UNIVERSITY of CALIFORNIA PRESS | Collabra: Psychology

Körner, A., Götz, F. J., & Krishna, A. (2023). Free to see the Big Picture: Autonomy Increases Abstractness of Action Identification. *Collabra: Psychology*. https://doi.org/10.1525/collabra.88165

Social Psychology

Free to See the Big Picture: Autonomy Increases Abstractness of Action Identification

Anita Körner[1,2][a], Felix J. Götz[1,3], Anand Krishna[1]

[1] Department of Psychology, University of Würzburg, Würzburg, Germany, [2] Department of Psychology, University of Kassel, Kassel, Germany, [3] Department of Psychology, University of Regensburg, Regensburg, Germany

Keywords: action identification, abstractness, autonomy, action control, self-determination

https://doi.org/10.1525/collabra.88165

Collabra: Psychology

People sometimes feel autonomous—free to choose and able to control their actions; at other times, they feel restricted in what they can do and what the outcome will be. Based on Action Identification Theory, the present work examines whether autonomy influences how abstractly actions are represented. In 6 studies, high (vs. low) autonomy increased abstractness of action identification. Participants selected more abstract (vs. concrete) redescriptions of actions when they imagined wanting (vs. having) to perform these actions (Experiments 1a–1b), when autonomy was varied via situation descriptions (Experiments 2a–2b), via memory content (Experiment 3), and in an ecological setting (Study 4). Finding that high (vs. low) autonomy increased abstractness of action identification constitutes an extension of Action Identification Theory to incorporate social determinants.

People sometimes feel free to choose their actions and cause said actions' results; at other times, they feel that they have no choice or no control over their actions. For example, when buying lunch, one is typically free to choose between various options with innumerable variations. Traffic situations, in contrast, involve less autonomy, forcing one repeatedly to slow down and wait. Variations in autonomy occur in many everyday contexts, so that autonomy varies predictably within (e.g., at home vs. at work) and between individuals (e.g., job choice for highly qualified vs. unskilled workers). In the present research, we examine whether autonomy affects how people think about their actions. While they might think of grabbing lunch in terms of *getting nutrition* (instead of *chewing and swallowing*), navigating traffic might feel like implementing the required action of *stepping on the brake* (instead of *driving responsibly*). In this vein, highly autonomous actions might be represented on a higher, more abstract level—concerned with the meaning and broader contexts of actions—whereas actions with low autonomy might be represented on a lower, more concrete level—concerned with details and action implementation. The present research examines whether autonomy indeed leads to more abstract action representations.

Autonomy

Autonomy is a central human motive. Accordingly, psychology has extensively studied humans' striving to gain autonomy (Brehm, 1993; DeCharms, 1968; Fiske & Dépret, 1996; Maslow, 1943; Murray, 1938; Rothbaum et al., 1982; Ryan & Deci, 2000; White, 1959). The experiences of action control, choice, and self-determination contribute to the satisfaction of the autonomy motive and have been observed to have a range of positive consequences, including improvements in well-being and performance (Kachanoff et al., 2019; Litt, 1988; Moller et al., 2006; Patall et al., 2008; Werner et al., 2018; Zuckerman et al., 1978). Moreover, these constructs are closely related. High (vs. low) choice has been found to increase experienced control (Barlas & Obhi, 2013; Beck et al., 2017; Borhani et al., 2017; Geers et al., 2013; Langer, 1975; Leotti et al., 2010). Furthermore, the absence of either choice or control cannot be compensated for by an increase in the other component (Deci & Ryan, 1987; see also Patall et al., 2014; Radel et al., 2013).

In line with this conceptualization of the autonomy motive, it is possible to define a psychological state of *experienced autonomy* as one in which actors both choose their actions and control the action execution. That is, for experienced autonomy to be high, actors need to believe that they freely choose the action (*choice*); and that they are able to perform the action (e.g., physically able and skilled), yielding the intended outcome (*action control*; Skinner, 1996; see also Abramson et al., 1978; Bandura, 1977). Conversely, a state of low experienced autonomy prevails if at least one of these conditions is not fulfilled. That is, experienced autonomy is low if actors think they have no real choice of what to do (e.g., because of external pressure) or they are unable to perform the action successfully (e.g.,

a Correspondence concerning this article should be addressed to Anita Körner, Department of Psychology, University of Kassel, Holländische Str. 36–38, 34127 Kassel, Germany. Tel: +49 561/804 3582, E-mail: anita.koerner@uni-kassel.de

because they lack the necessary skills or because the outcome is externally determined). Note that these conditions for autonomy states are defined by actors' subjective experience and not by objective facts.

This definition of autonomy is related to locus of control (Rotter, 1966), with high autonomy requiring an internal locus of control. However, while locus of control is defined as a dispositional tendency, we examine experienced autonomy as varying between situations. Relatedly, self-determination theory (Deci & Ryan, 1987, 2012) also stresses the significance of choice and freedom from external controlling influences, as well as of the competence component of action control. However, self-determination theory also focuses on self-congruence and motivational states (Deci & Ryan, 1991; Ryan & Deci, 2017), which are not examined in the present work.

In past research, autonomy has been observed to influence qualities of the *content* of cognitions or actions, such as whether actions are successful or what degree of motivation underlies them. Here, we examine whether autonomy changes the *mode* of information processing. Autonomy might not only influence on what attention is focused, but also how information is represented. Given the basic nature of the autonomy motive and the pervasive influence of autonomy on psychological functioning, autonomy's influence on information representation has implications for a broad set of psychological processes. In the present research, we use Action Identification Theory to derive predictions about how experienced autonomy influences abstractness of information representation.

Action Identification Theory

Action Identification Theory explains when people represent actions on different levels of abstraction (Vallacher & Wegner, 1987, 2012). *Grabbing lunch*, for example, can be seen as *getting nutrition* (an abstract identification) or as *ordering and paying* (a concrete identification). Different levels of action identification are postulated to be useful for different purposes. High-level, abstract identifications facilitate a global understanding of an action, including its reasons and broader context, whereas low-level, concrete identifications facilitate detail-oriented action implementation (Vallacher & Wegner, 1987). Moreover, Action Identification Theory posits that action identifications change systematically (Vallacher & Wegner, 1987, 2012). First, if multiple identifications are available, people tend to choose the higher action identification (*preference principle*). Second, if obstacles or difficulties concerning the action arise, people tend to switch to a lower action identification (*necessity principle*; Vallacher & Wegner, 2012).

Empirical support for Action Identification Theory comes mainly from experiments manipulating low-level features of actions. Making an action (e.g., drinking from a cup) more difficult or unfamiliar—thereby decreasing action control—has been found to lead to lower action identification (Wegner et al., 1984). Moreover, a fit (vs. no fit) between task difficulty and action identification (i.e., high difficulty and low identification or low difficulty and high identification) increased performance (Vallacher et al., 1989). Similar to difficulty, success has also been associated with high action identification and failure with low action identification (Vallacher et al., 1987; cf., Balconi & Crivelli, 2010). In sum, compared to actions that run smoothly, actions that are hampered tend to be described on a lower, more concrete level. However, hitherto, no experimental studies exist that examine whether higher social influences, such as choice, also influence action identification.

Dispositional studies suggest that there might be a connection between control and action identification. Participants who tended to perceive their actions as internally controlled tended also to describe actions on an abstract level (Vallacher & Wegner, 1987; see also Kim & Duhachek, 2020; Pearce et al., 2020; Sweeney & Freitas, 2018). Moreover, when evaluating other people's actions, attributing high intentionality and complex mental states to these people has been found to be correlated with abstractness of action identification (Kozak et al., 2006). Thus, intentional initiation and internal control over actions, both of which are related to experienced autonomy, have been found to correlate with abstractness of action identification. Moreover, there is evidence for an influence of abstractness of processing on goal pursuit, specifically on how autonomous compared to externally determined goal pursuit is (Davis et al., 2016). However, there is as yet no research examining the reverse causal influence, that is, examining the causal influence of experienced autonomy on action identification. The present research seeks to address this gap.

The Present Research

In the present research, we combine the social construct of autonomy with the cognitively oriented Action Identification Theory by examining whether autonomy influences action identification. Thus, for autonomy research, the present experiments extend previous knowledge on how basic cognitive processes are influenced by experiencing (high or low) autonomy and, for Action Identification Theory, the present research extends the scope of application from basic skill-related domains to a socially important domain, namely autonomy.

