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Work and freedom? Working self-objectification and belief in personal free will

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The current work aimed to extend the burgeoning literature on working objectification by investigating the effects of particular job activities on self-perception. By integrating relevant theoretical reflections with recent empirical evidence, we expected that performing objectifying (i.e., repetitive, fragmented, and other-directed) tasks would affect participants' self-objectification and, in turn, their belief in personal free will. In three studies, we consistently found that performing a manual (Study 1 and Study 2) or a computer (Study 3) objectifying task (vs. a non-objectifying task and vs. the baseline condition) led participants to objectify themselves in terms of both decreased self-attribution of human mental states (Study 1 and Study 3) and increased self-perception of being instrument-like (Study 2 and Study 3). Crucially, this increased self-objectification mediated the relationship between performing an objectifying activity and the participants' decreased belief in personal free will. The theoretical and practical implications of these findings are considered.

Modern humans base their lives on work: Important aspects of identity and self-definition are tied to participation in work activities (Dutton, Roberts, & Bednar, 2010). However, work is often not a free expression of human identity but is simply labour, which has long-standing connotations of pain and trouble. In particular, the current industrialization and progressive simplification of job have facilitated a process of working objectification through which workers are transformed into mere tools (Volpato, Andrighetto, & Baldissarri, 2016).

The present work aimed to explore the consequences of working objectification on the self, by analysing the relationship between self-objectification, triggered by specific work activities, and a relevant but still unexplored consequence: the decreased belief in personal free will.

Objectification of workers in modern society

Objectification refers to the perception of others as mere objects. It is a form of subtle and daily dehumanization that erodes the humanity of others, usually in an unconscious manner. When objectified, a person is judged exclusively for his usefulness and becomes a

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tool for other people's purposes (Gruenfeld, Inesi, Magee, & Galinsky, 2008; see also Bartky, 1990; Nussbaum, 1999).

Several philosophers have highlighted the presence of objectification in the modern industrial system. For example, Marx claimed that in a capitalistic society, work is not a free activity but rather an external imposition in which workers are considered mere tools and are evaluated exclusively in terms of their productivity. According to Marx, (1844/1978, p. 73), industrial work leads to a deformation process whereby the richer the product, the poorer the worker becomes, as he is transformed into a spiritless 'nature's bondman'. Consistent with these reflections, Arendt (1958) argued that the industrial system has contributed to the victory of the *animal laborans* – a passive entity whose agency and autonomy are neglected – over the *homo faber* – an active worker who has the ability to take initiative and think autonomously. In this victory, Arendt denounced the general loss of the human experience and freedom of action.

Interestingly, Fromm (1941, 1956) pre-empted these thoughts and analysed the relationship between modern man and (the loss of) personal freedom. In his view, modern capitalism inevitably compels workers to adapt to the demands of the machine and act as mere tools with the sole purpose of increasing production. This process represents a sort of unconscious objectification that leads workers to internalize the demands of the industrial system and to perceive an illusory freedom, while they actually need others who can make decisions for them.

Empirical research on other- and self-objectification in work settings

Based on these reflections, a burgeoning body of literature is now empirically exploring working objectification and its antecedents. Similar to the literature in the sexual domain (see Gervais, 2013; Loughnan & Pacilli, 2014, for recent reviews), these studies investigate the two facets of objectification: other- and self-objectification. Other-objectification refers to laypeople's perceptions of the objectified target. In her 1995 essay, Nussbaum identified different features that characterize objectified perceptions towards factory workers. According to Vaes, Loughnan, and Puvia (2014), these features can be summarized under two crucial dimensions: instrumentality (the perception of workers as mere interchangeable tools) and the denial of humanity (the perception of workers as mindless entities). Drawing on these assumptions, Gruenfeld *et al.* (2008) analysed other-objectification within hierarchical working relationships by focusing on the dimension of instrumentality. In a series of laboratory studies, they demonstrated that participants in high-powered positions, compared with those in low-power positions or baseline conditions, valued subordinates on the basis of their usefulness and considered them as mere instruments. More recently, Andrighetto, Baldissarri, and Volpato (2016) showed that other-objectification may also arise in the absence of power asymmetric relations and may be embodied in the characteristics of the work itself. In three experimental studies, they considered three specific characteristics of factory work tasks (Blauner, 1964) – repetitiveness, fragmentation, and other-direction (i.e., the external control of pace) – and found that each characteristic significantly affected laypeople's views of factory workers as instrument-like and as being less able to experience human mental states. Furthermore, when participants focused on the specific activities of a factory worker rather than his personhood, they objectified him. Importantly, the same pattern of results did not emerge when they were asked to focus on the activities of an artisan worker because the features of this type of work do not elicit an objectified view of the worker.

Although other-objectification has been widely examined in the last few years, self-objectification is perhaps the most insidious facet of this phenomenon. According to objectification theory (Fredrickson & Roberts, 1997), the objectifying gaze is an important factor that triggers self-objectification as it leads the objectified target to internalize the observer's perspective and, consequently, to objectify themselves. A cross-sectional study (Baldissarri, Andrighetto, & Volpato, 2014) analysed this phenomenon in a hierarchical real-work setting. This research revealed that when subordinate workers perceived that their superiors viewed them as mere instruments, they internalized this objectifying gaze and objectified themselves.

By integrating this initial empirical evidence with the theoretical reflections described above, the first aim of the present research was to experimentally verify whether critical working conditions would lead to self-objectification *per se*, even in the absence of a potentially objectifying gaze. Specifically, our purpose was to verify whether performing repetitive, fragmented, and other-directed activities would cause not only other-objectification (Andrighetto *et al.*, 2016), but also self-objectification.

Additionally, through the present work, we wanted to take another step forward in the study of the possible consequences of self-objectification. Drawing on Fromm's perspective on the modern worker and the loss of personal freedom, we aimed to empirically verify whether performing objectifying work-related tasks would decrease the belief in personal free will (Rakos, Laurene, Skala, & Slane, 2008) via increased self-objectification.

