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1 Abstract

2 Previous research suggests that the positive effect of personal choice on intrinsic motivation is
3 dependent on the extent to which the pervading cultural norm endorses individualism or
4 collectivism (Iyengar and Lepper, *J Pers Soc Psychol*, 76, 349-366, 1999). The present study
5 tested effects of personal choice on intrinsic motivation under situationally-induced
6 individualist and collectivist group norms. An organizational role-play scenario was used to
7 manipulate individualist and collectivist group norms in participants from a homogenous
8 cultural background. Participants then completed an anagram task under conditions of personal
9 choice or when the task was either assigned to them by an in-group (company director) or out-
10 group (experimenter) social agent. Consistent with hypotheses, when the group norm
11 prescribed individualism participants in the personal choice condition exhibited greater
12 intrinsic motivation. When the group norm prescribed collectivism, participants' assigned to
13 the task by the company director were more intrinsically motivated. The implications of results
14 for theories of intrinsic motivation are discussed.

15
16 *Keywords:* self-determination theory; group norms; identified regulation; internalization; free-
17 choice paradigm; culture

18

1 Effects of Individualist and Collectivist Group Norms and Choice on Intrinsic Motivation

2 The value of choice in motivating behavior and evoking adaptive responses is pervasive
3 in both popular culture and psychological theory (Patall, Cooper, & Robinson, 2008; Ryan &
4 Deci, 2006; Savani, Markus, & Conner, 2008). Research has demonstrated that choice is
5 consistently related to adaptive outcomes such as increased intrinsic motivation, greater task
6 persistence and performance, and higher levels of positive affect and satisfaction (Cordova &
7 Lepper, 1996; Langer & Rodin, 1976; Reeve, Nix, & Hamm, 2003; Zuckerman, Porac, Lathin,
8 Smith, & Deci, 1978). The proposed mechanism behind these effects is that the provision of
9 choice is empowering and provides individuals with a sense of personal causation, agency, and
10 control (DeCharms, 1968; Lewin, 1951).

11 Self-determination theory (Deci & Ryan, 1985, 2000) is prominent among current
12 social psychological perspectives on choice and offers a comprehensive analysis of the role of
13 choice on intrinsic motivation. According to self-determination theory, the provision of choice
14 enhances intrinsic motivation by promoting perceived agency and personal causation over
15 action. Individuals imbued with a sense of choice feel more autonomous and competent in their
16 environment and behavior. Contexts and social agents that provide choice are therefore likely
17 to enhance intrinsic motivation by promoting perceived autonomy and personal agency.
18 Research has consistently demonstrated the impact of choice on intrinsic motivation in
19 numerous contexts (Patall, et al., 2008; Reeve, et al., 2003; Zuckerman, et al., 1978). In
20 addition, the provision of choice has been shown to promote intrinsic motivation across
21 cultures and national groups (Bao & Lam, 2008; Chirkov & Ryan, 2001; Chirkov, Ryan, Kim,
22 & Kaplan, 2003). In contrast, a lack of choice has been associated with reduced intrinsic
23 motivation (Katz & Assor, 2007; Ryan & Deci, 2006). According to self-determination theory,
24 not having choice removes perceived personal agency and undermines intrinsic motivation.
25 Situations in which external agents are perceived as controlling and actions are viewed as the
26 product of external contingencies like rewards or deadlines are linked to reduced intrinsic

1 motivation such that individuals will persist only as long as the controlling agent or
2 contingency is present (Deci, Koestner, & Ryan, 1999; Ryan & Deci, 2006; Ryan, Koestner, &
3 Deci, 1991). Taken together, this research provides considerable converging evidence in
4 support of the premise of self-determination theory that choice positively affects intrinsic
5 motivation.

6 An alternative perspective on the link between choice and intrinsic motivation is
7 offered by Iyengar and Lepper (1999), who demonstrated that the enhancing effect of choice
8 on intrinsic motivation is moderated by cultural orientation. Iyengar and Lepper hypothesized
9 that the provision of choice for people from individualist cultural backgrounds that endorsed an
10 independent view of the self would enhance intrinsic motivation, consistent with previous
11 studies. In contrast, it was proposed that intrinsic motivation would be enhanced among people
12 from a collectivist cultural background that endorsed an interdependent self-view if the choice
13 was made by a social agent from their own cultural or social group rather than by the
14 individuals themselves. The proposed mechanism for this contrast was derived from the
15 cultural analysis presented in self-systems theory (Markus & Kitayama, 1991). According to
16 this the theory, members of interdependent cultures tend to strive for in-group harmony; thus
17 acting in accordance with choices made on their behalf by in-group members will be more
18 consistent with the goal of acting as part of the in-group. As a result levels of intrinsic
19 motivation would be elevated for people of interdependent cultures when choices were made
20 on their behalf by social agents. In contrast, exercising personal choice in a group context
21 would be viewed as incongruent with group goals and less intrinsically motivating.

