



Perceived Economic Mobility, Future Orientation, and Pro-Environmental Behavior: A Study on Secondary School Students' Responses to Recycling

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ABSTRACT

Researchers have been paying a great deal of attention to the issues surrounding climate change, a serious threat to every aspect of society. The present research adds to the growing body of literature on pro-environmental behavior by demonstrating that a previously unidentified factor perception of economic mobility systematically affects pro-environmental behavior among secondary school students. Evidence further suggests that the degree of future orientation mediates this effect. This is the first demonstration that the perception of society influences its members' pro-environmental behavior. Furthermore, the result stresses the importance of cultivating pro-environmental behavior at young ages. This research also discusses other theoretical and substantive implications as well as various future research directions.

KEYWORDS: economic mobility, pro-environmental, sustainability, recycling, corporate social responsibility, future orientation

INTRODUCTION

Climate change and its damaging consequences impose a serious threat to every aspect of society. Examples include how to secure safe drinkable water (Nakagawa, 2020), how to protect habitable areas from rising sea levels (Webb and Howard, 2013), and the way businesses should be conducted concerning corporate social responsibility and ESG (environmental, social, and governance) concerns (Gillan et al., 2021). As a result, issues surrounding climate change are often prioritized over other issues in the public as well as private sectors.

Not surprisingly, given the deleterious effects of climate change on the environment and their far-reaching consequences, researchers have been paying a considerable amount of attention to topics related to climate change across various disciplines. In particular, business researchers have focused their efforts on identifying psychological and social factors facilitating pro-environmental behavior (e.g., recycling decisions) as well as business tactics designed to nudge consumers into behaving in more environmentally conscious ways (Trudel, 2019).

The present research focuses on individual pro-environmental behavior and adds to the growing literature on pro-environmental issues by demonstrating that people's perception of the economic mobility of the society that they live in systematically affects their pro-environmental behavior such as recycling decisions. We further offer evidence that this effect is mediated by future orientation a degree to which an individual's thoughts, plans, and motivations are focused on the future versus the present (Zhu et al., 2020).

Therefore, the present research makes several key contributions. First, this research elucidates the important role of a previously unidentified driver of pro-environmental responses

perceived economic mobility and thus adds to the vast literature on pro-environmental behavior. Second, given that modern society is built on the premise that everyone has opportunities to pursue upward economic mobility, and given that hard work, rather than circumstances at birth, is the main driver of economic success (Morgan, 2006), we highlight the role of perceived economic mobility as a core principle of modern society that also shapes pro-environmental behavior. This is a novel contribution since the growing literature on perceived economic mobility has, so far, documented its effects predominantly in consumption settings (Kim, 2022). Third, we add to the literature by showing the important role played by future orientation in determining pro-environmental behavior. Extant research on pro-environmental behavior typically treats future orientation as a trait variable (Yorkovsky and Zysberg, 2021). However, in this research we indirectly manipulate future orientation and show its role, thus providing further support for future orientation as a key factor in pro-environmental behavior. Fourth, there is a dearth of research systematically examining adolescents' pro-environmental behavior (Palupi and Sawitri, 2018). This is a critical gap because people's behavior at young ages is a significant predictor of later life behavior. We fill this gap by investigating secondary school students' pro-environmental behavior.

Overall, this research offers not only theoretical contributions by linking perceived economic mobility to pro-environmental responses but also substantive implications by bringing attention to the importance of cultivating adolescents' pro-environmental behavior. Next, we discuss in detail the conceptual background of this research.



CONCEPTUAL BACKGROUND

Pro-Environmental Behavior

It is widely recognized that humans are responsible for most environmental problems. For example, humans have increased the amount of carbon dioxide, a major greenhouse gas, in the atmosphere by 33% (Trudel, 2019). The emission of greenhouse gases is not limited to manufacturing and agricultural processes, and the use of fossil fuels. For example, consumers' post-consumption decisions to recycle or trash do affect greenhouse gas emissions as well since recycling reduces the emission of methane, a more potent greenhouse gas than carbon dioxide, by diminishing the decomposition of waste.