Belief in free will

Belief in free will, understood as the perception of having the ability to make free and conscious choices (Baumeister & Monroe, 2014), is a core characteristic of civilized human beings. According to Baumeister (2005), free will is a fundamental part of human identity that allows individuals to pursue their personal interests within the complex context of social life, where they are, for instance, required to follow rules, control impulses, and plan to pursue delayed benefits. Therefore, 'free will is among the distinctively human traits that are adaptations for culture' (Baumeister & Monroe, 2014, p. 12). Accordingly, several empirical studies have documented that the belief in free will affects, for example, moral and interpersonal behaviours (e.g., Baumeister, Masicampo, & DeWall, 2009; Vohs & Schooler, 2008) and life choices (Feldman, Baumeister, & Wong, 2014). Stillman *et al.* (2010) also revealed that it is a relevant dimension within the working domain, as it leads to better job performance, satisfaction, and career attitudes.

With the goal of broadening the literature about this variable within the working domain, in the present work we aimed to verify whether performing certain work-related tasks would affect the belief in personal free will. Indeed, laypeople conceive of free will as the ability to make choices, to act consistently with their desires, and to be free of constraints (Monroe & Malle, 2010). Feldman *et al.* (2014) demonstrated that having more opportunities for choice consistently leads to a stronger activation of the belief in personal free will. Thus, we assumed that performing repetitive, fragmented, and other-directed tasks (i.e., objectifying tasks) would negatively affect people's belief in personal free will, as these tasks intrinsically imply having limited opportunities for choice and freedom from constraints. Importantly, we hypothesized that this effect would be explained by people's increased tendencies to objectify themselves. The rationale for this prediction is based on the assumption that while agents are seen as having minds that manage their actions, objects are, and are perceived as, passive entities that are controlled

by external forces (Molina, Van de Walle, Condry, & Spelke, 2004; Wegner, 2002) and that cannot act on their own but are rather acted upon (Dennett, 1987; Michotte, 1946/1963). Thus, increased self-perception as objects would lead people to internalize this state of passivity and dependence on external choices. This internalization would imply a decreased sense of responsible autonomy and conscious choice, that is, a decreased belief in having personal free will.

The present research

Three laboratory experiments were designed to test our hypotheses. In all the studies, the participants were randomly assigned to experimental conditions in which they were asked to perform objectifying or non-objectifying tasks. In particular, we employed manual (Study 1 and Study 2) or computer (Study 3) work activities, created *ad hoc*, where the presence (vs. absence) of the key features of working objectification – repetitiveness, fragmentation, and other-direction of activities – was manipulated.

As mentioned above, we chose to focus on these characteristics because, on the one hand, recent empirical work (Andrighetto *et al.*, 2016) has revealed that they are crucial in shaping objectification within the working domain. On the other hand, a number of theoretical analyses (e.g., Arendt, 1958; Blauner, 1964; Fromm, 1941; Hackman & Oldham, 1976) considered them to be detrimental conditions that undermine workers' identity and humanity. Indeed, repetitiveness refers to an activity in which the same task – or a set of a few tasks – is continuously performed. Thus, it leads to the exercise of the same few skills, which requires lower competence and less creative thinking than other activities. Fragmentation refers to the separation of activities into discrete pieces requiring a limited number of skills and pertaining to only a part of the whole production process. Furthermore, fragmentation is considered an important cause of the impoverishment of work as it obstructs workers' comprehension of the production process as a whole (Jaeggi, 2014; Marx, 1844/1978). Other-direction refers to the control of activities by external sources (e.g., the pace of a conveyor belt), which prevents people from working at their own pace and undermines their ability to plan activities.

In all studies, after performing the activity, participants' beliefs in personal free will and self-objectification were assessed, in terms of both the decreased self-attribution of human mental states (Study 1 and Study 3) and increased self-perception as instruments rather than human beings (Study 2 and Study 3).

We hypothesized that the participants assigned to objectifying conditions would objectify themselves more than participants assigned to non-objectifying or baseline conditions (Study 2 and Study 3). In turn, increased self-objectifying perceptions would decrease belief in personal free will. We expected that self-objectification would mediate the relationship between performing objectifying activities and a decreased belief in free will.

STUDY 1

Method

Participants

Sixty psychology undergraduates (47 females) from a large Italian university participated in the study in exchange for partial course credit. The participants' ages ranged from 19 to 40 years (M = 24.35, SD = 3.97).

Procedure and materials

The study was presented as a research investigating the recruitment process in a simulated workplace. The participants came into the laboratory individually and were randomly assigned to one of two experimental conditions (objectifying vs. non-objectifying), in which they were asked to perform a manual activity lasting 20 min.

More concretely, they were presented with a set of small wooden pieces that were placed on the laboratory table. In the objectifying condition, the participants were asked to build a series of small windows (for a total of 100 windows) by putting together five wooden pieces. They were told that each window would subsequently be combined with other pieces to form a small wooden house. Furthermore, they were instructed to build each window in 12 s and informed that if they finished before this time interval, they had to wait before beginning to work on the following window. A sound from a timer located in front of the laboratory table alerted them at the end of each time interval. Thus, this activity was created to simulate a highly repetitive (building the windows was a repetitive and monotonous task), fragmented (the participants were told that they only contributed to a part of the whole process), and other-directed (their activity was paced by a timer) work.

In contrast, in the non-objectifying condition, the participants were asked to build a small wooden house using all or only some of the wooden pieces on the laboratory table. They were asked to spend all 20 min allotted to them. Furthermore, the timer was not used in this condition.

After performing the activity, all participants were asked to complete a questionnaire with the following measures.

Manipulation check

The participants evaluated the repetitiveness (five items: repetitive, various, stimulating, boring, and monotonous; $\alpha = .94$), fragmentation (five items: fragmented, segmented, parcelled, fractionated, and split; $\alpha = .86$), and other-direction (five items: controlled, other-directed, autonomous, subordinate, and depending on; $\alpha = .80$) of the activity on a 7-point scale (1 = *not at all*; 7 = *extremely*).