We expected that high (compared to low) autonomy will lead to more abstract (vs. concrete) action identification. According to the necessity principle, when actions are impeded, people tend to describe their actions on a low, concrete level. High experienced autonomy regarding an action (i.e., high action choice and control) entails high freedom and few restrictions, and therefore should enable abstract action identification. In contrast, low experienced autonomy regarding an action (i.e., low action choice or control) entails low freedom and the expectation of many restrictions, and therefore should lead to concrete action identification. Although there is no prior research linking action choice to abstractness of action identification, the concepts are connected in everyday life. Specifically, the lack of freedom to choose whether to perform an action implies impediments to other possible actions. Put differently, constraints on the choice of action are in themselves likely to be perceived as obstacles to enacting behavior, which

should reduce abstractness in line with the necessity principle.

A related theory that can be used to make the same predictions is Construal Level Theory (Trope & Liberman, 2010). According to Construal Level Theory, high (vs. low) psychological distance leads to abstract (vs. concrete) information processing and vice versa. Abstract information processing emphasizes enduring aspects, reasons, and desirability concerns, whereas concrete information processing emphasizes details, contextualized action steps, and feasibility concerns (e.g., Baskin et al., 2014; Liberman & Trope, 1998; Trope et al., 2021). High autonomy, by entailing high choice and high action control, could facilitate focussing on desirability concerns. In contrast, for low autonomy, desirability concerns matter less because there is either little choice or control concerning actions. Instead, concentrating on feasibility of actions seems useful in low autonomy situations. Thus, high (vs. low) autonomy might lead to a focus on desirability (vs. feasibility) concerns. As desirability is an aspect of abstract action identification whereas feasibility is an aspect of concrete action identification, this prediction accords with the one made using Action Identification Theory.

In six studies, we manipulated autonomy and measured abstractness of action identification. Action identification was assessed by an action identification task, a personalized version of the Behavior Identification Form (Vallacher & Wegner, 1989). This version consists of personalized action descriptions (e.g., *I am making a list*), accompanied by two possible redescriptions, one of which is more abstract (e.g., *I am getting organized*) and the other more concrete (e.g., *I am writing things down*). For each action, participants were asked to choose the more appropriate redescription. Some items were taken from the Behavior Identification Form (Vallacher & Wegner, 1989; Experiment 1a–1b: 10 out of 24 items; Experiment 2a: 7 of 24; Experiment 2b: 11 of 24; Experiment 3: 2 of 10; Study 4: 12 of 14); these were complemented with similar new items that fit the experimental context.

For the power analysis for Experiment 1a, we used an effect size estimate of d_z = 0.4 (based on the average effect size in psychology, see Richard et al., 2003).[1] Subsequently, we adapted this estimate according to the observed effect size in the previous experiments. Alpha was set to .05 and power to .90 for all studies. For the experiments using within-participants *t*-tests, these parameters resulted in a required sample size of 68 participants for Experiment 1a, and 48 participants (or fewer) for the following Experiments. Final sample sizes for lab studies (Experiments 1-3) depended on participant show-up rates and the lab schedule. All Experiments except for Study 4 exceeded the required sample size. For the between-participants experiment (Experiment 3), we increased the sample size to 200. No participants who completed a study were excluded and we did not perform interim inferential data analyses. All data, analyses, and materials can be found at https://osf.io/mqnav/. Experiment 1b (https://osf.io/72hsb/) was pre-registered, including the study design, sample size, inclusion/exclusion criteria, and primary analyses. None of the other experiments were pre-registered. This research complies with the ethics code of conduct of the DGPs and the APA. We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures.

Experiment 1

Experiment 1 tested whether abstractness of action identification is influenced by wanting to (high autonomy) compared to having to (low autonomy) perform an action (for research on how want-to vs. have-to relate to self-regulation, see Milyavskaya et al., 2015). In Experiment 1a, a neutral condition was added to the high and low autonomy conditions. That is, action identification was examined for actions where no reference to either high or low autonomy was made. Experiment 1b examined whether the present finding results from the specific concrete and abstract action identifications provided. For this, participants could choose between three options, a concrete action description, an abstract action description, and thirdly, writing down their own action description. These participant-generated descriptions were then coded for abstractness of action identification. We hypothesized that wanting (vs. having) to perform an action would lead to more abstract (vs. concrete) action identification.

Experiment 1a

Method

Seventy-eight people (65% female, aged 18–36, M_{age} = 22 years, SD_{age} = 3 years) participated in exchange for money or sweets. Each participant performed the action identification task for high autonomy, low autonomy, and neutral actions.

For the action identification task, items from the Behavior Identification Form (Vallacher & Wegner, 1989) and similar newly created items were changed from an impersonal wording (e.g., *making a list*) to first person perspective with auxiliary verbs that either indicated high (e.g., *want to; am glad to*) or low autonomy (e.g., *have to; am forced to*). The same modifications were made to the two redescriptions (high autonomy: *I want to make a list.* Options: *I want to write things down* vs. *I want to get organized*. Low autonomy: *I am required to make a list.* Options: *I am required to write things down* vs. *I am required to get organized*).

Participants were asked to imagine performing these actions and to choose one of two given redescriptions, specifically, the one that they considered more appropriate. Each participant completed 24 action identifications in random order, 8 with high autonomy wording, 8 with low autonomy

1 For a definition of d_z see, for example, Lakens (2013).

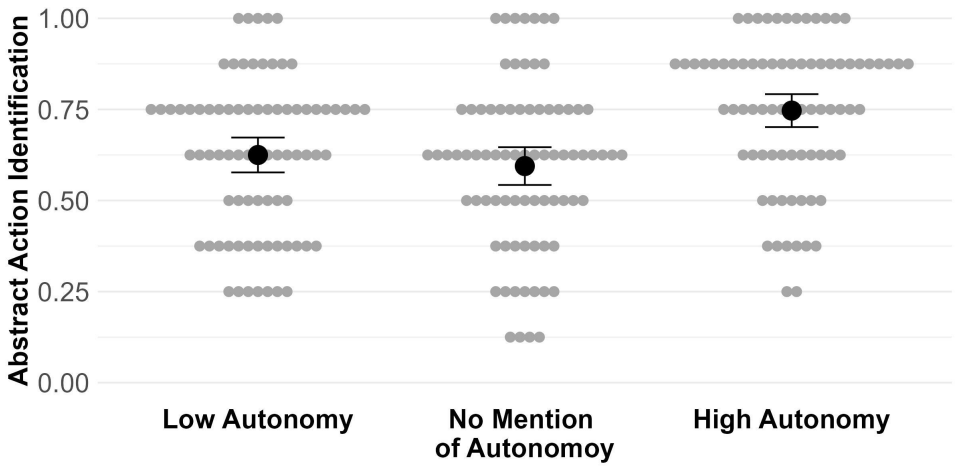

Figure 1. Proportion of Abstract Action Identifications Depending on Autonomy in Experiment 1a.

Note. The grey dots are individual participant means and the black dots with error bars represent cell means with 95% confidence intervals.

wording, and 8 in the neutral condition (matching of autonomy condition to item was counterbalanced across participants). Specifically, participants performed the action identification task with personalized sentences without auxiliary words (e.g., *I am locking the door.* Options: *I am securing the house.* vs. *I am putting the key in the lock.*), sentences with auxiliary words denoting low autonomy, and sentences with auxiliary words denoting high autonomy (e.g., *I want/have to lock the door.* Options: *I want/have to secure the house.* vs. *I want/have to put the key in the lock.*) in random order. The dependent measure consisted in the proportion of abstract redescriptions chosen depending on the autonomy condition.