22 Iyengar and Lepper supported this premise in two studies on children from individualist
23 (Anglo-American) and collectivist (Asian-American) cultural backgrounds. Anglo-American
24 children provided with personal choice over which anagram task to solve, or which parameters
25 in a computer game they preferred, spent longer, and performed better, on the tasks compared
26 to children from the same cultural background who had choices made for them by an

1 unfamiliar or out-group social agent (the experimenter) or by a familiar or in-group agent
2 (mother or peer). In contrast, and consistent with the hypothesis, children from an Asian-
3 American background spent longer, and performed better, on the tasks when the choices were
4 made for them by the familiar or in-group agent compared to when they had personal choice or
5 when the choice was made for them by the unfamiliar or out-group social agent. The authors
6 concluded that personal choice for members of groups with a collectivist orientation is of
7 diminished value relative to choices made by social agents from the in-group because such
8 choices give the actor the opportunity to demonstrate in-group harmony and willing
9 conformity.

10 Considering Iyengar and Lepper's (1999) findings that the effects of choice on intrinsic
11 motivation may vary according to whether choice is perceived as personal or provided by an
12 out-group or in-group member and the individual's cultural background, it stands to reason that
13 the same effects may hold for individuals operating in groups that endorse collectivist and
14 individualist values within a given culture. Research from the social identity theory perspective
15 has demonstrated that people of the same cultural background can be induced to endorse
16 collectivist and individualist values. For example, McAuliffe and colleagues (2003)
17 manipulated individualism and collectivist group norms using an organizational role-playing
18 scenario and demonstrated that participants behaved consistently with the group norm when
19 evaluating group members displaying normative and non-normative characteristics.

20 Following McAuliffe et al.'s methods, we aimed to replicate and extend Iyengar and
21 Lepper's findings by examining the effects of situationally-induced individualist and
22 collectivist group norms and choice provision (personal choice or choice provided by an out-
23 group or in-group social agent) on intrinsic motivation. Our innovation in the current study was
24 to experimentally manipulate cultural norms of individualism and collectivism in an
25 organisational context rather than rely on individual differences in cultural norms based on
26 ethnic background as Iyengar and Lepper did. Specifically, we adopted an organizational role

1 play scenario to induce individualist and collectivist group norms in groups of participants
2 from the same (individualist) cultural background (McAuliffe, et al., 2003). Groups of
3 participants were then required to solve anagrams under conditions of personal choice over the
4 task, assignment of the task by an in-group social agent (an ostensible company managing
5 director as part of the group norm manipulation), and assignment made by an out-group agent
6 (the experimenter). The personal choice, in-group assignment, and experimenter assignment
7 conditions were equivalent to the personal choice, mom/peer-choice, and experimenter choice
8 conditions, respectively, from Iyengar and Lepper's (1999) studies. Consistent with Iyengar
9 and Lepper's findings, we expected a significant interaction effect of group norm and choice
10 provision on persistence on the anagram task during a free-choice period, which constituted our
11 dependent measure of intrinsic motivation. Specifically, it was hypothesized (H_1) that
12 participants assigned to the individualist group norm condition would exhibit significantly
13 higher levels of intrinsic motivation when provided with personal choice over the anagram task
14 than when the task was assigned to them by the in-group member (company director) or the
15 experimenter. In contrast, participants assigned to the collectivist group norm condition were
16 hypothesized to exhibit significantly higher levels of intrinsic motivation when an in-group
17 member assigned the task to them relative to when they were provided with personal choice or
18 the task was assigned to them by the experimenter (H_2). Results were expected to make a
19 unique contribution to the literature by demonstrating that the pattern of effects for cultural
20 norms and choice on intrinsic motivation can occur in people acting in groups that endorse
21 individualist and collectivist norms rather than individual variations in cultural orientations.

22 **Method**

23 **Participants and Design**

24 Participants were 210 undergraduate psychology students (female, $n = 111$; male, $n =$
25 99 ; M age = 23.23, $SD = 6.60$, range = 17 to 53) who volunteered to participate in the study for
26 course credit. The study adopted a 2 (group norm: collectivist vs. individualist) x 3 (choice

1 condition: personal vs. experimenter vs. in-group member) between-participants design¹.

2 Participants were all British nationals who had lived in the United Kingdom all their lives.

3 **Design and Procedure**

4 The experiment was introduced to participants as an organizational role-play exercise.

5 Participants were run individually in a laboratory equipped with a video player and concealed

6 video camera. On arrival, participants were shown into a laboratory by the experimenter and

7 were asked to sit behind a desk. On the desk was the video player and video screen, a number

8 of popular magazines, six manila envelopes containing anagram sets clearly marked with the

9 categories *nature*, *education*, *space*, *sport*, *occupations*, and *entertainment*, four colored pens, a

10 sheet containing the description of the main characteristics of a hypothetical company, and a

11 consent form. Participants were first asked to read and complete the consent form. Participants

12 were then informed that they would be randomly categorized as employees of one of two

13 hypothetical companies: *Renovatech* or *Tech Industries*. In reality, all participants were

14 categorized as employees of *Tech Industries*. This was to make salient the categorization of

15 participants into a group that was distinct and separate from other groups and establish in-

16 group and out-group comparisons.