Self-objectification

Self-objectification was measured through the Self-Mental State Attribution task (SMSA; Baldissarri *et al.*, 2014), an adaptation of the Mental State Attribution task (MSA; Haslam, Kashima, Loughnan, Shi, & Suitner, 2008; see also Holland & Haslam, 2013). The SMSA required participants to rate the extent to which they felt themselves able to experience 20 mental states ($\alpha = .94$) during the activity. Mental states referred to perceptions (e.g., hearing), thoughts (e.g., reasoning), wishes (e.g., wishing), intentions (e.g., planning), and emotions (e.g., fear, pleasure). The items were rated on a 7-point scale (1 = *not at all*; 7 = *very much*).

Belief in personal free will

To measure the participants' belief in personal free will, we used a subscale (eight items; $\alpha = .91$) of the Free Will and Determinism Scale (Rakos *et al.*, 2008). The participants were required to state the degree to which they believed they had free will (1 = *not at all*;

7 = *extremely*) after the activity. Sample items included 'I am in charge of my actions even when my life's circumstances are difficult' and 'I have free will'.

After completing the questionnaire, the participants were thanked and debriefed.

Results and discussion

Table 1 reports the correlations among all the measured variables. As shown, participants' ratings of repetitiveness, fragmentation, and other-direction of the activity were significantly correlated with SMSA, whereas only repetitiveness and other-direction were significantly correlated with belief in personal free will.

A between-subjects MANOVA was conducted to verify the extent to which participants perceived the activities (objectifying vs. non-objectifying) as repetitive, fragmented, and other-directed. The findings revealed a main effect of the condition, $\lambda = .18$, $F(3,56) = 82.95$, $p < .001$, $\eta_p^2 = .82$. The participants in the objectifying condition perceived the activity as significantly more repetitive ($M = 6.24$, $SD = 0.81$), fragmented ($M = 4.42$, $SD = 1.25$), and other-directed ($M = 4.85$, $SD = 1.05$) than participants in the non-objectifying condition (respectively: $M = 2.93$, $SD = 0.98$; $M = 2.58$, $SD = 0.98$; $M = 2.60$, $SD = 0.71$; all $F_s(1,58) \geq 40.34$, $p_s < .001$, $\eta_{ps}^2 \geq .41$).

Two independent *t*-tests were then conducted to compare the effect of the experimental conditions on participants' self-objectification and belief in free will (see Table 2). Regarding the SMSA, the results revealed the expected effect of the experimental condition, $t(58) = -7.19$, $p < .001$, $d = 1.85$: The participants who performed the objectifying activity attributed fewer mental states to themselves than did the participants in the non-objectifying condition. A similar pattern was found for belief in personal free will: The participants in the objectifying condition perceived less personal free will after performing the activity than did the participants in the non-objectifying condition, $t(58) = -2.99$, $p = .004$, $d = 0.79$.

To examine the prediction that performing an objectifying (vs. non-objectifying) activity would decrease the belief in personal free will via self-objectification, we conducted a conditional process model using the PROCESS macro (Model 4) for SPSS with 5,000 bootstrapping samples (Hayes, 2013; see Figure 1). Confirming the findings above, the analysis showed that performing an objectifying activity (vs. non-objectifying) significantly predicted a decreased self-attribution of mental states, $b = -0.85$, $SE = 0.12$, $t(1,58) = -7.19$, $p < .001$. In turn, SMSA was related to belief in personal free will, $b = 0.36$, $SE = 0.15$, $t(2,57) = 2.39$, $p = .02$. Furthermore, when entered together with the mediator, the direct effect of the condition on belief in personal free will turned out to

Table 1. Correlations between the measured variables. Study 1

Variables	1	2	3	4	5
1. Repetitiveness	–				
2. Fragmentation	.70***	–			
3. Other-direction	.74***	.63***	–		
4. SMSA	−.71***	−.52***	−.64***	–	
5. Belief in personal free will	−.32**	−.08	−.27*	.45***	–

Note. SMSA = Self-Mental State Attribution.
*$p \leq .05$; **$p \leq .01$; ***$p \leq .001$.

Table 2. Mean ratings of SMSA and belief in personal free will as a function of activity manipulation. Study 1

	Conditions	
Variables	Objectifying	Non-objectifying
SMSA	2.82_a (0.92)	4.52_b (0.91)
Belief in personal free will	4.66_a (1.28)	5.50_b (0.84)

Note. SMSA = Self-Mental State Attribution.
Standard deviations are provided in parentheses.
Means with different subscripts in the same row differ significantly, $p < .01$.

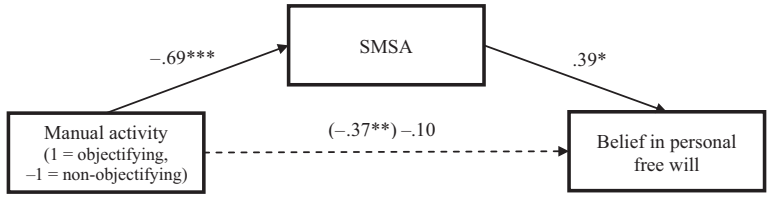

Figure 1. Mediational model testing the indirect effect of the manual objectifying activity (1 = objectifying, −1 = non-objectifying) on the belief in personal free will via SMSA. Study 1.
Notes. SMSA = Self-Mental State Attribution. *$p \leq .05$; **$p \leq .01$; ***$p \leq .001$.

be non-significant, $b = -0.12$, $SE = 0.18$, $t(2, 57) = -.62$, $p = .53$. Crucially, confirming our mediational hypothesis, the indirect effect of the experimental condition on decreased belief in personal free will via SMSA was significant, $a*b = -0.30$, 95% CI $[-0.65, -0.06]$.[1]

The findings of Study 1 provide the first support for our hypotheses. Performing an objectifying manual task, that is, a repetitive, fragmented, and other-directed task, significantly impacted people's tendencies to self-objectify and their belief in having free will. Furthermore, as predicted, increased self-objectifying perceptions explained the relationship between objectifying activity (vs. non-objectifying) and decreased perceptions of free will.

STUDY 2

Study 2 was designed to replicate and extend the results obtained in Study 1. First, we considered a different measure of self-objectification that focused more on the dimension of instrumentality. We reasoned that an alternative measure of self-objectification would allow us to ensure that the significant relationship between self-objectification and reduced belief in free will was not due to the specific measure considered in Study 1.