Results

The proportion of abstract redescriptions was calculated for each participant and autonomy condition separately and entered into a three-level within participant ANOVA.[2] Autonomy influenced action identification, $F(2, 154) = 14.85$, $p < .001$, $\eta_p^2 = .162$, 90 % CI = [.078; .246], see Figure 1. Specifically, high autonomy led to more abstract identifications ($M = 74.7\%$, $SD = 20.0\%$) compared to low autonomy ($M = 62.5\%$, $SD = 21.2\%$), $t(77) = 4.21$, $p < .001$, $d_z = 0.48$, 95% CI [0.24, 0.71]. Moreover, high autonomy led also to more abstract action identifications compared to neutral action framing ($M = 59.5\%$, $SD = 23.0\%$), $t(77) = 4.85$, $p < .001$, $d_z = 0.55$, 95% CI [0.31, 0.79]. The neutral and the low autonomy conditions did not differ significantly, $t(77) = 1.08$, $p = .284$, $d_z = 0.12$, 95% CI [-0.10, 0.34]. Thus, we find that the influence of autonomy on abstractness of action identification is driven by high (instead of low) autonomy.

Experiment 1b

Method

Eighty-four people (60% female, aged 18–68, $M_{age} = 24$ years, $SD_{age} = 8$ years) participated in exchange for sweets. Each participant performed the action identification task for high and low autonomy actions.

The materials and procedure were similar to Experiment 1a. The exceptions are that for each of the 24 actions (12 per condition), participants were asked to choose between three options; in addition to the abstract and concrete redescription, participants could choose "other description", in which case they were to type in their own action description. Participants were asked to choose this third option (to provide their own description) whenever they felt that neither of the two provided options was apposite for how they would describe the action when performing it. Participant-generated descriptions were then coded by two people blind to our hypotheses and blind to condition (agreement between raters was moderate, Cohen's κ = .55; differences were resolved by discussion with a third rater).

Results

Participants provided their own action descriptions for 7.1% of all actions. Of these, 27.8% (2.0% of all actions) were not clearly more abstract or concrete than the basic action description and therefore were not included in the analysis.[3] For the remaining trials, high compared to low autonomy again increased abstractness of action identification, see Figure 2. Specifically, imagining wanting to per-

2 Generalized linear mixed model analyses for this as well as all following experiments yield qualitatively identical results, see https://osf.io/mqnav/

3 As we did not explain levels of action identification to participants but merely asked for an appropriate redescription of any given action, it is not surprising that a substantial number of redescriptions were not on a different level from the original description. Treating these neutral descriptions as half-way between abstract and concrete, instead of discarding them, leads to qualitatively identical results.

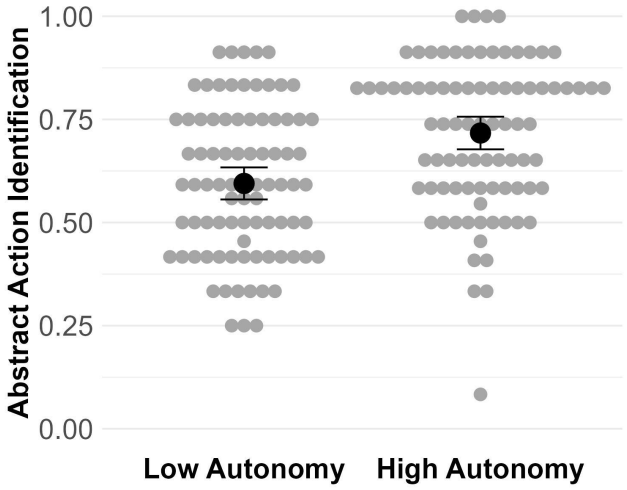

Figure 2. Proportion of Abstract Action Identifications Depending on Autonomy in Experiment 1b.

Note. The grey dots are individual participant means and the black dots with error bars represent cell means with 95% confidence intervals.

form an action led to more abstract identifications (M = 71.7%, SD = 18.2%) compared to having to perform the action (M = 59.5%, SD = 17.9%), $t(83) = 5.76$, $p < .001$, $d_z = 0.63$, 95% CI [0.39, 0.86].[4]

Discussion Experiment 1

Experiment 1 lends support to the hypothesis that high compared to low experienced autonomy increases abstractness of action identification. In both Experiments, participants chose abstract action identifications more frequently when imagining wanting compared to having to perform actions. Moreover, the results of Experiment 1a indicate that high autonomy drives the effect, as high autonomy differed from both low autonomy and neutral action descriptions, while there was no difference between low autonomy and neutral action descriptions.

Additionally, Experiment 1b precludes a stimulus artefact explanation of the present finding. When asked to choose between two options, participants might feel that neither option is a good description, which might lead to distorted results. By enabling participants to provide their own action description, Experiment 1b ensured that the present results are not driven by the specific identifications provided. Instead, even for participants' self-generated action descriptions, high compared to low autonomy led to more abstract action identifications, indicating that the present task adequately captures participants' action identifications. Interrater agreement on participant-generated action descriptions was only moderate. However, several alternative analyses to the pre-registered one yield identical results, so that the results were quite robust across different coding decisions.

A disadvantage of Experiment 1 is the conspicuousness of the manipulation. Each trial contained phrases like "I want to" or "I have to", so that information about autonomy was very salient in each action description. We consider demand effects unlikely because participants probably were neither aware that action identifications varied in abstractness nor of how abstractness relates to autonomy in our hypothesis. Still, it is possible that autonomy influences action identification only when autonomy is very salient. To reduce the conspicuousness of the autonomy manipulation, Experiment 2 used a different autonomy manipulation. Specifically, in Experiment 2, we separated the autonomy manipulation from the action identification task by embedding information about high or low autonomy in situation descriptions that participants read before the action identification task.

Experiment 2

In Experiment 2, participants read vignettes describing actors in high and low autonomy situations. Reading narrative texts has been found to lead to readers' spontaneously identifying with the described person, adopting their thoughts, goals, and traits (Kaufman & Libby, 2012). Accordingly, we assumed that when asked to adopt the perspective of a person in a short vignette, they would be able to do the action identification task from this person's perspective. The action identification task was performed concerning actions described in the vignettes (Experiment 2a) or concerning actions in different situations (Experiment 2b). We hypothesized that high (vs. low) autonomy actors' actions would be described more abstractly (vs. concretely).

Experiment 2a

Method

Forty-six people from the local participant pool (80% female, aged 18–50, M_{age} = 23 years, SD_{age} = 6 years) participated in exchange for payment or partial course credit. Each participant performed action identifications for both high and low autonomy situations.

Participants read six vignettes, each about 80–100 words long, describing a situation where a person performs a number of actions. There were two versions of each vignette, one high in autonomy (high freedom of choice and high action control) and the other low in autonomy (at least one of the two conditions, choice and action control, was described as low). For example, one vignette depicted Laura, a university student who does course work. She has either chosen the course herself (high choice) and feels in control of her studying for the course (high control) or has

4 We reran this analysis with different action identification codings. Specifically using the coding from only one or the other rater, using only items where both raters agreed from the start, as well as discarding all items where participants provided an open answer; all these analyses yielded very similar results, with effect size estimates varying between $d_z = 0.58$ and $d_z = 0.63$; see https://osf.io/cbsxn.

been assigned to the course (low choice) and is controlled in her studying for the course by the professor's requirements (low control). In another vignette, the protagonist is described as dealing with a cold. Either he is convinced that through a healthier lifestyle and avoiding germ-ridden places he could have avoided getting ill (high control) or he is convinced that catching viruses and bacteria is a matter of chance and cannot be influenced by his own behavior (low control). Participants read three vignettes in the high autonomy version and three in the low autonomy version (counterbalanced across participants).

Each vignette was accompanied by four action identification items. The actions that were to be redescribed were mentioned in the vignette or related to the described situation. In the preceding example, actions included *attending class* and *preparing for class* (e.g., *Laura is preparing for class.* Concrete option: *Laura is reading a paper.* Abstract option: *Laura is practicing doing science*). Participants were asked to identify with the person and perform the action identification task from this person's perspective. Importantly, the action identification items were identical for both versions (high and low autonomy) of the vignette and thus did not contain information about autonomy. After completing all four action identifications, the next vignette and accompanying action identification items ensued. The dependent measure consisted in the proportion of abstract action identifications chosen for high compared to low autonomy situations.

Next, participants completed the first part of a funnelled debriefing in which they were asked to name recurring themes in the vignettes, to gauge whether they noticed any autonomy variation, and were asked to state a hypothesis how the vignettes might influence action identification. No participants spontaneously mentioned any autonomy-related concepts or a hypothesis similar to ours.

