

The effect of variety expectations on interest, enjoyment, and locus of causality in exercise

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Abstract Most attempts to influence intrinsic motivation have focused on contextual support for basic need satisfaction, including the provision of autonomy support, structure, and interpersonal involvement (e.g., Edmunds et al. in *Eur J Soc Psychol* 38:375–388, 2008). This study explored the extent to which another factor, expectations for task variety, influenced interest, enjoyment, and locus of causality in a novel exercise setting. Results showed that participants exposed to messages about variety in an exercise class enjoyed the class more, found it more interesting, and perceived greater internal causality than those who received messages about similarity in the class. Moderator analyses indicated that expectations of task variety were particularly conducive for task interest among participants who usually demonstrated lower intrinsic motivation for exercise. Discussion focuses on the relevance of these findings to self-determination theory and on opportunities for future research.

Keywords Expectations · Variety · Enjoyment · Interest · Locus of causality · Physical activity

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Introduction

Self-determination theory (SDT; Deci and Ryan 1985) is an approach to human motivation and personality that has received considerable attention over the last 25 years. Much of this attention has focused on a central postulate within the theory that intrinsic motivation, which refers to the pursuit of an activity for enjoyment and pleasure, is facilitated by certain supportive conditions (e.g., Ryan and Deci 2000). More specifically, it is suggested in SDT that intrinsic motivation is catalyzed when conditions satisfy individuals' needs for autonomy, competence, and relatedness (Ryan and Deci 2000), and results from numerous studies involving a variety of methodologies have supported this proposition (e.g., Sheldon and Filak 2008; Wilson and Rodgers 2004). While a focus on need satisfaction might at least in part be responsible for the sustainment of intrinsic motivation (Ryan and Deci 2000), it is theoretically superfluous to its origination. Hence, other factors must be examined to understand the initiation of enjoyment and pleasure in a task.

Most attempts to facilitate intrinsic motivation have focused on promoting basic need satisfaction. A large number of these studies have centered on motivation for health-related behavior (see e.g., Ryan et al. 2008), but unfortunately, many health behaviors (e.g., dieting, brushing teeth) are not often perceived as inherently interesting or enjoyable. SDT indicates that need satisfaction is likely to facilitate autonomous forms of extrinsic, but not intrinsic, motivation when activities are initially perceived in this manner (Ryan and Deci 2000). In other words, although need satisfaction might promote volitional, self-endorsed behavior, it is unlikely to catalyze intrinsic motivation in these instances. For many people, physical exercise is viewed as a tedious activity that is

pursued for outcomes separable from the activity itself (see e.g., Frederick and Ryan 1993). As such, attempts at need satisfaction are likely to be futile in developing intrinsic motivation for exercise if people do not appreciate the inherent pleasures of exercise in the first place. Unfortunately, although autonomous forms of extrinsic motivation can still promote adaptive outcomes, sustained exercise is most likely when a person has both well-internalized extrinsic motivation and *intrinsic motivation* (Ryan and Deci 2007). Thus, given the importance of sustained exercise in promoting good health, a key health objective is to determine how initial appraisals of exercise can be influenced to create intrinsic motivation. The primary objective of this study is to address this issue.

The influence of expectations on appraisal processes

Insight into the techniques for manipulating people's initial perception of an activity can be obtained from studies focusing on individuals' expectations. Wild et al. (1997), for example, discovered that the manipulation of an instructor's reasons for engaging in a task influenced learners' intrinsic motivation for the same task, even when the delivery of the instruction remained constant. Two broad explanations could account for the findings by Wild and colleagues. First, the observation of another's motivational orientation could have non-consciously activated a similar orientation in the observer (see Friedman et al. 2010). A second possibility, which is particularly relevant for the present study, is that expectations about the task could have been consciously shaped by the instructor's motivation, and those expectations could have then influenced experiences during task engagement.