[1] *We also tested an alternative mediation model in which SMSA was entered as the dependent variable and the belief in personal free will was entered as the mediator. Although the indirect effect of the experimental condition on SMSA via belief in personal free will was significant,* a*b = *−0.11, 95% CI [−0.25, −0.02], when entered together with the mediator the direct effect of the condition on SMSA was still significant,* b = *−0.74,* SE = *0.12,* t*(2, 57) = −6.09,* p < *.001, suggesting a partial mediation of belief in personal free will. Thus, supporting our proposed model, SMSA appears to be a more reliable mediator than belief in personal free will, as it fully mediates the effect of the experimental condition on the belief in personal free will.*

Indeed, the SMSA includes mental states (e.g., planning, deciding) that are potentially linked with perceptions of personal free will that could have affected this variable *per se*. Second, through this study we aimed to provide a more stringent test of our hypotheses by adding a baseline condition. Study 1 did not allow us to verify whether our results were actually due to the objectifying activity, or, rather, to the non-objectifying activity. Indeed, one could argue that the activity that the participants performed in the non-objectifying condition was a creative and free task that could have triggered a sort of 'super-humanization' among them. Accordingly, in Study 2 we expected that the participants assigned to the non-objectifying condition would display lower self-objectification and stronger belief in free will compared with those assigned to the objectifying condition but not compared with those assigned to the baseline condition.

Method

Participants, procedure, and materials

Ninety-two undergraduates (67 females) participated in the study in exchange for partial course credit. The participants' ages ranged from 18 to 65 years (M = 23.83, SD = 6.22).

The procedure was similar to that of Study 1 with the addition of the baseline condition. The participants were randomly assigned to three experimental conditions (objectifying vs. non-objectifying vs. baseline). The participants in the objectifying and non-objectifying conditions were asked to perform the same tasks as in Study 1. In contrast, the participants assigned to the baseline condition completed the questionnaire with the measures described below without performing any activity beforehand.

Manipulation check

The participants in the activity conditions were asked to judge the activity they performed using the same items as Study 1. These items assessed the degree to which the activity was repetitive (α = .93), fragmented (α = .88), and other-directed (α = .75).

Self-objectification

The measure of instrumentality used by Andrighetto *et al.* (2016) was adapted to measure self-objectification. The participants were asked to rate the extent to which they perceived themselves as similar (1 = *not at all*; 7 = *extremely*) to five instrument-related items (instrument, device, tool, thing, and machine) and five human-related items (human being, person, individual, subject, and someone). To obtain both instrument and human scores, we calculated two average ratings for the instrument-related (α = .91) and human-related words (α = .75), respectively.

Belief in personal free will

The belief in personal free will was detected using the same measure (α = .86) as in Study 1.[2]

Finally, the participants were thanked and debriefed.

[2] *In both studies 2 and 3, for the self-objectification and the belief in personal free will measures the participants in the objectifying and non-objectifying conditions were asked to express their perceptions during the activity and after the activity, respectively. Instead, the participants in the baseline condition were asked to express their perceptions at that moment.*

Results and discussion

Table 3 reports the correlations among all the measured variables. As shown in the table, the participants' evaluations of repetitiveness, fragmentation, and other-direction of the activity significantly correlated with both the self-objectification measures and the belief in personal free will.

The between-subjects MANOVA, which considered only the participants in objectifying and non-objectifying conditions, showed a main effect of condition, $\lambda = .36$, $F(3,58) = 33.78$, $p < .001$, $\eta_p^2 = .64$: The activity was significantly perceived as more repetitive ($M = 5.45$, $SD = 1.17$), fragmented ($M = 4.01$, $SD = 1.35$), and other-directed ($M = 4.14$, $SD = 1.39$) in the objectifying condition than in the non-objectifying one ($M = 2.71$, $SD = 1.06$; $M = 2.49$, $SD = 0.99$; $M = 2.73$, $SD = 0.98$, respectively; all $F_s(1,60) \geq 21.44, p_s < .001, \eta_{ps}^2 \geq .26$). Thus, similar to Study 1, our manipulation proved successful. Three one-way between-subjects ANOVAs were then conducted on self-objectification scores and belief in free will. Regarding self-perceptions of being instrument- and human-like, the results revealed the expected effect of the experimental condition on the instrument score, $F(2,89) = 10.06$, $p < .001$, $\eta_p^2 = .18$, and on the human score, $F(2,89) = 4.70$, $p = .01$, $\eta_p^2 = .09$. *Post-hoc* comparisons (see Table 4) indicated that in the objectifying condition, participants perceived themselves as less human and more instrument-like than those in the baseline and the non-objectifying condition, while the participants' mean score in the baseline and non-objectifying conditions did not significantly differ. A similar pattern of results emerged for the belief in personal free will: The experimental condition significantly impacted this dependent variable, $F(2,89) = 4.04$, $p = .02$, $\eta_p^2 = .08$. The participants who performed the objectifying activity perceived themselves as having significantly less personal free will than participants who performed the non-objectifying activity and participants assigned to the baseline condition. Instead, the participants in the non-objectifying and baseline conditions did not display different levels of personal free will.

Similarly to Study 1, we tested the mediational role of self-perceptions as instrument-like (vs. human-like) in the relationship between the objectifying activity and decreased belief in personal free will. In these mediational analyses, the instrument score and the human score were combined into one index so that the higher scores indicated greater self-perception as instrument-like (vs. human-like). Furthermore, because the independent variable was categorical with three levels, we followed the Hayes and Preacher (2014) recommendations and generated two dummy-coded variables with the objectifying condition as the reference group. In particular, Contrast 1 tested the effect of the objectifying condition (coded 0) versus the baseline condition (coded −1), with the

Table 3. Correlations between the measured variables. Study 2

Variables	1	2	3	4	5	6
1. Repetitiveness	–					
2. Fragmentation	.53***	–				
3. Other-direction	.60***	.65***	–			
4. Instrument score	.58***	.53***	.55***	–		
5. Human score	−.35**	−.39**	−.42***	−.36***	–	
6. Belief in personal free will	−.30*	−.50**	−.40***	−.37***	.46***	–

Note. *$p \leq .05$; **$p \leq .01$; ***$p \leq .001$.