Afterwards, as a manipulation check, participants rated the autonomy of each actor. Specifically, they read a one-sentence reminder of the situation (without information about the actor's autonomy; e.g., *Laura is attending a course*), and rated on a 7-point scale to what degree the person in this situation was autonomous (from 1 = *completely restricted by others or the circumstances* to 7 = *completely self-determined*). These evaluations were averaged separately for each autonomy level. Instead of defining autonomy explicitly, we relied on participants' untutored understanding of the term in all present experiments.

Finally, we informed participants explicitly about the autonomy manipulation and asked how they thought autonomy might influence action identification. Six participants (13%) were able to state the hypothesis in this second round.

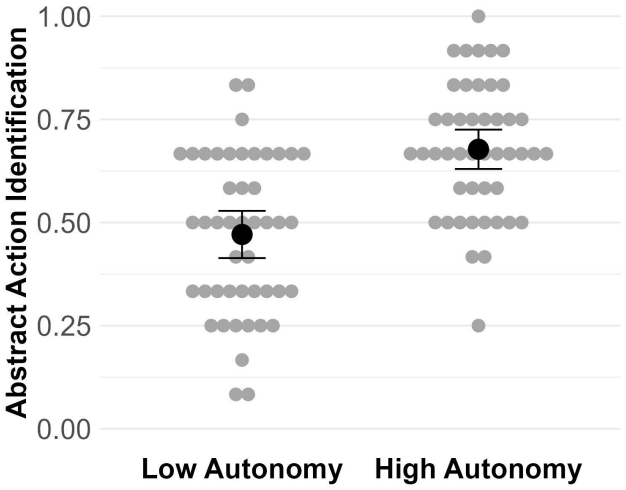

Figure 3. Proportion of Abstract Action Identifications Depending on Autonomy in Experiment 2a.

Note. The grey dots are individual participant means and the black dots with error bars represent cell means with 95% confidence intervals.

Results

Persons in high autonomy situations were rated to be more autonomous (M = 5.50, SD = 0.90) compared to persons in low autonomy situations (M = 2.99, SD = 1.09), $t(45) = 10.88$, $p < .001$, $d_z = 1.60$, 95% CI [1.16, 2.04]. Thus, the manipulation succeeded.

Supporting the hypothesis, high compared to low autonomy increased abstract action identification, see Figure 3. Specifically, reading high autonomy situations led the choice of more abstract action identifications for the protagonists' actions (M = 67.8%, SD = 16.1%) compared to low autonomy situations (M = 47.1%, SD = 19.3%), $t(45) = 5.95$, $p < .001$, $d_z = 0.88$, 95% CI [0.53, 1.21].[5]

Experiment 2b

Method

Fifty-four people from the local participant pool who had not participated in any of the previous experiments (85% female, aged 17–55, M_{age} = 21 years, SD_{age} = 5 years) participated in exchange for payment or partial course credit. Each participant performed the action identification task for both high and low autonomy situations.

Participants read the same vignettes as in Experiment 2a (e.g., about Laura attending a course) and performed the action identification task for four actions per vignette. None of these actions were directly mentioned in the vignette, although some were related to the general situation (e.g., for Laura attending a course, the action identification items included *Laura is applying for an internship* and *Laura*

5 Excluding the six participants who were able to state the hypothesis correctly (after being informed about the manipulation) led to similar results, $t(39) = 4.96$, $p < .001$, $d_z = 0.78$, 95% CI [0.43, 1.14]

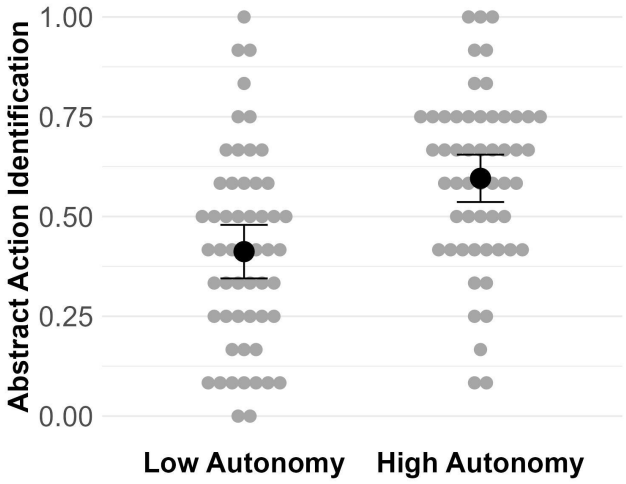

Figure 4. Proportion of Abstract Action Identifications Depending on Autonomy in Experiment 2b.

Note. The grey dots are individual participant means and the black dots with error bars represent cell means with 95% confidence intervals.

is taking a shower). The dependent measure, manipulation check, and funnelled debriefing were the same as in Experiment 2a.

Results

Again, persons in high autonomy situations were rated to be more autonomous (M = 5.02, SD = 0.86) than persons in low autonomy situations (M = 3.16, SD = 1.06), $t(53)$ = 9.53, $p < .001$, d_z = 1.30, 95% CI [0.93, 1.66], indicating that the autonomy manipulation was successful.

Supporting our hypothesis, high compared to low autonomy increased abstractness of action identification, see Figure 4. Specifically, for protagonists who were described as highly autonomous, more abstract action identifications were chosen (M = 59.6%, SD = 21.7%) compared to protagonists who were described as low in autonomy (M = 41.2%, SD = 24.6%), $t(53)$ = 4.29, $p < .001$, d_z = 0.58, 95% CI [0.29, 0.87].[6]

Discussion Experiment 2

In Experiment 2a, we found that autonomy influenced action identification when high or low autonomy was implied by a situation description. Thus, participants were able to identify with the described protagonist and do the action identification task from their perspective. Actions in a context for which autonomy was high (vs. low) were identified on a more abstract (vs. concrete) level. Experiment 2b extended this result by examining actions that were not described in the vignette. For example, high autonomy in studying not only led to higher action identification for class-related activities, but also for bodily hygiene. A possible reason for this spill-over effect is that participants might make stable attributions concerning protagonists' autonomy, that is, assuming that (low) autonomy in one situation predicts a greater likelihood of (low) autonomy in other situations (for a related finding on the influence of construal level on attribution, see Körner et al., 2020). Thus, Experiment 2b generalized the influence of autonomy on action identification from the immediate autonomy-influencing situation to other situations in a person's life.

Experiment 3

Experiments 1–2 relied on hypothetical autonomy variations (by either imagining performing given actions or by adopting the perspective of other people in high or low autonomy situations). To examine whether the influence of autonomy on action identifications generalizes to experienced situations, Experiment 3 used a memory paradigm. Additionally, Experiment 3 examined whether the influence of autonomy on abstractness of action identification generalizes to a between-participants design or whether, conversely, a direct autonomy contrast is necessary. Participants were asked to remember a situation either in a work context (low autonomy) or in a leisure time context (high autonomy). As people generally have more autonomy in their leisure time compared to their occupational time (e.g., Sheldon et al., 1996), we predict action identification to be higher concerning leisure compared to work activities.

Method

Participants and Design

Two hundred and two people participated through Prolific Academic (69% female, aged 18–80, M_{age} = 35 years, SD_{age} = 12 years) in exchange for payment and were randomly assigned to remember either a work context (low autonomy) or a leisure time context (high autonomy). Participants were UK citizens and were pre-screened so that they regularly used technology at work.

Procedure

Participants were asked to remember either a situation where they worked at their computer or spent leisure time at their computer. They were asked to take some time to think back to a specific work/leisure situation. Then they were asked to perform the action identification task, choosing the redescription that best suited how they remembered the action. The task consisted of ten items and actions were constructed to be both suitable for a typical office job and for leisure time; for example, *I watched the screen* with *I*

6 Excluding the five participants who were able to state the hypothesis correctly (after being informed about the manipulation) led to similar results, $t(48)$ = 3.91, $p < .001$, d_z = 0.56, 95% CI [0.25, 0.86]

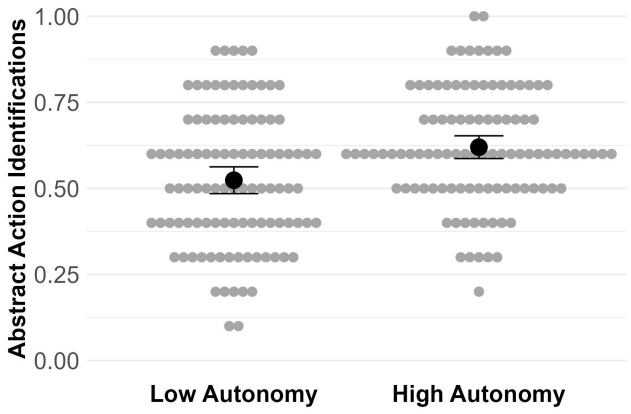

Figure 5. Proportion of Abstract Action Identifications Depending on Autonomy (Memory of a Work vs. Leisure Situation) in Experiment 3.