Thus, pro-environmental behavior can be defined as individual behavior or decision-driven to benefit or reduce the negative impact on the environment (Stern, 2000). Although it is reasonable to assume that most people want to behave in a way that does not negatively affect the environment, not all people engage in pro-environmental behavior. Therefore, researchers in sociology, psychology, and business have devoted their efforts to identifying factors influencing pro-environmental behavior. The literature has documented several unique such factors.

First, self-identification or self-signaling drives environmentally consequential behavior. People are motivated to develop a sense of self-identification that distinguishes them from others in society and often want to signal their self-identification (Belk, 1988). Some people might engage in pro-environmental behavior as a positive signal to others. Second, in addition to individual identity, social identity influences the degree to which people show pro-environmental behavior. People need to affiliate with or be accepted by members of a social group. Hence, people are more likely to show pro-environmental behavior if their current or ideal social group values pro-environment activities (McCright and Dunlap, 2011). Third, social norms, unwritten rules developed through members' shared interactions with one another in society, exert influence on pro-environmental behavior. If there are repercussions for violating a social norm related to protecting the environment (e.g., recycling) in a community, its members are more likely to exhibit pro-environmental behavior due to the fear of social sanctions (Cialdini and James, 2009). Fourth, some people have developed dispositions to care more about the environment due to their experiences, knowledge, interests, and other idiosyncratic variables (White et al., 2011). Last, but not least, product characteristics can affect pro-environmental behavior. For example, in a series of experiments, Trudel and Argo (2013) found that consumers are more likely to trash rather than recycle large (vs. small) products.

Next, we argue that people's perception of the society that they live in is likely to drive pro-environmental behavior. In particular, we argue that people's perception of economic mobility systematically affects people's decision to be pro-environmental.

Perceived Economic Mobility

There are several different macro-level economic mobility indices. According to one such index published by the Brookings Institute, the United States has significantly lower economic mobility than most European countries, making the American Dream an obsolete concept (Sawhill and Morton, 2007). However, macro-level economic mobility measures hardly affect individual decisions; what matters to individuals is their own belief in economic mobility in the society that they live in (Davidai and Gilovich, 2018).

Therefore, perceived economic mobility (hereinafter often referred to as PEM) is conceptualized as an individual belief about the degree to which a society that he or she lives in allows its members to move up the economic ladder (Davidai and Gilovich, 2018; Yoon and Kim, 2016). PEM is not about one's ability or determination (e.g., hard work) necessary to achieve future economic success; it is about one's belief that future economic success can be achieved in society given individual actions such as hard work, responsible spending, healthy financial planning, and savings. Thus, PEM is an individual perception of society. People perceiving low economic mobility may believe that due to some barriers, their society makes it difficult to achieve upward economic mobility even if they work hard. People perceiving high economic mobility may believe that economic success can be achieved if they take necessary action in their society. Since PEM is an individual-level construct based on perception, not on reality, it varies widely even in a single society (Yoon and Kim, 2016). PEM has been shown to influence people's behavior and decision-making processes in various consumption settings such as unplanned purchases, variety-seeking, interaction with service employees, and cash management among others (Kim, 2020).

Why might PEM affect pro-environmental behavior? Most, if not all, pro-environmental behavior is essentially inter-temporal, meaning that even if one engages in such behavior in the present, the benefits materialize in the future and often seem distant, uncertain, and more or less abstract (Trudel, 2019). Extant research suggests that PEM affects the degree to which people consider the long-term implications versus the short-term gains when making decisions or plans. For example, Yoon and Kim (2016) demonstrated in a series of studies that people perceiving high economic mobility tend not to make impulse purchases compared to people perceiving low economic mobility. Importantly, they provided evidence that people with high PEM are willing to regulate their behavior to achieve their future goals including financial success, whereas people with low PEM are more interested in instant gratification. This finding suggests that PEM is likely to affect future orientation. In addition, Bak and Yi (2020) analyzed the data from the Korea General Social Survey and found that people with high PEM are willing to work hard without immediate rewards. In summary, extant findings indicate that PEM is likely to affect future orientation.