A wealth of literature indicates that expectations can influence subsequent interpretations (e.g., Boulding et al. 1993), and it is also noteworthy that expectations are highly flexible and can be manipulated by external agents (e.g., Patterson 1993). Research is now needed to clarify (a) the conditions that produce inherent interest and enjoyment in activities such as exercise, and (b) whether expectations about those conditions can be manipulated to influence perceptions of interest and enjoyment. Also needed is an examination of the extent to which these processes might unfold for people with varying levels of intrinsic motivation for exercise. In other words, does the manipulation of expectations about a new exercise class influence outcomes such as interest, enjoyment, and locus of causality similarly for people with different tendencies to enjoy exercise? In his hierarchical model of motivation, Vallerand (1997) argues that motivation at broad levels can influence more specific situational forms of motivation. In particular, motivation at a global level, which reflects a general orientation to interact with the environment, can

impact motivation in specific contexts. This contextual motivation (e.g., for exercise generally) can then exert an influence on motivation for a particular activity at a given moment in time (Vallerand 1997). The second of these top-down effects, which has been supported by empirical work (e.g., Gagné et al. 2003), might impact the success of a manipulation to change motivation for a new exercise class. That is, general tendencies to enjoy exercise (or not) might furnish evaluations of a new exercise class, and this influence might override the effects of manipulations offered by external agents. Another possibility is that an interaction effect emerges, whereby the influence of an external agent might only be significant among participants who do not enjoy exercise. Those who usually enjoy exercise might find pleasure in an activity despite attempts to alter their impressions, an idea that would support an individual difference approach to the regulation of interest (see Sansone and Thoman 2005). Thus, the extent to which manipulations influence interest, enjoyment and locus of causality among people with varying levels of intrinsic motivation for exercise is worthy of investigation. To the extent that health promotions are often targeted at those who experience low levels of intrinsic motivation for exercise, it is important to establish that any manipulation to increase interest or enjoyment in exercise is influential among these people.

Appraisals of task variety as a source of interest and enjoyment

A link between perceptions of task variety and interest has been supported by both conceptual and empirical work. For instance, variety can be linked to at least some of the collative variables associated with interest in Berlyne's (1960) seminal work (i.e., complexity, novelty, uncertainty, and conflict), and although Berlyne's approach has fallen into disfavor, the idea that perceptions of novelty or variety in a task can promote interest has remained strong (e.g., Silvia 2005, 2006). According to Silvia (2006), an appraisal of novelty in a task, which involves a judgment that something is new, ambiguous, complex, uncertain, or unexpected, is one of the two main appraisals upon which interest is based. A link between task variety and enjoyment has also been established in literature on intrinsic motivation. For example, empirical work indicates that enjoyment and intrinsic motivation can be improved from SDT-based exercise interventions in which various exercise options (and choice) have been provided (e.g., Edmunds et al. 2008; Silva et al. 2010). Also, prominent models in organizational psychology, such as the job characteristics model (Hackman and Oldham 1975), point to the importance of variety as a precursor to intrinsic motivation. Hackman and Oldham (1975) indicate that skill variety,

which refers to the extent to which a job entails different activities and involves a range of skills and talents, contributes to a psychological state of 'meaningfulness', which in turn drives internal motivation.

Present research

In the present investigation, we sought to manipulate individuals' expectations of task variety using a simple pre-task communication. Consistent with past work on interest and enjoyment (e.g., Berlyne 1960; Edmunds et al. 2008), it was hypothesized that a message about variety in an exercise class, relative to a message about similarity, would increase individuals' interest, enjoyment, and internal locus of causality for the class. In addition, we also aimed to explore the extent to which these manipulations were effective in modifying activity perceptions across people with varying levels of contextual intrinsic motivation for exercise. This study represented the first attempt to address this issue, and given the possibility of different effects that were discussed earlier, we did not formulate specific directional hypotheses for this issue.

Method

Participants and pre-task procedure

Ethical approval was granted by the university human ethics committee at the lead author's institution prior to the commencement of the study. One hundred and eighty seven undergraduate students (90 male, 97 female), varying in age from 18 to 40 years ($M = 20$, $SD = 2.32$), were recruited from a sport science course. Involvement in the study was voluntary, and informed consent was obtained from the students prior to their participation. Before commencing, all participants completed a Physical Activity Readiness Questionnaire (PAR-Q) to ensure that they were physically able to undertake a 20-min cycling activity. They subsequently completed the intrinsic motivation component of the Behavioral Regulation in Exercise Questionnaire-2 (BREQ-2; Markland and Tobin 2004). More specifically, participants completed four items assessing intrinsic motivation (e.g., 'I exercise because it's fun') anchored by 0 (*Not true for me*) and 4 (*Very true for me*). Each of the subscales for the BREQ-2 have been shown to be internally consistent (e.g., Longbottom et al. 2012), and the intrinsic motivation subscale was also found to be internally consistent in this study as well ($\alpha = .87$). As a novel activity was used in the present work, it was not appropriate or possible to glean pre-existing (or baseline) motivations toward the experimental task.