17 **Group norm manipulation.** Group norms were manipulated by presenting participants

18 with one of two pre-recorded videos lasting two minutes. Prior to watching the video,

19 participants were told: "Please watch this video of employees of *Tech Industries*, the company

20 to which you have been assigned, designing a new logo for the company. The way they work

21 and interact reflects the general work philosophy of the company. As a *Tech Industries*

22 member you will, from time to time, be asked to evaluate other company employees". Both

23 videos were filmed in the same studio which resembled a company meeting room. The same

24 three actors (2 male and 1 female) were depicted playing the roles of *Tech Industries*

¹Experimental cell n = 35 per condition with relatively equal gender distribution in each condition. Full sample size and gender distribution is available in Appendix A, Table 1 as online supplemental material.

1 employees. The actors were ostensibly working on a new logo for the company. One video
2 aimed to evoke an individualist group norm and depicted the actors working with very little
3 interaction and verbal and non-verbal communication. A second video aimed to produce a
4 collectivist group norm and presented the actors working cooperatively and interacting verbally
5 and non-verbally throughout. Both videos were muted. Following the video presentations,
6 participants were asked to write down behaviors that they would expect to observe in company
7 employees in accordance with the company's work philosophy. Participants were then
8 presented with a single statement and asked to rate the general group dynamic depicted in the
9 video: "Please rate on the scales below the general working practice of the group of *Tech*
10 *Industries* employees in the video". Responses were made on two nine-point Likert scales with
11 endpoints individualist (1) or collectivist (9) and independent (1) or interdependent (9). The
12 inter-item correlation for these items was $r = .84$ ($p < .001$) and the average was used as a
13 group norm manipulation check (McAuliffe, et al., 2003).

14 To establish some identification with the company, participants were then asked to
15 complete two tasks. In the first task participants were presented with a photo of the managing
16 director of *Tech Industries*, a grey-haired male aged about 50 wearing a shirt and tie, and were
17 informed that this was their line manager as an employee of the company. Participants were
18 asked to write down all the behaviors that they felt the managing director should exhibit
19 consistent with the company's philosophy. In the second task participants were told that they
20 would have to contribute to the company's workload by developing a logo to be used for a new
21 product. After completing these tasks, participants' were then asked to report their level of
22 identification with the group. The purpose of this measure was to assess the extent to which
23 participants identified with the mission and ethos of the hypothetical company and its
24 employees constituting the in-group. Group identification was measured on three items: "Being
25 an employee at *Tech Industries* is important to me", "I identify with being an employee at *Tech*
26 *Industries*", and "I feel a sense of belonging with the group of *Tech Industries* employees"

1 with responses were made on nine-point scales ranging from strongly disagree (1) to strongly
2 agree (9). The scale exhibited adequate internal consistency ($\alpha = .91$).

3 **Choice manipulations.** After completing the group norm manipulation, participants
4 were presented with the choice manipulation. A yoked design was used in which participants
5 were grouped in triads within the group norm condition (Zuckerman, et al., 1978). The first
6 participant in each triad was assigned to the personal choice condition and could choose the
7 category of the anagram task. The following two participants were randomly assigned to the
8 experimenter or in-group member assignment conditions and were asked by the social agent in
9 the relevant condition to work on the same category of anagram task chosen by the first
10 participant in the triad.

11 **Personal choice condition.** The experimenter explained to the participant that part of
12 working for *Tech Industries* involved working on problem-solving tasks and that today's task
13 involved completing sets of anagrams. Participants were given the following instructions: "In
14 front of you are six envelopes containing instructions and a set of themed anagrams. [The
15 experimenter points to the six envelopes labelled 'space, 'sports, 'occupations, 'nature,
16 'university, and 'entertainment']. Which one would you like to do? It's your choice." After the
17 participant had chosen an anagram task, the experimenter pointed out the four colored pens and
18 provided the following instruction: "Please choose the color of pen you would like to use to
19 complete the anagrams." After the participant had made their choices, the experimenter
20 collected in and removed the remaining envelopes and pens. Each participant was given five
21 minutes to complete the anagram task and was then informed the experiment was over.