Table 4. Mean ratings of self-perceptions as instrument-like, human-like, and belief in personal free will as a function of activity manipulation. Study 2

	Conditions		
Variables	Objectifying	Non-objectifying	Baseline
Instrument score	3.13_a (1.59)	1.95_b (1.14)	1.83_b (0.94)
Human score	4.70_a (1.21)	5.34_b (0.89)	5.46_b (0.98)
Belief in personal free will	4.49_a (1.12)	5.14_b (0.87)	5.10_b (1.00)

Note. Standard deviations are provided in parentheses.
Means with different subscripts in the same row differ significantly, $p < .05$.

non-objectifying condition coded 0. Contrast 2 tested for the residual difference between the objectifying condition (coded 0) and the non-objectifying condition (coded −1), with the baseline condition coded 0. The analysis showed that both Contrast 1, $b = 2.07$, $SE = 0.47$, $t(2,89) = 4.39$, $p < .001$, and Contrast 2, $b = 1.82$, $SE = 0.46$, $t(2,89) = 3.94$, $p < .001$, led to increased self-perceptions as instrument-like, confirming the results of the previous univariate analyses. In turn, the increased self-perceptions as instrument-like decreased the belief in personal free will, $b = -0.23$, $SE = 0.05$, $t(3,88) = -4.44$, $p < .001$. Crucially, confirming our mediational hypothesis, the indirect effect of the experimental condition on the decreased belief in personal free will via self-perceptions as instrument-like was significant, $a*b = -0.49$, 95% CI [−0.95, −0.19] for Contrast 1 and $a*b = -0.43$, 95% CI [−0.84, −0.16] for Contrast 2 (for the summarized results for Contrast 2, see Figure 2).[3]

The findings of Study 2 confirmed and extended those of Study 1: Even in the absence of an objectifying gaze, objectifying manual activities increased people's tendencies to objectify themselves, not only in terms of diminished self-attribution of human mental states but also in terms of increased self-perceptions as instrument-like and decreased self-perceptions as human-like. Crucially, these self-perceptions also mediated the

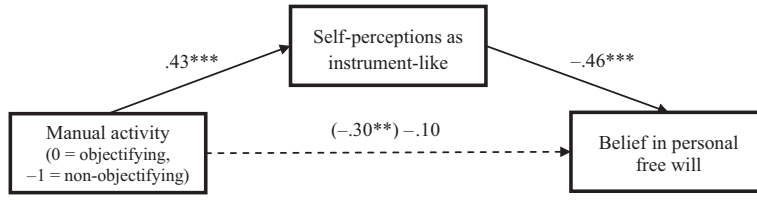

Figure 2. Mediational model testing the indirect effect of the manual objectifying activity (0 = objectifying, −1 = non-objectifying) on the belief in personal free will via self-perceptions as instrument-like (vs. human-like). Study 2.
Note. $^{**}p \leq .01$; $^{***}p \leq .001$.

[3] *Similarly to Study 1, we tested a series of alternative models by considering belief in personal free will as the mediator and self-perception as instrument-like (vs. human-like) as the dependent variable. For both Contrast 1 and Contrast 2, analyses showed a significant indirect effect of the experimental condition on self-perception as instrument-like (*a*b = 0.48, 95% CI [0.06, 1.31] for Contrast 1,* a*b = 0.51, 95% CI [0.10, 1.25] for Contrast 2), but, when entered together with the mediator, the effect of the experimental condition was still significant,* b = 1.59, SE = 0.45, t*(3, 88) = 3.61,* p < .001 *for Contrast 1;* b = 1.31, SE = 0.44, t*(3, 88) = 3.02,* p = .003 *for Contrast 2, thus indicating only a partial mediation of belief in personal free will.*

relationship between objectifying activity and belief in personal free will, providing us with an important confirmation that the pattern of the results of Study 1 did not depend on the specific dimension and measure (SMSA) that we considered. Furthermore, the fact that the participants in the non-objectifying condition did not perceive themselves as more human or as having greater belief in free will than the baseline condition revealed that our patterns of results are actually driven by self-objectification tendencies due to the objectifying activity rather than a sort of 'super-humanization' due to the non-objectifying activity.

STUDY 3

Study 3 aimed to replicate these findings with a more ecologically valid paradigm. That is, we created an *ad hoc* simulation of a computer job activity by adapting a paradigm used in organizational work laboratory research (Häusser, Schulz-Hardt, Schultze, Tomaschek, & Mojzisch, 2014; Experiment 1). More specifically, the participants in the objectifying and non-objectifying conditions were asked to assume the role of a computer shop online seller. Similar to studies 1 and 2, we expected that the participants assigned to the objectifying computer task would attribute fewer human mental states to themselves and perceive themselves as more instrument-like (vs. human-like) than participants in the non-objectifying and baseline conditions. Furthermore, these increased self-objectifying perceptions would mediate the relationship between the objectifying activity (vs. non-objectifying vs. baseline) and the reduced perception of personal free will.

Method

Participants

One hundred and two undergraduates (71 females) participated in the study in exchange for partial course credit. The participants' ages ranged from 18 to 63 years (M = 22.76, SD = 5.85).

Procedure and materials

The participants were individually examined under experimenter supervision and were first randomly assigned to one of three experimental conditions (objectifying vs. non-objectifying vs. baseline). The study was introduced as a research on recruitment. In the objectifying and non-objectifying conditions, the participants were asked to imagine working for a computer retail store. In both conditions, they were told that the activity would last 20 min.

In the objectifying condition, the participants were told that their task was to perform a single part of the entire sales process, which was compiling computer hardware packages according to customer requests. Each package consisted of four components (a desktop PC, monitor, printer, and optional accessory) with different budget options. A table on the computer screen displayed the available PCs, monitors, printers, and optional accessories, including their prices. The task consisted in reading the customers' orders that appeared at the top of the screen and then selecting the products that corresponded to the customer's budget. For each order, the participants had 30 s to complete the package. After this time interval, a new order appeared on the screen. If they took fewer than 30 s to prepare the order, they had to wait until the end of the time interval before proceeding to

the next request. Thus, the activity was created *ad hoc* to generate a highly repetitive (the participants repeated the same action 40 times), fragmented (they were told that they were completing only a part of the sale process), and other-directed (the participants had to complete each order within a specific time interval) task.