Future Orientation

There appears to be a linkage between future (vs. present) orientation and pro-environmental behavior. Rezcek and colleagues (2018) found that people who are dispositionally more future-focused tend to prefer eco-friendly products. Similarly, Zaval and colleagues (2015) showed that priming a future focus induced participants to donate more to an environmental charity and to strengthen their beliefs about climate change. Further, research showed that people with hedonistic, present-focused dispositions tend to exhibit less sustainable attitudes and behavior (Wittmann and Sircova, 2018). However, recent research (Yorkovsky and Zysberg, 2021) argues that the association between future orientation and pro-environmental behavior is empirically inconclusive because most studies measured future orientation as an individual trait variable, making it difficult to assess the causal relationship between the two constructs. Moreover, even if the effect of future orientation on pro-environmental behavior is true, previous research did not offer a solution to the challenge of finding a practical intervention scheme to boost people's future orientation. We seek to address this gap in this research.

In summary, we propose that high PEM will lead to heightened future orientation, which in turn will result in relatively more pro-environmental behavior. In contrast, we expect that low PEM will lead to reduced future orientation, which in turn will result in relatively less pro-environmental behavior.

Overview of the Experiment

Pro-environmental behavior can take many different forms, such as riding a bicycle rather than driving a car, supporting green products, recycling more often, and so on. Similarly, pro-environmental behavior can be conceptualized and measured in different ways previous activity, directly observed behavior, preference, and future intention and there are high correlations among these different measures, allowing researchers to use any of different conceptualizations or measures to reliably assess pro-environmental behavior (Onwezen et al., 2014). Therefore, in this research, we will use pro-environment intentions and behavior interchangeably unless otherwise noted.

In this research, we focus on secondary school students' recycling intention and preference and employ an experimental, rather than survey, method to gain better insight into the causality between PEM and pro-environmental behavior as well as the mediating role of future orientation. Recycling is one of the easiest ways for lay people, including secondary school students, to engage in a pro-environmental activity, and its positive effect on the environment is enormous (White et al., 2011). Not surprisingly, recycling among pro-environmental research topics has received a great amount of attention (Liu et al., 2022). Thus, using recycling intention as a dependent variable in our study achieves realism for our secondary school participants. Moreover, some companies have strongly incorporated recycling into their corporate social responsibility activities and corporate identities (Gillan et al., 2021). This allows us to expand the scope

of this research by examining not only participants' future recycling intention but also their preference between two companies with different identities concerning recycling. Next, we report the details of an experiment and discuss the results.

EXPERIMENT: PRO-ENVIRONMENTAL RESPONSES OF SECONDARY SCHOOL STUDENTS

Participants and Design

Eighty-two American high school students voluntarily participated in a study described as a study on consumer behavior. We recruited these students as per the Federal guidelines. We used a one-factor (PEM) with two levels (high vs. low) between-subjects design.

Manipulation, Measurement, and Variables

We manipulated PEM via a writing task (Yoon and Kim, 2016). Participants in the high (low) PEM condition read an instruction: "Please imagine that you are participating in a debate at your school. Your position is to make strong arguments that economic mobility in the U.S. is high (low). Please note that this has nothing to do with your own belief about economic mobility in the U.S. Your goal is to simply argue for high (low) economic mobility as best as you can." Then, they were asked to write their arguments to support their position.

Next, participants imagined that they came across the following two companies that were recruiting students as summer interns: Company Syncoa specializes in apparel made from a synthetic material derived from coal, and Company Recean specializes in apparel made from recycled wastes from the ocean. They indicated their internship preference on a nine-point scale (1 = absolutely prefer Syncoa, 9 = absolutely prefer Recean). This constituted our first dependent variable. We then measured our second dependent variable, participants' recycling intention, by asking them to indicate the degree to which they agreed or disagreed with the following two statements (Liu et al., 2022): "I intend to recycle better in the next three months," and "I will try to recycle better in the next three months" (1 = strongly disagree, 7 = strongly agree). We averaged these two items to create a recycling index ($r = .83$).