22 **Experimenter assignment condition.** The procedure for the experimenter assignment
23 condition was identical to the personal choice condition with the exception that the
24 experimenter assigned the anagram task to be solved, and pen color to be used to complete
25 their answers, to the participant. The experimenter introduced the anagram task using the
26 following script: "In front of you are six envelopes containing instructions and a set of themed

1 anagrams. I would like you to do the [theme of anagram task completed by the previous
2 participant in the personal choice condition] task.” After presenting the assigned anagram task
3 to the participant, the experimenter provided the following instruction: “Here are some colored
4 pens for you to use to complete the anagrams. I would like you to use the [color chosen
5 previous participant in personal choice condition] pen”. The experimenter then collected in the
6 remaining envelopes and pens, with the exception of the assigned task and pen, and told the
7 participant to begin the assigned anagram task with the assigned pen.

8 ***In-group member assignment condition.*** The procedure for the in-group member
9 assignment condition was identical to the personal choice condition with the exception that the
10 anagram task was assigned to them by the ostensible managing director of the company. This
11 was achieved by the presentation of video in which the actor, identified as the managing
12 director of *Tech Industries* during the group norm manipulation procedure, presented the
13 anagram tasks and chose the task and pen color for the participant. The video was pre-recorded
14 on a CD and displayed to the participant on the video player. The instructions provided by the
15 managing director were identical to those in the experimenter assignment condition. The
16 participant had no opportunity to interact with the ostensible company director. Once the
17 participant had finished watching the video, the experimenter collected in the remaining
18 envelopes and pens, the assigned task and pen excepted, and told the participant to begin the
19 assigned anagram task with the assigned pen.

20 ***Intrinsic motivation.*** After the participant had completed the anagram task, the
21 experimenter then excused herself from the laboratory by saying “I shall be gone only a few
22 minutes in order to evaluate your task performance. You may do whatever you like while I am
23 gone, you can read magazines, carry on with the task or do whatever you want”. The
24 experimenter then left the room. Participants’ activities in the absence of the experimenter were
25 monitored on the concealed video camera. After exactly ten minutes, the experimenter

1 returned, asked the participant to sign a final data-release form, and then provided a funnel
2 debrief of the participant to probe for suspicion.

3 **Results**

4 **Preliminary Analyses**

5 A 2 (group norm: collectivist vs. individualist) x 3 (choice condition: personal vs.
6 experimenter vs. in-group member) ANOVA on the group norm manipulation check scale
7 revealed a significant main effect for group norm, $F(1, 204) = 574.05, p < .001, \eta^2_p = .738$.
8 Consistent with the manipulation, participants assigned to the collectivist group norm condition
9 rated the group as more collectivist ($M = 7.61, SD = 1.04$) compared to those assigned to the
10 individualist group norm condition ($M = 3.04, SD = 1.63$). There was no significant main effect
11 for choice condition or an interaction effect. A 2 (group norm) x 3 (choice condition) ANOVA
12 on the group identification scale revealed a significant main effect for group norm, $F(1, 204) =$
13 $24.54, p < .001, \eta^2_p = .107$. Participants assigned to the individualist group norm condition
14 reported greater identification with the group ($M = 5.36, SD = 1.90$) relative to those in the
15 collectivist group norm condition ($M = 3.98, SD = 2.14$). There was no significant main effect
16 for choice condition or an interaction effect. A likely reason for higher levels of identification
17 with the individualist norm is that that norm was consistent with the pervasive cultural
18 orientation of the participants, whose background was from a social group with a
19 predominantly individualist cultural orientation. Given the differences on the group
20 identification variable in the current study, and previous research demonstrating that group
21 identification affects the extent to which individuals assume the normative characteristics of a
22 group norm manipulation (e.g., McAuliffe, et al., 2003), we included group identification as a
23 covariate in subsequent analyses.

24 **Intrinsic Motivation**

25 Intrinsic motivation was measured by time spent by participants on the anagrams
26 during the free-choice period with scores on the dependent variable ranging from 0 to 600

1 seconds. A 2 (group norm) x 3 (choice condition) ANCOVA on time spent on anagrams with
2 group identification as a covariate revealed a significant interaction effect, $F(1,203) = 6.86, p <$
3 $.001, \eta_p^2 = .063$. The interaction is illustrated in Figure 1. Tukey planned comparisons within
4 group norm condition indicated that participants assigned to the individualist group norm
5 condition spent significantly longer on the puzzles in the personal choice condition ($M =$
6 $310.71, SD = 204.16$) than those in the experimenter assignment ($M = 194.37, SD = 204.07, p <$
7 $= .021$) and in-group member assignment ($M = 185.60, SD = 192.59, p = .010$) conditions.
8 There was no significant difference in time spent on the anagrams for participants in the
9 experimenter and in-group member assignment conditions. In contrast, participants assigned to
10 the collectivist group norm condition spent significantly longer on puzzles in the in-group
11 member assignment condition ($M = 327.77, SD = 189.56$) relative to those in the personal
12 choice condition ($M = 207.63, SD = 196.63, p = .013$). There was, however, no significant
13 difference in time spent on the anagrams for participants in the in-group member and
14 experimenter assignment ($M = 250.66, SD = 196.63$) conditions and participants in the
15 personal choice and experimenter assignment conditions. Analyses of simple effects within the
16 choice conditions revealed that participants assigned to the personal choice condition spent
17 significantly longer on the anagrams in the individualist group norm condition compared to
18 those in the collectivist group norm condition, $F(1,203) = 5.06, p = .026, \eta_p^2 = .024$.
19 Analogously, participants assigned to the in-group member assignment condition spent
20 significantly longer on the anagrams in the collectivist group norm condition compared to
21 those the individualist group norm condition, $F(1,203) = 8.15, p = .005, \eta_p^2 = .039$. There was
22 no significant effect of group norm on time spent on anagrams among participants in the
23 experimenter assignment condition. Finally, there was no significant effect for group
24 identification in any of the models².