Two weeks later, the students arrived for the experiment in groups of 10–15 and were invited to participate in a 20 min cycling class. These group cycling classes were conducted over a 2-week period with identical timeslots in each week. The manipulation was alternated from one group to the next, and the manipulation assigned to a given timeslot in week 1 was different to the manipulation assigned to the same timeslot in week 2. To conceal the true nature of the investigation, after entering the exercise room, students were informed that the study involved an examination of the effect of exercise on mood. A mood scale (i.e., Profile of Mood States—Abbreviated; McNair et al. 1971) was administered before the exercise task to further reinforce the bogus cover story for the experiment.

Experimental manipulation and activity

Half of the students were verbally informed that their exercise session would consist of a novel 20 min cycling activity comprised of two *similar* 10-min tasks (i.e., the 'similar condition'). The other half were informed that their cycling task would consist of a novel 20 min cycling activity consisting of two *different* tasks of 10 min each (i.e., the 'variety condition'). This information was conveyed via the following purpose statements in the subject information sheet:

'Your exercise task will consist of two similar activities. Separated by a 2 min break, the tasks will require the same resources and will be experienced as very similar' (similar condition).

'Your exercise task will consist of two different activities. Separated by a 2 min break, the tasks will require different resources and will be experienced as very different' (variety condition).

In between the completion of the pre-exercise mood scale and the initiation of the cycling activity, participants were asked to read an advertisement designed to reinforce their original expectation about the class. These advertisements included the same description of the class that was provided in the information sheet. In the 'variety' condition, the two cycling tasks in the class were described as 'Spin Class—Activity 1' and 'Cycling Simulation Task—Activity 2', with different cycling photographs next to each name. Participants in the 'similar condition' saw the same cycling photograph next to each of the activities, which were named 'Spin Class—1st Half' and 'Spin Class—2nd Half'.

The exercise session was conducted under the guidance of a qualified cycling spin instructor who was blind to the experimental protocol. The cycling activities, which were presented to the groups in counter-balanced order, consisted of a graded hill climb for 10 min and speed intervals

for 10 min. Thus, aside from counter-balancing the order of the tasks, participants in both experimental conditions completed the exact same exercise session.

Post-exercise procedure

At the conclusion of the exercise session, participants again completed a mood inventory, and were asked two questions about their expectation for the cycling activity (i.e., “before the start of the exercise, I expected the two cycling activities to be similar”; “prior to the commencement of the exercise, my expectation was that the two cycling activities would be different”). Responses were recorded on a Likert scale anchored by 1 (*Not at all true*) and 7 (*Very true*). Scores for these items were tallied after reversing the scores on the first item, and together they were used as a manipulation check.

Participants also completed the interest/enjoyment subscale of the intrinsic motivation inventory (Ryan 1982) for each of the two cycling tasks. The intrinsic motivation inventory has been found to be both valid (e.g., McAuley et al. 1989) and reliable (e.g., Tsigilis and Theodosiou 2003). In light of recent work demonstrating the separate antecedents and outcomes associated with enjoyment and interest (see e.g., Silvia 2006), these two components of the intrinsic motivation inventory were analyzed separately. The enjoyment subscale consisted of four items (e.g., ‘I enjoyed doing this activity very much’), whereas the interest subscale consisted of three items (e.g., ‘I would describe this activity as very interesting’). Cronbach’s alpha coefficients in the present study indicate that both the enjoyment (α task 1 = .89; α task 2 = .91) and interest (α task 1 = .77; α task 2 = .77) subscales were internally consistent. Questions on both subscales were answered on a 1 (*Not at all true*) to 7 (*Very true*) response grid. To provide information about the effect of the manipulation on locus of causality, the Locus of Causality for Exercise Scale (Markland and Hardy 1997) was administered for each of the cycling tasks. The wording of this scale was altered to reflect possible future engagement in the activities (e.g., ‘If I were to attend another class involving the activity from SPIN CLASS—FIRST HALF, I would consider it to be a bit of a bind that had to be done’). This scale consisted of three items, and responses were made on a Likert-type scale anchored by 1 (*strongly disagree*) to 7 (*strongly agree*). Two of the three items were reversed scored in analyses, so high scores on this measure reflected an internal locus of causality. Markland and Hardy (1997) have provided support for the psychometric properties of this measure, and it was found to possess adequate internal consistency in the present study for both task 1 ($\alpha = .70$) and task 2 ($\alpha = .72$).