In the non-objectifying condition, the participants were told that their task was to complete the entire sales process. Thus, they were asked to perform different tasks throughout the 20 min of the computer activity, including compiling the package, replying to customers' requests, and managing appointments with them. Furthermore, the participants did not receive any specific indications about the pace of their work. Thus, the non-objectifying activity was created with a similar scope as the objectifying activity, but was experienced as a varied, non-fragmented, and self-directed task.[4]

As in Study 2, in the baseline condition the participants came into the laboratory and completed the questionnaire, including the measures described below, without performing any activity beforehand.

Manipulation check

The participants in the activity conditions judged the extent to which they perceived the activity as repetitive, fragmented, and other-directed on a 7-point scale (1 = *not at all;* 7 = *extremely*).

Self-objectification

Self-objectification was measured through the same SMSA task (α = .95) used in Study 1 and through the same five instrument-related (α = .92) and five human-related (α = .80) words used in Study 2.

Belief in personal free will

The belief in personal free will was measured using the same measure used previously (α = .86).

After completing the questionnaire, the participants were thanked and debriefed.

Results and discussion

Table 5 reports the correlations among all the measured variables. Similar to Study 2, the participants' ratings of repetitiveness, fragmentation, and other-direction of the activity significantly correlated with all the dependent variables that we considered, although the correlation between fragmentation and SMSA was marginally significant.

A between-subjects MANOVA was conducted to verify whether the participants in the objectifying condition perceived the activity differently than those in the non-objectifying conditions. The MANOVA showed a main effect of the condition, $\lambda = .63$, $F(3,67) = 13.11$, $p < .001$, $\eta_p^2 = .37$: The activity was significantly perceived as more repetitive ($M = 6.32$, $SD = 0.97$), fragmented ($M = 4.97$, $SD = 1.88$), and other-directed ($M = 5.30$, $SD = 1.63$) in the objectifying condition than in the non-objectifying one

[4] *We conducted a pilot study to control for presumably confounding variables involved in the manipulation. For the description and results of this study, see the Supporting Information.*

Table 5. Correlations between the measured variables. Study 3

Variables	1	2	3	4	5	6	7
1. Repetitiveness	–						
2. Fragmentation	.43***	–					
3. Other-direction	.44***	.36**	–				
4. Instrument score	.51***	.48***	.36**	–			
5. Human score	−.50***	−.34**	−.43***	−.61***	–		
6. SMSA	−.53***	−.28†	−.58***	−.49***	.63***	–	
7. Belief in personal free will	−.35**	−.36**	−.34**	−.47***	.55***	.47***	–

Note. SMSA = Self-Mental State Attribution.
†$p = .057$; *$p \leq .05$; **$p \leq .01$; ***$p \leq .001$.

(respectively: $M = 4.23$, $SD = 1.79$; $M = 3.88$, $SD = 1.55$; $M = 3.97$, $SD = 1.80$; all $F_s\,(1,69) \geq 7.04$, $p_s < .01$, $\eta^2_{ps} \geq .09$).

A series of one-way between-subjects ANOVAs was then conducted to test the effects of the experimental condition (objectifying vs. non-objectifying vs. baseline) on self-objectification measures and participants' belief in free will. Regarding self-perceptions as instrument- and human-like, the results revealed the expected effect of the experimental condition on instrument score, $F(2,99) = 20.65$, $p < .001$, $\eta^2_p = .29$, and human score, $F(2,99) = 30.30$, $p < .001$, $\eta^2_p = .38$. *Post-hoc* comparisons (see Table 6) indicated that in the objectifying condition, the participants perceived themselves as less human and more instrument-like than those in the baseline and the non-objectifying condition, while the participants' instrument mean scores in the baseline and non-objectifying conditions did not significantly differ. However, unlike Study 2, the participants in the non-objectifying condition perceived themselves as less human than participants in the baseline condition. A similar pattern of results emerged for the SMSA. The ANOVA showed that the experimental condition significantly impacted this variable, $F(2,99) = 110.32$, $p < .001$, $\eta^2_p = .69$. The participants in the objectifying condition attributed fewer mental states to themselves than those in the baseline and those in the non-objectifying conditions. Furthermore, the mean scores in the non-objectifying condition differed from the baseline condition. Regarding belief in personal free will, the experimental condition significantly impacted this variable, $F(2,99) = 13.47$, $p < .001$, $\eta^2_p = .21$: Participants who performed

Table 6. Mean ratings of self-perceptions as instrument-like and human-like, SMSA and belief in personal free will as a function of activity manipulation. Study 3

	Conditions		
Variables	Objectifying	Non-objectifying	Baseline
Instrument score	3.96_a (1.73)	2.39_b (1.42)	1.88_b (0.85)
Human score	3.36_a (1.24)	4.70_b (1.17)	5.41_c (0.86)
SMSA	2.23_a (0.74)	3.36_b (0.85)	5.00_c (0.71)
Belief in personal free will	4.00_a (1.31)	5.02_b (0.89)	5.20_b (0.80)

Note. SMSA = Self-Mental State Attribution.
Standard deviations are provided in parentheses.
Means with different subscripts in the same row differ significantly, $p < .001$.

the objectifying activity believed that they had significantly less personal free will than participants who performed the non-objectifying activity and those in the baseline condition. In this case, the mean scores for the non-objectifying and baseline conditions did not differ significantly.