After this, we assessed the mediator, participants' future orientation, on a two-item, seven-point scale (Strathman et al., 1994), "I act to satisfy immediate concerns, figuring the future will take care of itself," and "My behavior is typically influenced by the immediate (i.e., a matter of days or weeks) outcomes of my actions," (1 = strongly disagree 7 = strongly agree). We averaged these two items to form a future orientation index ($r = .94$). These two items were reverse-coded so that higher scores would indicate stronger future orientation. We followed with an attention check, which instructed participants to choose "strongly disagree." As a manipulation check, we asked participants to indicate how much they agreed or disagreed with the following statement described arguments that they had written at the beginning of the study: "Everyone has a fair chance at moving up the economic ladder" (1 = strongly disagree, 7 = strongly agree). Finally, we measured gender and age (55% male, 3.7% decline to indicate gender, average age = 16.8).



Pre-Analysis Checks

One participant failed an attention check and, thus, was removed from the analysis. Age and gender were not correlated with the two dependent variables and future orientation (all p values $> .18$). As for the manipulation check, participants in the high (vs. low) PEM condition more strongly agreed that anyone can move up the economic ladder with hard work ($M_{\text{high PEM}} = 5.88$, $M_{\text{low PEM}} = 2.93$, $t = 12.93$, $p < .01$).

Dependent Variables

We expected that PEM would systematically affect internship preference. To test this, we regressed internship preference on manipulated PEM (1 = high, 0 = low). PEM predicted internship preference ($\beta = .34$, $t = 3.17$, $p < .01$). As expected, high PEM led to a stronger preference for the company specialized in recycling ocean waste (vs. new coal technology) ($M_{\text{high PEM}} = 6.18$, $M_{\text{low PEM}} = 4.81$). We also expected PEM would influence recycling intention. To test this, we regressed recycling intention on manipulated PEM (1 = high, 0 = low). PEM predicted recycling intention ($\beta = .29$, $t = 2.73$, $p < .01$). As expected, high PEM led to more favorable recycling intention ($M_{\text{high PEM}} = 5.93$, $M_{\text{low PEM}} = 5.18$).

Mediation Analysis

We next examined if PEM affected internship preference via future orientation, as hypothesized. To test this mediation, we employed Model 4 in Hayes (2017) with 5,000 resamples.

Figure 1: PEM, Future Orientation and Internship Preference (* $< .05$, ** $< .01$)

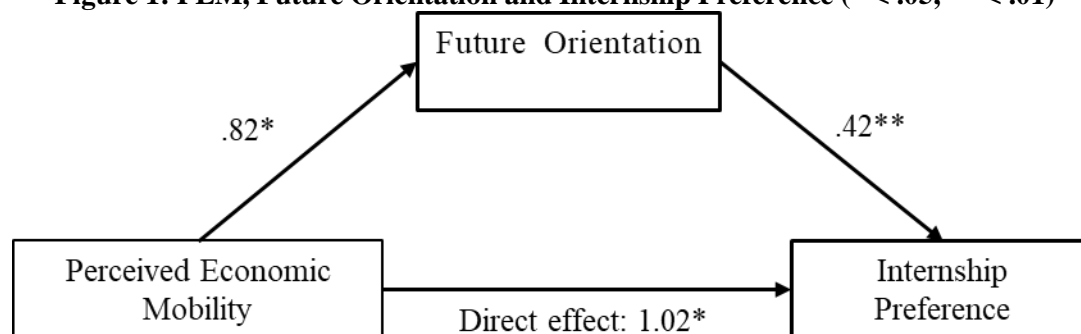
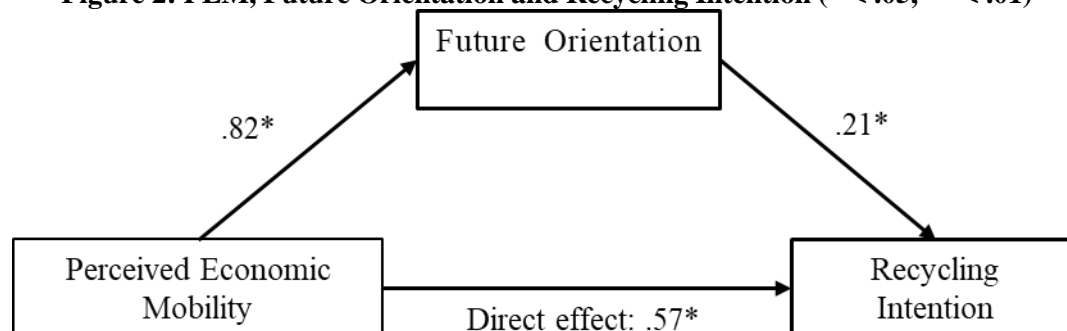