Results

Preliminary analyses

Analysis of the manipulation check revealed that the messages were successful at creating significantly different variety expectations between those in the similar condition ($M = 5.99$, $SD = 2.89$) and those in the variety condition ($M = 7.10$, $SD = 3.23$), $t(184) = -2.464$, $p = .015$, two tailed, $d = .36$. A t test also revealed that participants from the two groups did not differ in their predisposition to experience intrinsic motivation in exercise ($M_{\text{similar}} = 3.28$, $SD_{\text{similar}} = .62$; $M_{\text{variety}} = 3.29$, $SD_{\text{variety}} = .60$), $t(174) = -.082$, $p = .935$, two tailed, $d = .01$. A MANOVA was undertaken to determine whether interest, enjoyment, or locus of causality differed according to gender. This analysis was statistically non-significant, $F(3, 172) = 1.323$, $p = .27$, $\eta_p^2 = .023$, indicating the absence of any differences between males and females on these measures. Consequently, all subsequent analyses were performed across gender. Paired samples t tests also revealed that participants did not differ in their perceptions of locus of causality ($t(184) = .001$, $p = .999$), enjoyment ($t(179) = .073$, $p = .942$), or interest ($t(181) = -.463$, $p = .644$) between the first and second halves of the conditions. As a result, all subsequent analyses were computed using pooled scores for these variables across both cycling tasks.

Main analyses

A MANOVA was undertaken to determine whether the two experimental groups differed in interest, enjoyment and locus of causality across the whole task. Analyses revealed a significant multivariate effect of the message, $F(3, 172) = 4.18$, $p = .007$, $\eta_p^2 = .068$. Using an adjusted alpha of .02 to interpret significance, further analysis indicated that participants in the two message groups differed in interest, $F(1, 174) = 5.694$, $p < .02$, $\eta_p^2 = .032$, enjoyment, $F(1, 174) = 7.086$, $p = .008$, $\eta_p^2 = .039$, as well as in locus of causality, $F(1, 174) = 10.147$, $p = .002$, $\eta_p^2 = .055$. Specifically, those receiving the message about variety in the activities reported significantly greater interest ($M = 5.05$, $SD = 1.02$) than those who received the message about similarity in the activities ($M = 4.67$, $SD = 1.12$). Significant differences in enjoyment were also observed in the expected direction ($M_{\text{similar}} = 3.92$, $SD_{\text{similar}} = 1.23$; $M_{\text{variety}} = 4.39$, $SD_{\text{variety}} = 1.14$). Finally, participants in the ‘variety’ condition reported that they would be more likely to freely choose the exercise in the future ($M = 4.89$, $SD = 1.14$) than those who received the message about similarity in the activities ($M = 4.34$, $SD = 1.13$). These results are shown in Table 1.

Table 1 Descriptive statistics and Pearson’s correlation values for dependent variables

Variable	Variety expectation		Similar expectation		Intercorrelations		
	Mean	SD	Mean	SD	1	2	3
1. Interest	5.05	1.02	4.67	1.12		.67*	.36*
2. Enjoyment	4.39	1.14	3.92	1.23			.45*
3. Locus of causality	4.89	1.14	4.34	1.13			

* $p < .01$

Procedures outlined by Frazier et al. (2004) were followed to investigate whether any of the main effects were moderated by contextual intrinsic motivation for exercise. Three moderation analyses were undertaken, one for each of the aforementioned dependent variables. Scores for contextual intrinsic motivation were first centered, and a product term was created to reflect the interaction between manipulation and contextual intrinsic motivation. This product term was subsequently entered in the third step of all three multiple regression analyses. The first step included the independent variable (experimental group) and the second step included the centered moderator variable (contextual intrinsic motivation for exercise). Results from these analyses indicated that the interaction term significantly predicted interest, $\beta = -.200$, adj. $R^2 = .04$, $p < .05$, but not enjoyment, $\beta = .01$, adj. $R^2 = .10$, $p = .94$, or locus of causality, $\beta = -.03$, adj. $R^2 = .07$, $p = .77$. In relation to interest, simple slopes analysis (see Jose 2008) at low (i.e., $-1SD$), moderate (i.e., mean), and high (i.e., $+1SD$) values of intrinsic motivation revealed the slope for the ‘variety expectation’ group across levels of intrinsic motivation did not differ from zero, $t(168) = -.51$, $p = .61$. However, the slope for the ‘similar expectation’ group across levels of low, moderate, and high intrinsic motivation was significantly different from zero, $t(168) = 3.57$, $p = .001$. These results are displayed in Fig. 1. In sum, those who were highly intrinsically motivated for exercise appeared to report consistently high levels of interest regardless of whether they anticipated variety or similarity in the cycling task. However, for those who reported relatively low levels of contextual intrinsic motivation for exercise, individuals in the ‘similarity’ condition reported lower interest than those in the ‘variety’ condition. As such, expectations of variety appeared to bolster interest for individuals who were not typically intrinsically motivated for exercise.