Note. The grey dots are individual participant means and the black dots with error bars represent cell means with 95% confidence intervals.

looked at open windows as low-level redescription and *I kept up with what was happening* as high-level redescription. The action identification items were identical for both conditions. The dependent measure consisted in the proportion of abstract action identifications chosen.

Afterwards, as a manipulation check, participants rated the autonomy of each action. Specifically, they rated each action on a 7-point scale to what degree they had been autonomous when performing it (from 1 = *completely restricted by others or the circumstances* to 7 = *completely self-determined*).

Results and Discussion

Participants in the leisure time condition remembered the actions as more autonomous (M = 5.55, SD = 1.04) compared to participants in the work condition (M = 4.37, SD = 1.31), $t(190) = 7.13$, $p < .001$, $d = 1.00$, 95% CI [0.71, 1.29], indicating a successful manipulation.

Supporting the hypothesis, memory content influenced action identification, $t(195) = 3.73$, $p < .001$, $d = 0.53$, 95% CI [0.24, 0.81], see Figure 5. Specifically, remembering a leisure (high autonomy) situation led to more abstract action identifications (M = 62.0%, SD = 16.7%) compared to a work (low autonomy) situation (M = 52.4%, SD = 19.7%).

Thus, Experiment 3 indicates that autonomy influences actions not only in imagined but also remembered situations. Moreover, by using a between-participants design, Experiment 3 demonstrates that the influence of autonomy is not restricted to a direct comparison of high and low autonomy actions but also occurs when participants focus on one situation.

Study 4

Experiments 1a–2b used hypothetical/imagined autonomy and Experiment 3 used remembered autonomy situations. Study 4 tests whether the effect of autonomy on action identification generalizes to concurrently experienced autonomy by using an ecologically occurring autonomy variation.

Building on the comparison of work and leisure settings (Experiment 3), we examined participants whose actions in occupational and private settings heavily overlap and who experience a particularly strong autonomy variation, namely assistants for people with bodily handicaps. Assistants regularly perform the same behaviors with high autonomy (in their private lives) and with low autonomy (when working for a client), for example, cooking, cleaning, or bodily hygiene. Moreover, assistants experience a particularly strong autonomy difference because when working, they do not decide what to do or how to do it, but always wait for instructions from their client to determine and initiate any behavior. In fact, the philosophy of the assistant system from which we recruited participants for Study 4 explicitly entails that assistants give up their own autonomy to maximize client autonomy. Thus, assistants' daily lives contain an ecologically valid test of the hypothesis that autonomy influences action identification.

Method

Participants and Design

Twenty-nine assistants (62% female, aged 19–60, M_{age} = 34 years, SD_{age} = 12 years) were recruited via internet platforms and participated in exchange for the chance of winning a gift voucher. A sensitivity analysis indicates that this is sufficient to detect d_z = 0.54 (with alpha = .05 and 80% power). Two of the previous studies observed smaller effects (Experiment 1a d_z= 0.48 and Experiment 3 d = 0.53), the other three studies observed lager effects. Each participant performed the action identification task in both the high and the low autonomy situation.

Procedure

Each participant received two links for online questionnaires with the instruction to fill in one of them while working at their client's (low autonomy) and the other one at home during their leisure time (high autonomy). Embedded in the questionnaires, among other tasks unrelated to the present study, the action identification task consisted of fourteen (seven per questionnaire) actions typical for assistants to perform both for themselves and for a client. Which actions were used in the leisure compared to the work context was balanced across participants. To enforce the manipulation, the action descriptions contained a reference to themselves or their client (depending on condition) whenever it seemed appropriate (e.g., *I lock [the/my client's] door*. Abstract redescription: *I secure the house*. Concrete redescription: *I put a key in the lock*). As in Experiments 1–3, the proportion of abstract action identifications chosen for high compared to low autonomy constituted the dependent measure.

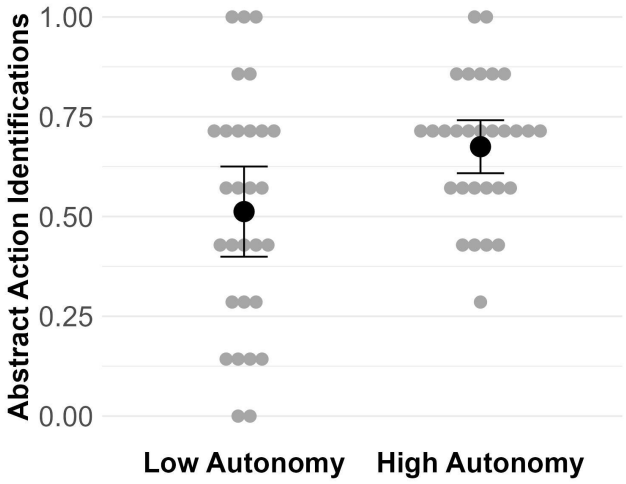

Figure 6. Proportion of Abstract Action Identifications Depending on Autonomy (Work vs. Leisure Situation) in Study 4.

Note. The grey dots are individual participant means and the black dots with error bars represent cell means with 95% confidence intervals.

Manipulation Check

As a manipulation check, we asked a second, partially overlapping group of 28 assistants to rate their autonomy when performing the actions used in the main experiment. Specifically, the assistants rated autonomy once when performing an action in their leisure time and once when performing it in their work for a client (in counterbalanced order). Answering the same autonomy question as in previous experiments, they rated for each action how autonomous they felt on a 7-point scale (from 1 = *completely restricted by others or circumstances* to 7 = *completely self-determined*).

Results and Discussion

The manipulation check confirmed that assistants experience more autonomy for the specified actions in their private lives (M = 6.28, SD = 0.78) compared to their occupational lives (M = 2.51, SD = 1.16), $t(27) = 13.34$, $p < .001$, d_z = 2.52, 95% CI [1.75, 3.28].[7]

In the main experiment, assistants represented their actions more abstractly in high compared to low autonomy situations, $t(28) = 2.83$, $p = .009$, $d_z = 0.53$, 95% CI [0.13, 0.91]. Specifically, in their leisure time, assistants chose more abstract action descriptions (M = 67.5%, SD = 17.5%) compared to when working for a client (M = 51.2%, SD = 29.7%), see Figure 6. Thus, Study 4 replicates the results from the previous experiments in an ecological setting.

General Discussion

Building on Action Identification Theory, we derived the hypothesis that autonomy influences abstractness of action identification. Six studies support the hypothesis that experiencing high autonomy (freely choosing and controlling one's actions) leads to focusing on the abstract goal and on the larger context of an action; by contrast, experiencing low autonomy (low choice or control) as well as neutral action descriptions (containing no information about autonomy) led to focusing on the concrete, specific steps involved in the action. Thus, the present work is the first to show that autonomy changes the way humans represent their actions.

The present experiments observed that autonomy influences abstractness of action identification using four different manipulations of autonomy. In Experiments 1a–1b, participants were asked to think about actions as having to perform them (low autonomy) or wanting to perform them (high autonomy). Experiments 2a–2b used a variation through the situational context in vignettes. That is, participants were asked to identify with a person whose situation was described as entailing high or low autonomy. Increasing ecological validity, Experiment 3 used a memory-based manipulation, where participants remembered a work or leisure situation that they had experienced themselves, and Study 4 used a concurrent work compared to leisure time situation, showing that situationally experienced autonomy has the same effect on action identification as remembered and imagined autonomy. We consistently observed that in high compared to low autonomy situations, participants chose more abstract action descriptions for their actions. Thus, autonomy influenced how abstractly actions were represented—both in the laboratory and in real life. Additionally, Experiment 1b tested whether the present results are driven by the specific abstract and concrete action identifications given to participants. By yielding the same effect when participants could generate their own action descriptions, Experiment 1b confirms that the influence of autonomy on abstraction is no mere stimulus selection effect.