²The key dependent variable, time spent on the anagrams during the free-choice period, was non-normal and U-shaped in distribution as observed elsewhere (Wiechman & Gurland, 2009). We therefore conducted a square-root

Discussion

The present research examined whether individualist and collectivist group norms moderated the effect of personal choice on intrinsic motivation and task performance. As expected, when group norms prescribed individualism participants displayed the highest levels of intrinsic motivation when provided with personal choice over the task. This is consistent with the positive effect of choice on intrinsic motivation pervasive in the self-determination theory literature (Patall, et al., 2008). In contrast, when the group norm endorsed collectivism participants exhibited the highest levels of intrinsic motivation when an in-group member assigned to task to the participant. Findings are consistent with the pattern of effects observed by Iyengar and Lepper (1999) for children from a collectivist cultural background (Asian-American). Current results extend previous research by reproducing these effects under situational manipulations of group norms as opposed to generalized cultural orientations.

While exercising personal choice enhanced people's intrinsic motivation when the group norm endorsed individualism, the introduction of a collectivist group norm revealed that intrinsic motivation was enhanced under conditions that should diminish intrinsic motivation according to the explanations offered by contemporary theories on choice. This is consistent with Iyengar and Lepper's (1999) research in children with dispositional individualist and collectivist cultural orientations as well as findings from other studies that demonstrate variations in choices and preferences across people from collectivist and individualist cultural backgrounds (Savani, et al., 2008). Iyengar and Lepper (1999) indicate that their findings should lead to the revision of theories on choice, such as self-determination theory (Deci & Ryan, 1985, 2000). Their proposed mechanism was based on theories of cultural influence such as self-systems theory (Markus & Kitayama, 1991). Individualist orientations condone

transformation (McClelland, 2000) of the persistence data and repeated our analysis to check that the findings on the raw scores were affected by departures from normality. The analysis revealed an identical pattern of effects to those found using the raw scores. A breakdown of the effects for the analysis using the transformed scores is provided in Appendix B as online supplemental material.

1 independence and highlight the value of personal development when making decisions. As a
2 consequence it is unsurprising that in-group contexts that endorsed individualist norms
3 personal choice led to higher intrinsic motivation and better task performance. Analogously,
4 collectivist orientations emphasize the value of interdependence among in-group members.
5 Intrinsic motivation is enhanced when a member of the in-group assigns the individual to a task
6 relative to having personal choice over which task to do, which is less likely to fulfil group
7 goals, and when the task is assigned by an out-group member.

8 Deci and Ryan (2000) provide an interpretation of Iyengar and Lepper's (1999)
9 findings to reconcile the cultural analysis with tenets from self-determination theory. Deci and
10 Ryan propose that while persistence with tasks in the free-choice paradigm is indicative of
11 intrinsic motivation, the persistence data alone do not account for participants' *experience* of
12 intrinsic motivation while engaged in the task. They contend that it is important to align the
13 behavioral measure of intrinsic motivation with self-report measures of interest, choice,
14 enjoyment, and competence. Together the behavioral and self-report measures would provide
15 converging evidence to corroborate the nature of the persistence and whether it was truly
16 intrinsically motivated. It is possible participants' with a collectivist cultural background in
17 Iyengar and Lepper's study, or those in a collectivist group norm in the current experiment,
18 were acting out of an extrinsically-referenced obligation to an in-group member.

19 According to self-determination theory individuals may internalize externally-
20 referenced behaviors if they perceive them to service personally-important and relevant goals.
21 These *identified* reasons or regulations are separate from intrinsic motivation as they reflect
22 reasons for acting that emanate from outside the self, albeit those endorsed by the self and
23 consistent with self-determined values, rather than acting for the enjoyment, satisfaction, and
24 sense of choice derived from the behavior itself. For participants from a collectivist cultural
25 background, or those acting in a context that endorses collectivism, salient goals would be to
26 promote harmony and demonstrate belongingness to the group. They may have wilfully chosen

1 to relinquish their need for personal choice to an in-group member because the group norm
2 makes group goals, such as relatedness, interdependence, and in-group harmony, salient.
3 Therefore, the internalization of the in-group member's support for group goals may have
4 promoted persistence on the task in this context for self-determined, but not intrinsic, reasons.