Discussion

Many studies on intrinsic motivation focus on its sustainment rather than its origination (e.g., Lepper et al. 1973). An abundance of research now indicates that basic need

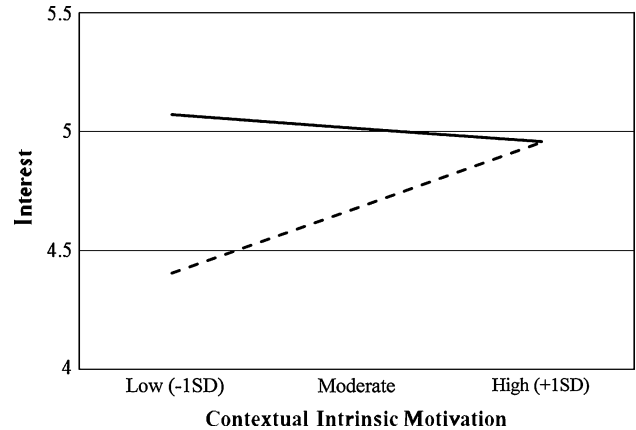


Fig. 1 Interest as a function of manipulation and contextual intrinsic motivation for exercise. Dotted line represents participants in the ‘similar expectation’ condition. Solid line represents participants in the ‘variety expectation’ condition

satisfaction supports the sustainment of intrinsic motivation, though this research carries the assumption that the activities are experienced as interesting or enjoyable to begin with. The implications of such research, therefore, only extend to those behaviors that are experienced as appealing or novel in the first place, and research is needed to establish how these initial impressions of interest, value, and enjoyment can be established. Our study demonstrated that those individuals who expected task variety in a new exercise session, relative to those who expected task similarity, reported more enjoyment, interest, and locus of causality in the session. The significant difference between groups on locus of causality is particularly encouraging for health promotion. The locus of causality scale was worded to reflect the extent to which future involvement in the cycling class would be freely chosen. Thus, together with the finding that current enjoyment and interest varied between manipulation conditions, analyses revealed that future expectations about exercise activities differed between conditions as well.

The results of the present study are supported by research in consumer psychology indicating that perceptions of product quality often follow one’s initial quality expectations (e.g., Boulding et al. 1993). To our

knowledge, however, our study was the first to examine the influence of variety expectations on intrinsic motivation for exercise. Other SDT researchers have begun to explore related issues, such as goal framing (e.g., Vansteenkiste et al. 2004), but our findings offer insight into one of the mechanisms through which motivation for health behavior can be manipulated. Expectations exert a powerful influence on people's appraisals of tasks; they guide ongoing experiences in expectation-conforming ways, and they create a state of readiness in people to conform to the expectation (see e.g., Bandura 1997; Jussim 1989). Importantly, expectations can be influenced by external agents. Verbal and social persuasion is a well recognized pathway through which expectations can be shaped (e.g., Bandura 1997), and the present study indicates that this pathway can be utilized in exercise contexts in order to shape initial appraisals of interest, enjoyment, and causality.

A separate important finding from the current study was that interest differed between manipulation conditions only for those participants who possessed lower levels of intrinsic motivation for exercise. Sansone's work on the self-regulation of interest (e.g., Sansone and Thoman 2005; Sansone et al. 1992) might help to explain this finding. Sansone and Thoman (2005) argue that individuals will actively make uninteresting tasks more interesting in circumstances where there are good reasons to perform the behavior. Prior research and theorizing (e.g., Sansone et al. 1999) indicates that this self-regulation of interest is moderated by individual difference factors. Indeed, Sansone and Thoman (2005) asserted that the use of "strategies to enhance interest appear to differ as a function of what the individual brings to the situation as a function of ...characteristic orientations toward activities" (p. 181). The present study supports the idea that contextual motivation can influence the self-regulation of interest. More specifically, those with high levels of intrinsic motivation for exercise could be more proficient at self-regulating interest in this domain regardless of the anticipated similarity/variety in a task, whereas those with low levels of intrinsic motivation might require more external support (e.g., the suggestion of task variety) to generate interest. Perhaps, for instance, those with high intrinsic motivation for exercise are able to focus on cues that are pervasive across all forms of exercise.