The Role of Autonomy in Power

The present results may inform power research. According to the Social Distance Theory of Power, high (vs. low) power is postulated to increase (vs. decrease) social distance, which, in turn, should increase (vs. decrease) abstractness of processing (Magee & Smith, 2013; Smith & Trope, 2006). Supporting this theory, high compared to low power has been found to lead to more abstract categorization (Smith & Trope, 2006; see also Magee et al., 2010; Stel et al., 2012). Moreover, people primed with high (vs. low)

7 The very high effect size might be driven by the blocked order of the questions (all high autonomy and all low autonomy items together) and by participants' knowledge that the assistant system they work in explicitly requires them to be only the executing body of their client. Thus, participants' judging their autonomy in work settings as very low fits their job description.

power have been found to make more abstract (vs. concrete) action identifications (Smith & Trope, 2006). Thus, power and autonomy seem to have comparable effects on action identification.

This parallel between power and autonomy could result from autonomy's being one component of power. Power is often defined as being able to control others' resources while at the same time being independent from others' control over one's own resources—in short, having social control and being autonomous (Fiske & Dépret, 1996). Conceptually, experiencing high (or low) autonomy regarding one's own actions is independent from experiencing high (or low) social control over others. Indeed, autonomy and social control have been found to have partly distinct effects (Lammers et al., 2009). For some cognitive consequences, autonomy has been found to be more important than social control. That is, some power effects seem to be driven by autonomy rather than social control (Lammers et al., 2016; Rucker & Galinsky, 2016; Van Dijke & Poppe, 2006; see also Inesi et al., 2011). Although we did not examine social influence, the present results confirm the importance of autonomy. For abstractness of action identification, one aspect of power—autonomy—is sufficient, and the other aspect—social control—is not necessary. Thus, the present results indicate that power effects that are mediated by action identification could result from autonomy rather than social control.

Applications for Employee Leadership

The present results extend the application of Action Identification Theory. Previous research focused mainly on mechanical or basic cognitive determinants (e.g., Wegner et al., 1984). The present work indicates that Action Identification Theory is also applicable in areas containing autonomy variations. In job settings with low autonomy, concrete action identification prevailed (see Studies 3 & 4), providing initial support for Action Identification Theory's applicability in occupational settings. The present results suggest that people occupying higher compared to lower positions in a corporate hierarchy should usually regard their actions more abstractly. This might explain why people at the bottom of authoritarian organizational hierarchies more frequently suffer from low employee engagement (Busse & Regenberg, 2019) or even alienation (Blauner, 1964; Mottaz, 1981). Abstract action representations are necessary to derive meaning from one's actions (Michaels et al., 2013; see also Davis et al., 2016), so that low action identification could hinder experiencing actions as meaningful. In sum, for employees with low autonomy, the accompanying low action identification suggested by our findings might lead to a sense of meaninglessness of their actions, which might in turn might cause low employee engagement.

Action Identification Theory makes predictions about the main functions of different action identifications. Specifically, high identification is postulated to facilitate comprehensive action understanding and low identification is postulated to facilitate effective action execution (Berson et al., 2015; Vallacher et al., 1989). According to the present results, autonomy could, by influencing action identification, be used to optimize processing. When effective action execution is necessary, low autonomy should be helpful; and when a comprehensive understanding of the action is desirable, high autonomy should be adaptive. Our findings suggest that in circumstances where employees might need to understand the big picture (such as change management or in creative tasks), this could be facilitated by enhancing autonomy (e.g., via participative leadership styles). Conversely, when detail-oriented action execution is required, low autonomy (e.g., by temporarily not asking employees to participate in decision making) should be helpful. In many organizations, this is reflected by hierarchical structures in which leadership decides strategy while lower levels enact it. Our results indicate that a dynamic shift between different action identification levels is possible and temporary changes in autonomy might be used to adapt abstractness to different situational requirements.

Caveats and Directions for Future Research

It is not perfectly clear yet how far the influence of autonomy on abstractness generalizes. In Experiments 1–2a and 3–4, the action identification task used actions concerning which the person had (or imagined to have) high or low autonomy. Thus, autonomy concerning an action influences how abstractly this action is represented. Extending this finding in Experiment 2b, abstractness was measured for actions that were not mentioned. Thus, Experiment 2b provides initial evidence that the present results generalize across actions. However, whether autonomy influences abstractness of processing beyond action identification—for example, whether autonomy influences how abstractly objects are processed—remains to be examined in future research.

Another limitation of the present research is that our autonomy manipulations are not entirely confound-free. Specifically, low compared to high autonomy is more liable to imply negative affect, which is also signalled by the auxiliary verbs employed in Experiment 1. To preclude the present results being driven by stress or affect, we tried to make the vignettes in Experiments 2a and 2b as neutral as possible concerning these aspects. Still, future research could explicitly examine these and other psychological processes that are typically associated with variations in experienced autonomy.

Experiment 3 and Study 4 extend the manipulation from imagined autonomy to remembered and currently experienced autonomy by comparing actions in occupation and leisure context. In addition to autonomy, however, work and leisure contexts also differ in other respects (e.g., stress); while one might argue that these are reasonable covariates from an ecological point of view (e.g., high autonomy frequently entails lower stress than low autonomy), future research should use a broader range of situational manipulations.

Moreover, another confound in the manipulation in Experiment 1 consists in varying uncertainty. Having (vs. wanting) to perform an action probably entails a higher certainty that one will perform the action. Thus, uncertainty was probably higher in the high than in the low autonomy

condition. As high (vs. low) uncertainty has been found to promote abstract construal (e.g., Grinfeld et al., 2021; Wakslak et al., 2006; however, see Calderon et al., 2020 for a non-replication), uncertainty differences could explain the results of Experiments 1a and 1b.[8] However, this is not the case for the manipulations in any of the later studies as there, participants executed (or remembered or imagined executing) all actions so that there is no difference in action execution probability in these studies.

Similarly, while demand characteristics might well have influenced the results of Experiments 1a and 1b, this is not the case for the later experiments. Specifically, participants' responses in the funnelled debriefing in Experiments 2a and 2b indicate that they were not aware of the autonomy manipulation. Moreover, as the results were qualitatively identical when using a between-participants manipulation, the overall pattern of results cannot be explained by demand characteristics.

Additionally, in the present research, we did not separately examine different components of autonomy. We conceptualized autonomy as consisting of action control and choice and did not manipulate them separately. Future research could systematically examine pure choice and pure action control manipulation to determine their influence on action identification. Similarly, future research should examine how increasing levels of self-determination influence action identification. According to self-determination theory, self-determination varies on a continuum, ranging from amotivation, over external and introjected regulation, to identified and integrated regulation, as the most self-determined forms (Ryan & Deci, 2017). The present manipulations were rather in the middle of this spectrum (having neither conditions of amotivation nor ones where self-congruence is emphasized). Future research should examine the influence of autonomy on action identification across the full range of self-determination, examining whether stepwise increase in self-determination increases abstractness of action identification across the whole continuum.

Conclusion

In sum, the present results extend the scope of Action Identification Theory from generally more cognitive determinants to the social construct of autonomy. By showing that high compared to low autonomy leads to more abstract action identification, the present work unites the scope of the highly relevant social construct of experienced autonomy with the rigorous theorizing of Action Identification Theory. Autonomy altered information representation, a basic cognitive adaptation, which indicates that the present results could be very useful for both basic and applied research.

Contributions

Anita Körner: Conceptualization, Methodology, Software, Formal Analysis, Investigation, Data Curation, Writing- Original draft preparation. **Felix Götz**: Methodology, Investigation, Writing- Reviewing and Editing. **Anand Krishna**: Methodology, Software, Investigation, Writing- Reviewing and Editing,

Acknowledgements

We are very grateful to Lena-Marie Schlichenmaier for recruiting the participants in Study 4.

Competing Interests

None.