The mediational roles of SMSA and self-perceptions of being instrument-like (vs. human-like) on the participants' belief in free will were then tested together. Similarly to Study 2, we combined the instrument and human scores into a single index and we created two dummy-coded variables with the objectifying condition as the reference group. Confirming the univariate analyses, the results showed that both Contrast 1 and Contrast 2 led to increased self-perceptions as instrument-like, Contrast 1: $b = 4.13$, $SE = 0.52$, $t(2,99) = 7.97$, $p < .001$; Contrast 2: $b = 2.91$, $SE = 0.51$, $t(2,99) = 5.75$, $p < .001$, and to a decrease in SMSA, Contrast 1: $b = -2.77$, $SE = 0.19$, $t(2,99) = -14.83$, $p < .001$; Contrast 2: $b = -1.14$, $SE = 0.18$, $t(2,99) = -6.20$, $p < .001$. In turn, the increase in self-perceptions as instrument-like (vs. human-like) led to participants' decreased belief in personal free will, $b = -0.17$, $SE = 0.05$, $t(4,97) = -3.64$, $p < .001$, while the decrease in SMSA led to a marginally significant decrease in this belief, $b = 0.24$, $SE = 0.13$, $t(4,97) = 1.86$, $p = .066$. Crucially, confirming our mediational hypothesis, the indirect effects of the experimental condition on the decreased belief in personal free will via self-perceptions as instrument-like ($a*b = -0.70$, 95% CI [−1.22, −0.24] for Contrast 1 and $a*b = -0.49$, 95% CI [−0.91, −0.19] for Contrast 2) and SMSA ($a*b = -0.66$, 95% CI [−1.29, −0.03] for Contrast 1 and $a*b = -0.27$, 95% CI [−0.58, −0.02] for Contrast 2) were significant (for the summarized results of Contrast 2, see Figure 3).[5]

The findings of Study 3 replicated the pattern of results that emerged in previous studies by employing an *ad hoc* created laboratory task that more realistically simulated a modern working activity. The participants who were asked to perform a repetitive,

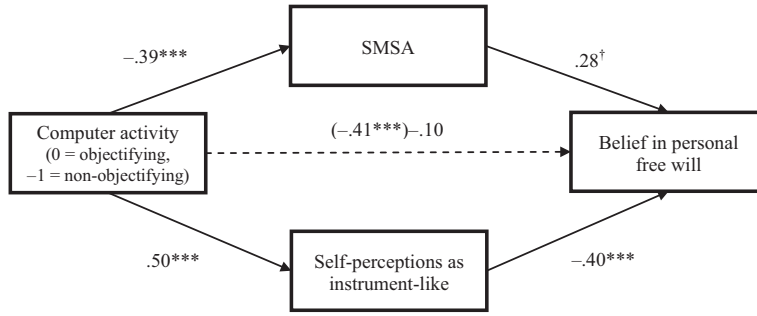

Figure 3. Mediational model testing the indirect effect of the computer objectifying activity (0 = objectifying, −1 = non-objectifying) on the belief in personal free will via self-perceptions as instrument-like (vs. human-like) and SMSA. Study 3.
Note. SMSA = Self-Mental State Attribution. †$p = .066$; ***$p \leq .001$.

[5] *The alternative models in which belief in personal free will was entered as the mediator revealed a pattern of results similar to that of previous studies. In particular, for Contrast 2 analyses showed a significant indirect effect of the condition – via belief in personal free will – on SMSA,* a*b = *−0.20, 95% CI [−0.44, −0.06], and on self-perceptions as instrument-like (vs. human-like),* a*b = *0.82, 95% CI [0.34, 1.49]. However, in both models, the effect of the condition was still significant when entered together with the mediator,* b = *−0.93,* SE = *0.19,* t*(3, 98) = −4.86,* p < *.001 for the SMSA and* b = *2.09,* SE = *0.51,* t*(3, 98) = 4.13,* p < *.001 for self-perceptions as instrument-like, thus indicating a partial mediation of belief in personal free will. Similar results emerged for Contrast 1.*

fragmented, and other-directed activity on the computer perceived themselves as being less defined by human mental states, more instrument-like, and less human-like than the participants who performed a similar but non-objectifying activity and the participants in the baseline condition. It is noteworthy that the non-objectifying activity led to higher self-objectifying perceptions (i.e., to self-attribution of fewer mental states and fewer human-like perceptions) than the baseline condition, although they were lower than those in the objectifying condition. This unexpected difference between the non-objectifying and baseline conditions could depend on the specific task that we employed in this study. That is, although the objectifying characteristics of the activity have a predominant role in eliciting self-objectification, it is possible that doing any computer-related work activity in a forced situation would elicit higher levels of self-objectification than a baseline condition.

As for the mediation analysis, the findings confirmed the crucial role of self-objectification in explaining the decrease in the belief in free will due to the performed activity. However, SMSA and self-perceptions as instrument-like seem to have had a different impact on this relationship. Specifically, when considered together, SMSA has only a marginal effect on the belief in free will, thus suggesting that self-perceptions as instrument-like could play a predominant role in this process. Alternatively, the presumably high portion of variance that it shared with the concurrent mediator could explain the marginal effects of SMSA. Nevertheless, consistent with previous studies, the significant indirect effects supported the hypothesis that both measures of self-objectification fully mediated the relationship between performing an objectifying activity and the participants' diminished belief in free will.

GENERAL DISCUSSION

The present work extends the knowledge about working self-objectification by empirically analysing possible antecedents and consequences of this phenomenon. Across three studies, we consistently found that performing a manual (Study 1 and Study 2) or a computer (Study 3) task that was repetitive, fragmented, and other-directed is a relevant antecedent of working self-objectification *per se*, which leads people to objectify themselves more than when performing a corresponding but non-objectifying activity. More specifically, our findings documented that performing an objectifying activity significantly affects both the key dimensions characterizing the objectification of workers (Nussbaum, 1995): denial of humanness (i.e., denial of human mental states; Study 1 and Study 3) and perceptions of instrumentality (Study 2 and Study 3). Moreover, the results revealed that both these dimensions are full mediators of the relationship between performing an objectifying activity and a relevant consequence for the self, that is, decreased belief in personal free will. With regard to this latter issue, it is noteworthy that the alternative models that we ruled out (see notes 1, 3 and 5) revealed that belief in personal free will also emerges as mediator of the relationship between the objectifying activity and both dimensions of self-objectification, although only partially. This unexpected finding may suggest a bidirectional relation between self-objectification and belief in personal free will. That is, it is plausible to imagine that the feeling of not having personal free will can reinforce the perception of being similar to an object, creating a reinforcing effect on self-objectification and thus triggering a vicious circle.