In a similar vein, more work is needed to establish the stable individual difference factors that influence appraisals of interest and enjoyment. Assertions in both the hierarchical model of intrinsic and extrinsic motivation (Vallerand 1997) and causality orientations theory (Deci and Ryan 1985) indicate that people vary in their general tendency to experience autonomous forms of motivation. These enduring orientations might be particularly powerful in

influencing appraisal processes for a new activity. Other stable individual difference traits linked to interest include trait curiosity, openness to experience, sensation seeking, boredom proneness, and breadth of interest (Silvia 2006). The mechanisms through which these factors bear their expression on appraisals of interest and enjoyment are not sufficiently understood, and further work is recommended to examine them.

Future research is also required to investigate other manipulations that are likely to promote appraisals of interest or enjoyment. Vallerand's taxonomy of intrinsic motivation (e.g., Vallerand et al. 1989, 1992), which consists of intrinsic motivation-to know, intrinsic motivation-to accomplish, and intrinsic motivation-to experience stimulation, offers one lens through which such research could be focused. Intrinsic motivation-to know relates to constructs such as exploration, curiosity, learning goals, intrinsic intellectuality, and the search for meaning (Vallerand et al. 1992). Intrinsic motivation-to accomplish is defined as the engagement in an activity for the pleasure and satisfaction of accomplishing or creating something, while intrinsic motivation-to experience stimulation reflects engagement to experience stimulating sensations, such as sensory pleasure or aesthetic experiences (Vallerand et al. 1989). The manipulation used in the present study may have primarily targeted individuals' intrinsic motivation-to know. Conceivably, however, appraisals for other facets could influence overall intrinsic motivation for a task, and more work is needed to determine the overall contribution of each appraisal to intrinsic motivation in exercise. On this issue, Dimmock et al. (2012) recently found that whilst all forms of intrinsic motivation in exercise are moderately or strongly related to overall intrinsic motivation for exercise, intrinsic motivation-to know actually bears the weakest relationship with overall perceptions. Consequently, one might suspect that manipulations of expectations for accomplishment or experience may be particularly conducive to facilitating intrinsic motivation in an exercise task.

Four limitations of the current study are worth noting, along with related avenues for further inquiry. First, the sample used in the investigation consisted of sport science students at a single university in Australia. The extent to which the manipulation used in the study would be effective across other groups, including new exercisers, is not known. Perhaps a basic level of intrinsic motivation for exercise is required to process messages for a new exercise task, and more work is needed to investigate this issue. Second, the study involved a controlled design in which the manipulation was reinforced in various forms (i.e., information sheet, verbal announcements, and advertisements). Attempts to strengthen the manipulation in a controlled experimental design may have posed limitations to external

validity. Third, no behavioral outcome measure was utilized in the study, and the extent to which the manipulation influences short-term exercise behavior therefore remains unclear. Finally, data were collected after a single exercise session. Whether the same manipulation is consequential across forms of exercise therefore cannot be gleaned. Moreover, although the findings related to locus of causality suggest that variety manipulations might lead to future engagement in the class, repeated involvement at the exercise class was not measured. Indeed, it would be fascinating in future to conduct prospective research that utilizes multiple time points, in order to examine not only the proximal (i.e., immediate, short-term) effects associated with variety expectations, but also to detect the extent to which experimental manipulations are able to exert distal (i.e., maintained, long-term) effects upon exercise preferences, perceptions, and engagement.

To conclude, our findings indicate that an expectation of variety (as opposed to similarity) in an exercise class can positively influence exercisers' enjoyment, interest, and locus of causality for that class. In a conceptual sense, the expectation of variety was unlikely to have influenced these constructs via basic need satisfaction. Instead, it is more likely that this effect originated via changes in individuals' appraisals related to the inherent qualities of the task. The data also indicated that the influence of the manipulation on appraisals of interest was moderated by one's contextual intrinsic motivation for exercise. More specifically, the message for variety was particularly conducive toward promoting task interest among participants who usually demonstrated lower intrinsic motivation for exercise. Future research is encouraged to elucidate the mechanisms that underlie these effects, as well as to explore other factors that contribute to one's development of intrinsic motivation for a task.

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