual outcome, is it specific or ambiguous, is it set by oneself or given by others? The answers to these questions would help researchers to distinguish types of goals and conduct investigations accordingly. It is also notable that the goal system is highly subjective, the same objective goal could impose completely different implicit influences on individuals. For example, the goal of getting admitted into a top-tier college may be evaluated as an ultimate goal for one person who lacks vision, but a milestone goal for another who has a long-term career development plan. By considering these variables, the picture of goal-relevant implicit cognition will be more complete. Another perspective on the topic is unconscious thoughts that are irrelevant to evaluations elicited by a goal. While it is proven that these thoughts are promoted and shaped by existing goals, there are still critical components missing in the overall mechanism such as how other factors such as knowledge and experience co-activate with goals in guiding unconscious thoughts, which future studies can shed light on.

5 Conclusion

Taken as a whole, the relationship between implicit cognition and goal pursuit is not liners but interactive.

Firstly, implicit motives that are shaped by an individual's experience, memory, and values would influence goal setting and activation. Once goal pursuit is initiated, the existing goal would promote unconscious thoughts and evaluations, which could influence individuals' behaviors during goal pursuit and affect relevant experiences. Such experience would play a role in either facilitating or undermining goal-attainment. For example, a negative experience might trigger a corresponding negative affect, and when it co-activates with the goal, it would lead to the cessation of goal pursuit. Also, certain components of implicit cognition can be more powerful in predicting the outcome of goal-pursue than explicit cognition, such as the implicit association of the importance of the means to achieve the end-state of the goal. These findings offer fresh insights regarding the complexity of the goal and revise the classic view of this topic. However, there are still prevailing questions awaiting answers, such as what effective ways are to intervene in implicit cognition to facilitate goal-pursuit. After all, the process of goal pursuit is effortful and even unpleasant, yet the end-state that awaits to achieve is often of high value, so helping people overcome the process and effectively achieve the end-state would benefit everyone.

References

1. T.Wilson.*Strangers to ourselves: discovering the a daptive unconscious* (Cambridge, MA: Belknap Press/ Harvard University Press, 2002).
2. J. Austin. & J.Vancouver. Psychol Bull.**3**. (1996).
3. A.Kruglanski.,J.Shah.,A. Fishbach., R.Friedman.,W.Chun.&D.Sleeth-Keppler. Adv Exp Soc Psychol. **34**.331–378.(2002).
4. A.Greenwald. &M.Banaji. Psychol Rev. **102**. 4-27.(1995).
5. M. Bender.,B.Woike.,C. T. Burke. & E.A.Dow. J Res Pers.**4**.(2012).
6. C. R. Critcher. & M.J.Ferguson.J Pers Soc Psychol.**6**. (2016).
7. A. Henk., R.Custers. & R. Holland. Pers Soc Psychol. **2**.(2007).
8. M.Bos.,A.Dijksterhuis. & R.Baaren. Exp Soc Psychol. **4**.(2008).
9. A. Dijksterhuis. & L.Nordgren. Perspect Psychol Sci. **1**. 95–109.(2006).
10. S. Moore., M. Ferguson.& T.Chartrand. Cogn Emot.**3**.(2011).
11. M. Ferguson. J Pers Soc Psychol.**92**.596–611.(2007).
12. A.Spruyt., H.Tibboel.,D.Maarten.& D.Houwer. Emotion. **3**.(2018).
13. J.Cone.,K.Flarty., & M.Ferguson. Psychol Sci.**3**. (2021)
14. C.DeYoung. &V.Tiberius.Pers Soc Psychol Rev.**1**.(2022).