5 **Strengths, Limitations and Future Directions**

6 The main strength of the current research is the replication of Iyengar and Lepper's
7 (1999) findings using a situational manipulation of individualist and collectivist group norms
8 on behavior rather than individual differences in individualist and collectivist orientations
9 based on cultural norms. The pattern of effects found in the current study, therefore, arises as
10 the result of relatively minimal, situational manipulations of group norm rather than chronic
11 development though long-term experience with a cultural norm. Furthermore, it means that a
12 similar pattern of effects emerges among individuals from the same cultural background when
13 the group norm prescribed either individualism or collectivism. This has important
14 implications for the understanding of the effect of cultural norms and choice on intrinsic
15 motivation and for future research aimed at extending current findings. Our results indicate that
16 even a relatively 'minimal' group norm manipulation could lead individuals to adopt different
17 cultural norms and act consistent with those norms in situations that endorse personal choice
18 over tasks and tasks assigned by other in-group members. From a methodological perspective,
19 we anticipate that the current study design and manipulations will provide researchers with the
20 means to investigate the effects of cultural norms and choice on intrinsic motivation without
21 the need to pre-screen individuals for their independent or interdependent cultural orientations.

22 Future research should seek to corroborate the hypothesized mechanisms for the effects
23 found for group norms and choice on intrinsic motivation found in the current study through
24 the identification of candidate mediators. According to self-determination theory, individuals
25 acting in a group norm that endorses collectivism have internalized the actions and choices
26 made by the in-group member and view them as supportive of their self-determination. It

1 follows that the degree of internalization of the values of the in-group member, the company
2 managing director in the current study, would mediate the effect (Ryan & Deci, 2006). It would
3 therefore be prudent to include self-report measures of the extent to which individuals viewed
4 the values of the company director were consistent with their own and supported their
5 autonomy alongside the current manipulations in future experiments. In addition, perceptions
6 of relatedness and interconnectedness with the line manager may also act as mediators.
7 Participants are more likely to feel that their autonomy is supported by the in-group member,
8 and endorse the assignment of the task to them by the member, if they feel related and
9 interconnected with the manager (Bao & Lam, 2008; Ryan & Deci, 2006). Testing these
10 candidate mediators should be a priority for future research to test these proposed mechanisms.

11 An interesting methodological distinction between Iyengar and Lepper's (1999)
12 research and the current study was that the focal social agents in the experimental
13 manipulations differed. Iyengar and Lepper's methods required Anglo-American and Asian-
14 American parents or peers make the choice on behalf of the child while in the present study the
15 ostensible managing director of the hypothetical company assigned participants to the anagram
16 task. This is an important distinction as parents and peers are likely to have strong
17 interpersonal relationships with the participants in Iyengar and Lepper's experiments.
18 Participants in the current study, on the other hand, had no personal experience or relationship
19 with the company director and likely viewed him as an authority figure. These differences did
20 not seem to impact the pattern of results for task persistence across the studies and provides
21 preliminary evidence that even situations in which individualist and collectivist group norms
22 are induced by 'minimal' means are sufficient to alter participants' interpretation of the
23 situation and their levels of intrinsic motivation. However, this may also raise the question as
24 to the mechanisms underpinning the effects. As mentioned previously, one possible
25 interpretation of the greater levels of persistence in the in-group assignment condition is that
26 participants were acting for extrinsic reasons that were either internalized (identified

1 regulation) or controlled (introjected regulation). An important avenue for future inquiry would
2 be to replicate current findings with an ostensible peer (e.g., a co-worker) as the focal figure in
3 the in-group assignment condition. This would provide a test of whether the current pattern of
4 effects was replicated when the focus was on an in-group member that was not an authority
5 figure and more closely aligned with Iyengar and Lepper's manipulations.

6 There were a number of limitations of the current study and their implications for the
7 interpretation of current findings and future research should be highlighted. A clear limitation
8 of the study is the lack of a self-report measure of intrinsic motivation as a means to verify the
9 persistence measure as an index of intrinsic motivation. Administering a self-report measure
10 would provide additional evidence to support the finding that individuals operating in the
11 collectivist group norm experienced significantly greater intrinsic motivation in the in-group
12 member assignment condition relative to personal choice condition. In the absence of this
13 measure, we cannot unequivocally rule out the possibility that participants acting in the
14 collectivist group-norm context, and having the task assigned to them by an in-group member,
15 may have been acting for identified reasons, an extrinsic form of motivation in which
16 individuals act to service important externally-referenced, but self-determined, goals for group
17 harmony and belongingness. In a similar line of argument, Ryan and Deci (2006) suggest that
18 individuals with a collectivist cultural orientation may persist for longer when others assign
19 tasks to them for introjected reasons, a form of extrinsic motivation which reflects acting out of
20 an internalized obligation to others. These reasons for acting may have been more salient in
21 this context than personal or individual reasons, and, therefore, may have been why individuals
22 given personal choice in this context spent less time on the task by comparison. A priority for
23 future research, therefore, would be to conduct a replication of the current study and include self-
24 report measures of intrinsic motivation, as well as measures of internalized extrinsic motives,
25 such as identified regulation (Ryan & Connell, 1989).