The present work makes a novel contribution to the self-objectification literature in different ways. First, for the first time, we analysed working self-objectification through

experimental laboratory studies, while most laboratory studies in this field have focused mainly on the sexual domain (e.g., Fredrickson, Roberts, Noll, Quinn, & Twenge, 1998; Garcia, Earnshaw, & Quinn, 2015). Most interestingly, we empirically identified an important source of working self-objectification. By integrating previous empirical findings with the theoretical insights regarding the objectification of workers in modern society, we revealed that certain characteristics of work are an important source of objectifying self-perceptions. In particular, unlike past cross-sectional research (Baldissarri *et al.*, 2014) that identified the superior's objectifying gaze as an important source of working self-objectification, here we experimentally showed that performing an activity characterized by specific working features evokes self-objectification *per se*. As observed by Andrighetto *et al.* (2016), objectifying perceptions in the working domain are determined by multiple factors, which may go beyond the motivational determinants characterizing hierarchical relationships. In particular, they documented that the salience of specific working activities activates a process of inductive inference that leads laypeople to perceive workers as non-human and passive actors. In the same vein, we demonstrated that performing an activity characterized by the same features triggers self-objectification, over and beyond the internalization of an objectifying gaze. We think that Self-perception Theory (Bem, 1967) importantly helps us to better explain this process. As people define themselves also on the basis of their actions and behaviours, performing a mechanical and repetitive job, and thus acting as a mere passive tool, may contribute to a definition of the self as more similar to an object than a human being. Thus, objectifying work can have a dual effect on workers' identity: a direct effect due to performing an objectifying activity and an indirect effect due to the objectifying gaze elicited by the same objectifying activity. Furthermore, the findings of Study 3 show that this process also emerges in modern, non-manual work activities.

Last but not least, our findings identified a relevant consequence of self-objectification that has not been explored so far: the decreased belief in personal free will. We believe that this finding has important theoretical and practical implications that go beyond the working domain. Indeed, the belief in free will is a fundamental dimension of human beings that pervades most domains of their everyday lives (see Baumeister & Monroe, 2014 for a review). Therefore, we believe that this important consequence of self-objectification may pertain to a variety of domains, including the sexual one. That is, it is plausible to imagine that when women perceive themselves as mere tools to satisfy men's sexual desires, they consequently perceive themselves as less able to consciously and actively make decisions for their own lives.

Beyond advancing the self-objectification literature, our findings provide an important contribution to the experimental literature on organizational work research. Some studies in this field have shown, for example, that performing repetitive tasks has a detrimental effect on well-being (Häusser *et al.*, 2014), individual motivation (Freude, Ullsperger, & Mölle, 1995), and self-reported stress (Cox, Mackay, & Page, 1982). By extending this previous research, we revealed that performing repetitive, fragmented, and other-directed tasks also affects workers' self-perceptions as objects and, in turn, their belief in personal free will.

Limitations and future research

First, the procedures of our studies do not allow us to pinpoint what process in the *ad hoc* created activities actually triggered our findings. That is, we cannot exclude the possibility that, in the objectifying conditions, other variables would have increased participants'

self-objectification, above and beyond the critical features that we considered. For example, one could argue that the lower competence and lower creativity required by the objectifying activity could also explain our pattern of results. However, we believe that these two presumable confounding variables are conceptually included in the crucial feature of repetitiveness. That is, as mentioned above, repetitiveness by definition involves the exercise of the same few skills that, thus, require lower competence and less creative thinking than more varied activities. Instead, other possible confounding variables are conceptually separated by our critical features and should be controlled. For example, it is possible that an increase in participants' negative moods after the objectifying activity, compared with the non-objectifying one, could also explain our findings. However, a pilot study partially ruled out this possibility by showing a similar mood among participants who performed the objectifying activity of Study 3 and those who performed the non-objectifying activity (for more information on this pilot study, see the Supporting Information). Nevertheless, we are aware that our studies cannot provide an exhaustive picture of the antecedents triggering self-objectification in the working domain. Future research is needed to deeply understand this phenomenon and to investigate other variables that we did not consider in our main and pilot studies. For example, the perception of isolation or the lack of feedback (Blauner, 1964; Hackman & Oldham, 1976) could be two further variables evoked by our manipulations that may have played a role in triggering self-objectification.

Second, it is important to note that all our *ad hoc* created activities were only 20 min long and that we assessed their short-term effects. If this short time span highlights the significant impact of these types of activities on self-objectification and free will, it would be interesting to verify the long-term effect of these tasks when they are, for example, performed for 8 hr a day.

Finally, an interesting future direction would be to expand our knowledge of the consequences of the loss of free will due to working self-objectification. Like other forms of dehumanization, objectification serves to legitimize inequalities and justify dominant behaviours (Opotow, 1990). In particular, self-objectification may operate as an unconscious means of system justification and lead workers to accept the existing status quo (see Calogero, 2013). In this process, the belief in free will may play a key role. Indeed, a lack of belief in free will inhibits an active self-determination of one's own behaviours, favours a mindless conformity (Alquist, Ainsworth, & Baumeister, 2013), and undermines people's motivation to change the existing situation (Baumeister & Monroe, 2014). Thus, through reduced belief in personal free will, self-objectification due to work-related tasks could inhibit workers' inclinations to engage in social action to change the existing status quo.

Conclusions

The present research critically contributes to the understanding of the process of working objectification. Although this form of objectification is highly relevant in modern human society, social psychological literature has largely neglected it so far. Furthermore, our findings may meaningfully help to better interpret the workers' current situations and why they often tend to accept the existing status quo.

We believe that work is one of the central facets of human life; therefore, understanding the conditions under which work becomes a source of objectification or self-objectification is a compelling task for scholars, as is understanding the consequences that these two facets have for the objectified and the self-objectified target.

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Supporting Information

The following supporting information may be found in the online edition of the article:

Appendix S1. Pilot Study – Study 3.