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COMMENTARY

From studying the determinants of action to analysing its regulation: a commentary on Sniehotta, Pesseau and Araújo-Soares

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Having finished reading Sniehotta, Pesseau, and Araújo-Soares' (2014) article suggesting to retire the theory of planned behaviour (TPB), one of us could not help but recall a childhood episode. It happened a few weeks after the 14th birthday of a schoolmate. The birthday gift was a new bicycle that was very slick, and it did not take much imagination to conceive it as a potential racing bike. Thinking solely on how to make the bike speedier, the birthday kid ended up changing the tyres, removing the mudguard and getting rid of the luggage rack. With a few further changes the bike became so fast that it helped to break a past speed record. Going to the grandfather's home using a paved country road took only 30 minutes now in comparison to the 45 minutes, which was the record speed for this distance with the old bike. So there was lots of pride of being faster than usual but also about having learned a lot about principles that have to be followed to enhance the speed of a bicycle. However, the story eventually had an unhappy ending. A few weeks later, a peer who admired the race bike asked whether he could lend it for an afternoon. Not being possessive, this request was granted readily by its owner. It was only two hours later though that the bike was returned with a broken tyre and the statement: 'this bike is useless. You might as well through it away!' Even though quite shocked about this negative feedback, the owner of the bike asked what had happened. Well, the borrower of the bike loved the speed of it but then used it for what he enjoyed most about riding bikes: going cross country! And this is where the bike did not live up to its promise; the front wheel broke when he was diving off from the paved road onto a forest track.

The authors of the retiring theories paper might be at risk of acting like the race bike borrower. Parsimonious action theories (such as the TPB) have been developed in basic cognitive, motivation and social psychology labs focusing on better understanding of general principles of action control (e.g., how action control is affected by intentions). Health psychologists have applied these theories to the subject of their primary interest: predicting and changing complex health behaviours. However, such applications often lack the necessary modifications and enrichments required by the health-relevant features of the persons involved (e.g., suffering from chronic illness), the particular issues at hand

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(e.g., eating more healthy food, reducing alcohol consumption) and the respective contexts faced (e.g., being in a hospital, having peers with a drug addiction). The approach that is needed, in our opinion, is to move away from straightforward adoption to more careful adaption of general theories of action so that they better fit the problems studied in health psychology. An impressive example of this approach of moving from adoption to adaption is a recent paper by Jaccard (2012), in which he addresses in detail how the theory of reasoned action (TRA, the precursor of TPB) as well as TPB can be made more suitable to the analysis of health-related action. Among the three suggestions he makes, Jaccard argues for the development of what he calls a split-second TRA/TPB: a theory that can provide perspectives on the split-second decisions people so often have to make when it comes to health-related decisions in real life. Many behaviours of interest to health psychologists are the product of split-second and last-minute decisions. The behaviour of getting an HIV test, for example, may be initiated by a thoughtful and deliberate decision process that leads the individual to arrange for a test. But until the person walks through the health centre door and makes the split-second decision at the final moment to go through with the test, the initial decision has the potential to be undermined. Jaccard has started research to develop what he calls a split-second TRA/TPB model with which he can account for last-minute decisions by integrating TRA/TPB with models of working memory.

In line with Jaccard's split-second model, Sheeran, Gollwitzer, and Bargh (2013) have argued that basic research on implicit cognition, implicit affect and implicit motivation has the potential to enrich theories of health behaviour (such as TRA/TPB) that solely focus on the underlying reflective processes of health-related behaviour. Considering such non-conscious processes may explain why explicit factors often afford only modest prediction of, or change in, health behaviour. For instance, implicit processes may be responsible for dietary lapses despite people's strong conscious intentions to eat a healthy diet. Targeting these implicit processes can also help create more powerful interventions geared towards improving health-related behaviours.

Translating general theories of action into a specific domain of human action (such as the health domain) needs adjustments as those suggested by Jaccard (2012). Any attempt in health psychology to directly apply a general theory of action control (such as TRA/TPB) to questions specific to health psychology risk to fail, as this approach will not respect the many unique characteristics of the health-related behaviours analysed. It is like borrowing a classmate's race bike and using it for a cross-country trip. This will lead to frustrations on the side of the borrower as the theory will not be fit for purpose and on the side of the theorist who has spent years refining the theory. The theorist who has tried to understand the general principles of action control may feel just like the lender of the bike who sees his painfully constructed race bike disrespectfully trashed. The result is unnecessary hurt feelings on both sides.

An equally important point we want to make is that respecting established theories, such as the TRA and TPB, is very useful when it comes to finding a basis for developing new theories of action. Take for instance, the distinction between implementation intentions and goal intentions and the ideas on why these two types of intentions should affect a person's actions quite differently (Gollwitzer, 1993, 1999). Or the theory of fantasy realisation (Oettingen, 2000, 2012) that makes a distinction between different types of thinking about the future (i.e., free floating thoughts vs. expectancy judgments) and postulates that a certain way of thinking about the future [i.e., mental contrasting (MC)] makes people's expectations of success (control beliefs) more relevant to forming

strong intentions. A further example is the prototype/willingness model designed to account for the irrationality of the health-risk behaviours engaged in by adolescents (Gibbons, Gerrard, & Lane, 2003). This model makes a distinction between behavioural intentions and behavioural willingness, and it offers a conceptual differentiation of the concept of social norms (i.e., descriptive norms vs. injunctive norms).