1 A criticism often levelled at research on choice is the relatively arbitrary nature of the
2 choices presented in experimental manipulations. Theorists have suggested that multiple
3 uninformed and trivial choices have little value and often do not constitute choice at all
4 (Schwartz, 2000, 2009). From a self-determination theory perspective, Ryan and Deci (2006)
5 suggest that uninformed or arbitrary choices can be viewed as controlling if they provide no
6 information on whether the choice is consistent with needs for autonomy and are a reflection of
7 an individual's true endorsement of the selected option. Rather, it is the *experience* of choice
8 that matters with respect whether choice will enhance intrinsic motivation. In contrast, a meta-
9 analysis found stronger effects for *instructionally-irrelevant choices* than *instructionally-*
10 *relevant choices* on intrinsic motivation (Patall, et al., 2008). The authors suggested that
11 choices with little consequence may actually represent an opportunity for individual expression
12 and enhance intrinsic motivation. In the current study, the choices presented to participants in
13 the personal choice condition (selecting the theme of anagram task and pen) was consistent
14 with those offered to participants in previous studies on choice including Iyengar and Lepper's
15 (1999) study, but could be construed as superficial and trivial and, therefore, relatively
16 inconsequential for motivation. However, as we did not measure participants' experience of
17 intrinsic motivation, it is not clear as to the extent to which participants experienced the choice
18 as intrinsically motivating. Future experiments could address this limitation by including a
19 manipulation of the consequences and meaning of the choice to participants, as well as
20 including self-reports of intrinsic motivation. These inclusions may shed light on whether the
21 relative arbitrariness of the choice impacts on intrinsic motivation under conditions of
22 individualist and collectivist group norms.

23 A further limitation of the current study is the omission of a measure of performance on
24 the anagram task. While the focal dependent variable in studies on intrinsic motivation has
25 typically been involvement with the task during a free-choice period (e.g., Deci, 1971, 1972),
26 studies have also collected performance data during the initial experimental period and used it

1 as an additional dependent variable (e.g., Harackiewicz, 1979; Iyengar & Lepper, 1999).
2 Consistent with hypotheses relating to task persistence during the free-choice period,
3 participants with higher levels of intrinsic motivation were expected to solve more anagrams
4 during the initial period as they tended to invest more effort in the task and have a greater need
5 to demonstrate competence. This would provide additional evidence to support the predicted
6 pattern of interactive effects of the group norm and choice manipulations on intrinsic
7 motivation. Researchers are advised to collect performance data alongside persistence data in
8 future replications of the current findings.

9 Finally, we did not measure or control for individual differences in cultural orientation
10 in the course of the present study. We could therefore not unequivocally rule out the possibility
11 that dispositional cultural orientations may have affected the current findings, and would be a
12 pertinent control variable in future research. The absence of a dispositional measure
13 notwithstanding, participants recruited in the current study were from a Western European
14 nation and could be assumed to have a largely individualist cultural orientation. It would be
15 interesting to examine whether individuals from a national group from an Eastern nation with a
16 largely collectivist cultural orientation would exhibit similar responses to the group norm
17 manipulation and the same interactive effects of group norms and choice on intrinsic
18 motivation. Future studies should extend the current research by examining the interaction of
19 individual differences in cultural orientation with the choice and group norm manipulations on
20 intrinsic motivation using a measure of dispositional individualism and collectivism. An
21 alternative design would be to use the measure to pre-screen a sample of predominantly
22 individualist- and collectivist-oriented individuals within a particular culture and replicate the
23 current study in those extreme groups.

24 **Conclusion**

25 The present study extended previous research by demonstrating that the situational
26 induction of individualist and collectivist group norms, rather than individual differences in

1 individualist and collectivist cultural orientations, affected the effect of personal choice and
2 social-agent assignment conditions on intrinsic motivation. It contributes to knowledge by
3 demonstrating that personal choice may be less optimal when the pervading group norm
4 endorses collectivism and that the assignment of tasks by in-group members to individuals in
5 such a group environment is more likely to evoke greater intrinsic motivation. This may have
6 important practical implications in organizational contexts. For example, managers and leaders
7 can foster collectivist working practices such as cooperation and this may increase, or at least
8 maintain, workers' intrinsic motivation when they are not provided with a choice in the tasks
9 they do.