Data Accessibility Statement

All materials, data, and analyses can be found at https://osf.io/mqnav/. Experiment 1 was pre-registered, see (https://osf.io/72hsb/.

Submitted: February 07, 2023 PDT, Accepted: August 22, 2023 PDT

8 We would like to thank an anonymous reviewer for this suggestion.

References

Abramson, L. Y., Seligman, M. E., & Teasdale, J. D. (1978). Learned helplessness in humans: Critique and reformulation. *Journal of Abnormal Psychology*, *87*(1), 49–74. https://doi.org/10.1037/0021-843x.87.1.49

Balconi, M., & Crivelli, D. (2010). FRN and P300 ERP effect modulation in response to feedback sensitivity: The contribution of punishment-reward system (BIS/BAS) and behaviour identification of action. *Neuroscience Research*, *66*(2), 162–172. https://doi.org/10.1016/j.neures.2009.10.011

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*(2), 191–215. https://doi.org/10.1037/0033-295x.84.2.191

Barlas, Z., & Obhi, S. S. (2013). Freedom, choice, and the sense of agency. *Frontiers in Human Neuroscience*, *7*, 514. https://doi.org/10.3389/fnhum.2013.00514

Baskin, E., Wakslak, C. J., Trope, Y., & Novemsky, N. (2014). Why feasibility matters more to gift receivers than to givers: A construal-level approach to gift giving. *Journal of Consumer Research*, *41*(1), 169–182. https://doi.org/10.1086/675737

Beck, B., Di Costa, S., & Haggard, P. (2017). Having control over the external world increases the implicit sense of agency. *Cognition*, *162*, 54–60. https://doi.org/10.1016/j.cognition.2017.02.002

Berson, Y., Halevy, N., Shamir, B., & Erez, M. (2015). Leading from different psychological distances: A construal-level perspective on vision communication, goal setting, and follower motivation. *The Leadership Quarterly*, *26*(2), 143–155. https://doi.org/10.1016/j.leaqua.2014.07.011

Blauner, R. (1964). *Alienation and Freedom: The Factory Worker and his Industry*. Chicago University Press.

Borhani, K., Beck, B., & Haggard, P. (2017). Choosing, doing, and controlling: Implicit sense of agency over somatosensory events. *Psychological Science*, *28*(7), 882–893. https://doi.org/10.1177/0956797617697693

Brehm, J. W. (1993). Control, its loss, and psychological reactance. In G. Weary, F. H. Gleicher, & K. L. Marsh (Eds.), *Control motivation and social cognition* (pp. 3–30). Springer. https://doi.org/10.1007/978-1-4613-8309-3_1

Busse, R., & Regenberg, S. (2019). Revisiting the "authoritarian versus participative" leadership style legacy: A new model of the impact of leadership inclusiveness on employee engagement. *Journal of Leadership & Organizational Studies*, *26*(4), 510–525. https://doi.org/10.1177/1548051818810135

Davis, W. E., Kelley, N. J., Kim, J., Tang, D., & Hicks, J. A. (2016). Motivating the academic mind: High-level construal of academic goals enhances goal meaningfulness, motivation, and self-concordance. *Motivation and Emotion*, *40*(2), 193–202. https://doi.org/10.1007/s11031-015-9522-x

DeCharms, R. (1968). *Personal causation: The internal affective determinants of behavior*. Academic Press.

Deci, E. L., & Ryan, R. M. (1987). The support of autonomy and the control of behavior. *Journal of Personality and Social Psychology*, *53*(6), 1024–1037. https://doi.org/10.1037/0022-3514.53.6.1024

Deci, E. L., & Ryan, R. M. (2012). Motivation, personality, and development within embedded social contexts: An overview of self-determination theory. In R.M. Ryan (Ed.), *The Oxford handbook of human motivation* (pp. 85–108). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780195399820.013.0006

Deci, E. L., & Ryan, R. M. (1991). A motivational approach to self: Integration in personality. In R. Dienstbier (Ed.), *Nebraska Symposium on Motivation: Vol. 38. Perspectives on motivation* (pp. 237–288). University of Nebraska Press.

Fiske, S. T., & Dépret, E. (1996). Control, interdependence and power: Understanding social cognition in its social context. *European Review of Social Psychology*, *7*(1), 31–61. https://doi.org/10.1080/14792779443000094

Geers, A. L., Rose, J. P., Fowler, S. L., Rasinski, H. M., Brown, J. A., & Helfer, S. G. (2013). Why does choice enhance treatment effectiveness? Using placebo treatments to demonstrate the role of personal control. *Journal of Personality and Social Psychology*, *105*(4), 549–566. https://doi.org/10.1037/a0034005

Grinfeld, G., Wakslak, C. J., Trope, Y., & Liberman, N. (2021). Hypotheticality and Level of Construal. *PsyArXiv*. https://doi.org/10.31234/osf.io/yvafk

Inesi, M. E., Botti, S., Dubois, D., Rucker, D. D., & Galinsky, A. D. (2011). Power and choice their dynamic interplay in quenching the thirst for personal control. *Psychological Science*, *22*(8), 1042–1048. https://doi.org/10.1177/0956797611413936

Kachanoff, F. J., Taylor, D. M., Caouette, J., Khullar, T. H., & Wohl, M. J. A. (2019). The chains on all my people are the chains on me: Restrictions to collective autonomy undermine the personal autonomy and psychological well-being of group members. *Journal of Personality and Social Psychology*, *116*(1), 141–165. https://doi.org/10.1037/pspp0000177

Kaufman, G. F., & Libby, L. K. (2012). Changing beliefs and behavior through experience-taking. *Journal of Personality and Social Psychology*, *103*(1), 1–19. https://doi.org/10.1037/a0027525

Kim, T. W., & Duhachek, A. (2020). Artificial Intelligence and persuasion: A construal-level account. *Psychological Science*, *31*(4), 363–380. https://doi.org/10.1177/0956797620904985

Körner, A., Moritz, S., & Deutsch, R. (2020). Dissecting dispositionality: Distance influences stability of attribution. *Social Psychological and Personality Science*, *11*(4), 446–453. https://doi.org/10.1177/1948550619877856

Kozak, M. N., Marsh, A. A., & Wegner, D. M. (2006). What do I think you're doing? Action identification and mind attribution. *Journal of Personality and Social Psychology*, *90*(4), 543–555. https://doi.org/10.1037/0022-3514.90.4.543

Lakens, D. (2013). Calculating and reporting effect sizes to facilitate cumulative science: A practical primer for t-tests and ANOVAs. *Frontiers in Psychology*, *4*. https://doi.org/10.3389/fpsyg.2013.00863

Lammers, J., Stoker, J. I., Rink, F., & Galinsky, A. D. (2016). To have control over or to be free from others? The desire for power reflects a need for autonomy. *Personality and Social Psychology Bulletin*, *42*(4), 498–512. https://doi.org/10.1177/0146167216634064

Lammers, J., Stoker, J. I., & Stapel, D. A. (2009). Differentiating social and personal power: Opposite effects on stereotyping, but parallel effects on behavioral approach tendencies. *Psychological Science*, *20*(12), 1543–1548. https://doi.org/10.1111/j.1467-9280.2009.02479.x

Langer, E. J. (1975). The illusion of control. *Journal of Personality and Social Psychology*, *32*(2), 311–328. https://doi.org/10.1037/0022-3514.32.2.311

Leotti, L. A., Iyengar, S. S., & Ochsner, K. N. (2010). Born to choose: The origins and value of the need for control. *Trends in Cognitive Sciences*, *14*(10), 457–463. https://doi.org/10.1016/j.tics.2010.08.001

Liberman, N., & Trope, Y. (1998). The role of feasibility and desirability considerations in near and distant future decisions: A test of temporal construal theory. *Journal of Personality and Social Psychology*, *75*(1), 5–18. https://doi.org/10.1037/0022-3514.75.1.5

Litt, M. D. (1988). Self-efficacy and perceived control: Cognitive mediators of pain tolerance. *Journal of Personality and Social Psychology*, *54*(1), 149–160. https://doi.org/10.1037/0022-3514.54.1.149

Magee, J. C., Milliken, F. J., & Lurie, A. R. (2010). Power differences in the construal of a crisis: The immediate aftermath of September 11, 2001. *Personality and Social Psychology Bulletin*, *36*(3), 354–370. https://doi.org/10.1177/0146167209360418