When introducing the distinction between goal intentions and implementation intentions in the 1990s (Gollwitzer, 1993), the common response was: but are not these implementation intentions no more than the behavioural intentions studied by Fishbein and Ajzen (1975). The difference between behavioural intentions and implementation intentions became pretty obvious to us when discussing the Fishbein and Ajzen theories in our papers reviewing the mounting literature on the psychology of goal pursuit (e.g., Gollwitzer & Oettingen, 2012; Oettingen & Gollwitzer, 2001). In these papers, we made a distinction between goal theories that focus on the determinants of committing to goals and implementing them and goal theories that focus on the processes of committing to goals and implementing them. From a goal perspective, behavioural intentions in the Fishbein and Ajzen sense can be conceptualised as goals to execute a specified behaviour and thus qualify as goal intentions. The commitment to these goals is seen as being determined by respective attitudes, subjective norms and control beliefs, and the execution of the respective behaviour is determined by the strength of the behavioural intention (or goal). Thus the TRA and TPB clearly qualify as goal theories focused on determinants of goal pursuit.

Implementation intentions, in contrast, specify how the individual plans to act on a given goal (e.g., the behavioural intention to eat more vegetables). They are self-instructions in terms of when, where and how to act and this is best done by forming if-then statements. Implementation intention theory thus qualifies as a goal theory that is concerned with the processes of goal implementation, in particular, with the processes a person can instigate to move more effectively towards goal attainment. By sorting out the differences between behavioural intentions and implementation intentions at a conceptual level, research on implementation intention theory could dive into what it has been created for: understanding processes that facilitate goal attainment (e.g., perceptual, attentional and memory processes; bottom-up vs. automatic action control; Gollwitzer, *in press*), and how people can make use of these processes to promote goal attainment by engaging in if-then planning (i.e., use forming implementation intentions as a self-regulation tool). Importantly, implementation intention research also benefited from TRA and TPB as these theories point to a crucial determinant that needs to be in place if one wants to observe the effects of implementation intentions and analyse the underlying processes. There is ample research showing (e.g., Sheeran, Webb, & Gollwitzer, 2005) that when behavioural intentions are furnished with implementation intentions (if-then plans), the goal attainment facilitating effects of the if-then plans can only be observed when people are strongly committed to the respective behavioural intention.

An analogous story can be told about the development of the theory of fantasy realisation (Oettingen, 2000; summary by Oettingen, 2012) that distinguishes various forms of thinking about the future. One of these is called MC. In MC, an individual first imagines the fulfilment of a desired future (e.g., eating a more healthy diet) and then reflects on the present reality that stands in the way of attaining this desired future (e.g., being too tired to cook). The conjoint elaboration of the desired future and present reality links the two together in the sense that the reality is experienced as standing in the way of realising the desired future. Thus, mental contrasting commits people to the goal of

realising the desired future by overcoming the obstacles of present reality. For example, in one study (Oettingen, Pak, & Schnetter, 2001) college students were asked to name their most important interpersonal wish (participants mentioned, e.g., 'to get to know someone I like'). Crucially, in the subsequent MC exercise participants juxtaposed an imagined positive outcome with the obstacles of the present negative reality; in contrast, participants in the control conditions focused on thinking about the positive future or the negative reality only.

Interestingly, it was only the MC participants (but not the control participants who either only indulged in the positive future or only dwelled on the negative reality) who translated high expectations of success into strong goal commitments (i.e., strong behavioural intentions). In the language of TPB, these findings indicate that the mode of thinking about the desired future influences whether high perceived control (one of the TPB's three determinants of strong behavioural intentions) will be effective in strengthening people's behavioural intentions. Apparently, when people only dream about the desired positive future or dwell on the negative reality, the effects of this determinant are wiped out. Viewed from the perspective of fantasy realisation theory, TPB points to a central determinant of whether MC creates strong goal commitments and heightens goal attainment. In extensive experimental research, MC has been found to be a useful self-regulation tool for effective goal pursuit based on a host of implicit and explicit cognitive and motivational processes. Still, for these processes to run off and to produce their beneficial effects on goal attainment, a central prerequisite needs to be fulfilled, and this prerequisite is specified as one of the determinants of strong behavioural intentions and respective behaviour in the TPB: high perceived control.

We have recently developed a self-regulation intervention that combines MC and implementation intentions (MCII; summaries Oettingen, 2012; Oettingen, Wittchen, & Gollwitzer, 2013). MCII was found to support goal pursuit more so than both MC and II in isolation. People benefited from using MCII across a variety of life domains, including health behaviour, academic success and interpersonal relationships, both short-term and long-term. For example, in the health domain (Stadler, Oettingen, & Gollwitzer, 2009, 2010), MCII doubled the amount of physical exercise in middle-aged women relative to baseline and an information-only control group ($d = 0.50$) during the first week, and the effects were maintained over 4 months. In addition, teaching MCII plus diet information rather than diet information-only led participants eat more fruits and vegetables one week after the manipulation, and this effect sustained over 24 months. The MCII research suggests that when it comes to creating powerful behaviour change interventions, it might be a better idea to think about how to stick different theories of action together rather than dwelling on which of the theories out there are better than others, and which of these should be abandoned first.

Let us end with reporting another personal episode. We ran into a colleague in the hall the other day, and both of us were surprised as we had thought that he had already retired. He asked us what we were up to in our research these days. We explained in detail how we are currently getting into the psychophysiology of MCII. He replied by saying that George Miller at Princeton also got into psychophysiology in his work on action control at some point in time. Not knowing about this, we asked: 'when did he do this research?' 'After Miller had retired', was the response. So primed by 'retired' we continued by asking: 'when will you retire?' The response was a fast and firm: 'never!' In our opinion, it is too bad that theories are not capable of speaking up against their insinuated retirement; but at least this is possible for faculty these days and hopefully using this

option will be more common in the years to come. The development of novel theories requires knowledge of what has been around. New theorists might do well to obtain knowledge of previous theory and to respect the past work of more weathered faculty.

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