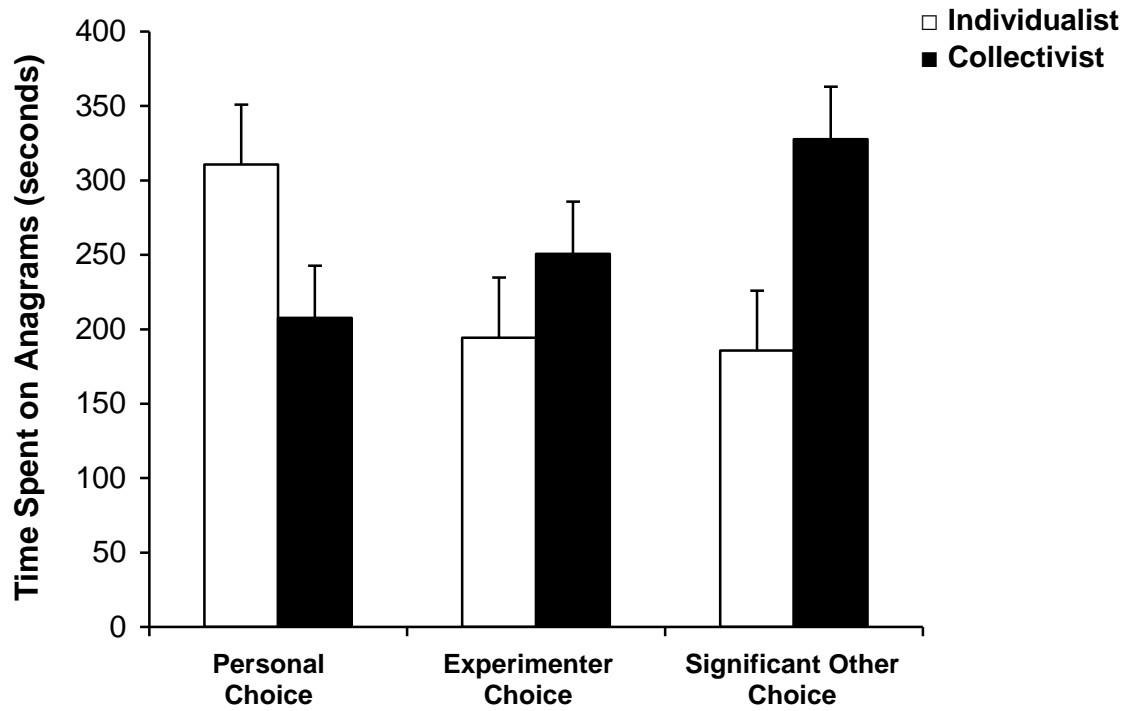
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Figure 1. Mean time (seconds) spent on anagrams during free-time period by experimental condition. Error bars represent standard errors.



Appendix A

Table 1

Sample Size and Gender Distribution for Each Experimental Condition

Gender	Individualist group norm condition			Collectivist group norm condition		
	Personal choice ^a	Experimenter assignment ^b	In-group assignment ^c	Personal choice	Experimenter assignment	In-group assignment
Male	16	15	20	17	16	15
Female	19	20	15	18	19	20

Note. ^aCondition in which participants had personal choice over the task; ^bCondition in which the task was assigned by an out-group member (experimenter); ^cCondition in which the task was assigned by an in-group member (ostensible company manager). N = 210; Cell sizes for each condition, n = 35.

Appendix B

We conducted a square-root transformation of our behavioral measure of intrinsic motivation, time spent on the anagrams during the free-choice period, and repeated the 2 (group norm) x 3 (choice condition) ANCOVA reported in the results section of the article using the untransformed scores. Consistent with the analysis using the untransformed scores, we found a significant interaction effect, $F(1,203) = 6.50, p = .002, \eta_p^2 = .060$. Similarly, Tukey planned comparisons within the group norm condition indicated that participants assigned to the individualist group norm condition spent significantly longer on the puzzles in the personal choice condition than those in the experimenter assignment condition ($p = .026$) and in-group member assignment ($p = .012$) condition. There was no significant difference in time spent on the anagrams for participants in the experimenter and in-group member assignment conditions. Participants assigned to the collectivist group norm condition spent significantly longer on puzzles in the in-group member assignment condition relative to those in the personal choice condition ($p = .014$). There was no significant difference in time spent on the anagrams for participants in the experimenter and in-group member assignment conditions and participants in the personal choice and experimenter assignment conditions. Simple effects analysis within the choice conditions revealed that participants assigned to the personal choice condition spent significantly longer on the anagrams in the individualist group norm condition compared to those in the collectivist group norm condition, $F(1,203) = 3.96, p = .048, \eta_p^2 = .019$. Similarly, participants assigned to the in-group member assignment condition spent significantly longer on the anagrams in the collectivist group norm condition compared to those the individualist group norm condition, $F(1,203) = 9.04, p = .003, \eta_p^2 = .043$. There was no significant effect of group norm on time spent on anagrams among participants in the experimenter assignment condition. There was also no significant effect for group identification in any of the models.