Magee, J. C., & Smith, P. K. (2013). The social distance theory of power. *Personality and Social Psychology Review*, *17*(2), 158–186. https://doi.org/10.1177/1088868312472732

Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, *50*(4), 370–396. https://doi.org/10.1037/h0054346

Michaels, J. L., Parkin, S. S., & Vallacher, R. R. (2013). Destiny is in the details: Action identification in the construction and destruction of meaning. In J. A. Hicks & C. Routledge (Eds.), *The experience of meaning in life* (pp. 103–115). https://doi.org/10.1007/978-94-007-6527-6_8

Milyavskaya, M., Inzlicht, M., Hope, N., & Koestner, R. (2015). Saying "no" to temptation: Want-to motivation improves self-regulation by reducing temptation rather than by increasing self-control. *Journal of Personality and Social Psychology*, *109*(4), 677–693. https://doi.org/10.1037/pspp0000045

Moller, A. C., Deci, E. L., & Ryan, R. M. (2006). Choice and ego-depletion: The moderating role of autonomy. *Personality and Social Psychology Bulletin*, *32*(8), 1024–1036. https://doi.org/10.1177/0146167206288008

Mottaz, C. J. (1981). Some determinants of work alienation. *The Sociological Quarterly*, *22*(4), 515–529. https://doi.org/10.1111/j.1533-8525.1981.tb00678.x

Murray, H. A. (1938). *Explorations in personality*. Oxford University Press.

Patall, E. A., Cooper, H., & Robinson, J. C. (2008). The effects of choice on intrinsic motivation and related outcomes: A meta-analysis of research findings. *Psychological Bulletin*, *134*(2), 270–300. https://doi.org/10.1037/0033-2909.134.2.270

Patall, E. A., Sylvester, B. J., & Han, C.-W. (2014). The role of competence in the effects of choice on motivation. *Journal of Experimental Social Psychology*, *50*(1), 27–44. https://doi.org/10.1016/j.jesp.2013.09.002

Pearce, K., Huta, V., & Voloaca, M. (2020). How eudaimonic and hedonic orientations map onto seeing beyond the 'me, now, and tangible.' *The Journal of Positive Psychology*, *16*(5), 610–621. https://doi.org/10.1080/17439760.2020.1791943

Radel, R., Pelletier, L., & Sarrazin, P. (2013). Restoration processes after need thwarting: When autonomy depends on competence. *Motivation and Emotion*, *37*(2), 234–244. https://doi.org/10.1007/s11031-012-9308-3

Richard, F. D., Bond, C. F., Jr., & Stokes-Zoota, J. J. (2003). One hundred years of social psychology quantitatively described. *Review of General Psychology*, *7*(4), 331–363. https://doi.org/10.1037/1089-2680.7.4.331

Rothbaum, F., Weisz, J. R., & Snyder, S. S. (1982). Changing the world and changing the self: A two-process model of perceived control. *Journal of Personality and Social Psychology*, *42*(1), 5–37. https://doi.org/10.1037/0022-3514.42.1.5

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied*, *80*(1), 1–28. https://doi.org/10.1037/h0092976

Rucker, D. D., & Galinsky, A. D. (2016). The agentic-communal model of power: Implications for consumer behavior. *Current Opinion in Psychology*, *10*, 1–5. https://doi.org/10.1016/j.copsyc.2015.10.010

Ryan, Richard M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*(1), 68–78. https://doi.org/10.1037/0003-066x.55.1.68

Ryan, Richard M, & Deci, E. L. (Eds.). (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford Press. https://doi.org/10.1521/978.14625/28806

Sheldon, K. M., Ryan, R., & Reis, H. T. (1996). What makes for a good day? Competence and autonomy in the day and in the person. *Personality and Social Psychology Bulletin*, *22*(12), 1270–1279. https://doi.org/10.1177/01461672962212007

Skinner, E. A. (1996). A guide to constructs of control. *Journal of Personality and Social Psychology*, *71*(3), 549–570. https://doi.org/10.1037/0022-3514.71.3.549

Smith, P. K., & Trope, Y. (2006). You focus on the forest when you're in charge of the trees: Power priming and abstract information processing. *Journal of Personality and Social Psychology*, *90*(4), 578–596. https://doi.org/10.1037/0022-3514.90.4.578

Stel, M., Dijk, E. V., Smith, P. K., Dijk, W. W. V., & Djalal, F. M. (2012). Lowering the pitch of your voice makes you feel more powerful and think more abstractly. *Social Psychological and Personality Science*, *3*(4), 497–502. https://doi.org/10.1177/1948550611427610

Sweeney, A. M., & Freitas, A. L. (2018). Construing action abstractly and experiencing autonomy: Implications for physical activity and diet. *Motivation and Emotion*, *42*(2), 161–177. https://doi.org/10.1007/s11031-017-9645-3

Trope, Y., Ledgerwood, A., Liberman, N., & Fujita, K. (2021). Regulatory scope and its mental and social supports. *Perspectives on Psychological Science*, *16*(2), 204–224. https://doi.org/10.1177/1745691620950691

Trope, Y., & Liberman, N. (2010). Construal-level theory of psychological distance. *Psychological Review*, *117*(2), 440–463. https://doi.org/10.1037/a0018963

Vallacher, R. R., & Wegner, D. M. (1987). What do people think they're doing? Action identification and human behavior. *Psychological Review*, *94*(1), 3–15. https://doi.org/10.1037/0033-295x.94.1.3

Vallacher, R. R., & Wegner, D. M. (1989). Levels of personal agency: Individual variation in action identification. *Journal of Personality and Social Psychology*, *57*(4), 660–671. https://doi.org/10.1037/0022-3514.57.4.660

Vallacher, R. R., & Wegner, D. M. (2012). Action identification theory. In P. A. M. Van Lange, A. W. Kruglanski, & E. T. Higgins (Eds.), *Handbook of Theories of Social Psychology* (pp. 327–348). Sage. https://doi.org/10.4135/9781446249215.n17

Vallacher, R. R., Wegner, D. M., & Frederick, J. (1987). The presentation of self through action identification. *Social Cognition*, *5*(3), 301–322. https://doi.org/10.1521/soco.1987.5.3.301

Vallacher, R. R., Wegner, D. M., & Somoza, M. P. (1989). That's easy for you to say: Action identification and speech fluency. *Journal of Personality and Social Psychology*, *56*(2), 199–208. https://doi.org/10.1037/0022-3514.56.2.199

Van Dijke, M., & Poppe, M. (2006). Striving for personal power as a basis for social power dynamics. *European Journal of Social Psychology*, *36*(4), 537–556. https://doi.org/10.1002/ejsp.351

Wakslak, C. J., Trope, Y., Liberman, N., & Alony, R. (2006). Seeing the forest when entry is unlikely: Probability and the mental representation of events. *Journal of Experimental Psychology: General*, *135*(4), 641–653. https://doi.org/10.1037/0096-3445.135.4.641

Wegner, D. M., Vallacher, R. R., Macomber, G., Wood, R., & Arps, K. (1984). The emergence of action. *Journal of Personality and Social Psychology*, *46*(2), 269–279. https://doi.org/10.1037/0022-3514.46.2.269

Werner, K. M., Milyavskaya, M., & Koestner, R. (2018). *Examining the role of approach-avoidance and autonomous-controlled motivation in predicting goal progress over time*. Unpublished manuscript. https://doi.org/10.31234/osf.io/bs28w

White, R. W. (1959). Motivation reconsidered: The concept of competence. *Psychological Review*, *66*(5), 297–333. https://doi.org/10.1037/h0040934

Zuckerman, M., Porac, J., Lathin, D., & Deci, E. L. (1978). On the importance of self-determination for intrinsically-motivated behavior. *Personality and Social Psychology Bulletin*, *4*(3), 443–446. https://doi.org/10.1177/014616727800400317

Supplementary Materials

Peer Review History

Download: https://collabra.scholasticahq.com/article/88165-free-to-see-the-big-picture-autonomy-increases-abstractness-of-action-identification/attachment/181686.docx?auth_token=iQdRWUsq0OVTxdRQ9Vrq