Figure 2: PEM, Future Orientation and Recycling Intention (* $< .05$, ** $< .01$)



Discussion

The data supported our main premise that high (vs. low) PEM led to stronger (vs. weaker) pro-environmental behavior as measured by both students' preference for a company for a summer internship and recycling intention. Importantly, we found evidence that, as expected, the effect of PEM on the two

According to this model, PEM predicted future orientation ($\beta = .82$, $t = 2.59$, $p = .011$), and when both PEM and future orientation were used as predictors of internship preference, the effect of future orientation was significant ($\beta = .42$, $t = 2.88$, $p < .005$) and the effect of PEM became weaker (from $p = .01$ to $p = .02$) compared to when future orientation was not entered in the regression equation. Importantly, bootstrapping analysis to test this model revealed that future orientation mediated the effect of PEM on preference (95% CI = .0818 to .8325). This result supports the proposed mediation. Figure 1 summarizes the result of this mediation analysis.

We further tested if PEM affected recycling intention via future orientation, as hypothesized. To test this mediation, we again employed Model 4 in Hayes (2017) with 5,000 resamples. According to this model, when both PEM and future orientation were used as predictors of recycling intention, the effect of future orientation was significant ($\beta = .21$, $t = 2.24$, $p < .03$) and the effect of PEM became weaker (from $p = .01$ to $p = .04$) compared to when future orientation was not entered in the regression equation. Most importantly, bootstrapping analysis to test this model revealed that future orientation mediated the effect of PEM on recycling intention (95% CI = .0128 to .4789). This supports the proposed mediation. Figure 2 summarizes the result of this mediation analysis.

dependent variables (i.e., pro-environmental behavior) was mediated by future orientation induced by PEM.

GENERAL DISCUSSION

Summary and Implications

In an experiment involving secondary school students in the United States, we demonstrated that high PEM heightened



future orientation, which in turn increased high school students' preference for getting an internship at a company specialized in recycling as well as their recycling intention. Conversely, we found that low PEM reduced future orientation, which in turn decreased high school students' preference for getting an internship at a company specialized in recycling as well as their recycling intention. This result is consistent with our hypotheses and conceptual frameworks documented in the literature and adds a novel finding to the literature.

Recall that we obtained this result by manipulating, rather than measuring, PEM and, in effect, manipulating future orientation. This greatly increases our confidence that this research provides initial evidence for causal relationships, not just correlations, among PEM, future orientation, and pro-environmental behavior.

By discovering the relationship between the two seemingly unrelated variables PEM and pro-environmental behavior—the current research adds a theoretical contribution to research on economic mobility and climate change in general. It is intriguing to observe that people's current perception of the society that they live in (i.e., PEM) influences people's behavior that affects society in the long run (i.e., pro-environmental behavior).

This research adds to the literature by being one of few studies that examined secondary school students' pro-environmental behavior. Given that positive behavior cultivated during one's formative years will likely persist throughout one's life, young people must develop pro-environmental behavior. However, there has been little research examining a mechanism by which these people's pro-environmental might be affected. We highlight the role of PEM in their pro-environmental behavior. In addition, to our best knowledge, this research is the first demonstration of the effect of PEM among non-adult participants.

This research also offers substantive implications for improving people's pro-environmental behavior. Economic mobility is the fundamental element in modern democracy. Numerous countries have been trying to increase economic mobility or perception of it by offering more affordable education, ensuring distributive justice, and building a more meritocratic society. The present research suggests that improving economic mobility can have a far-reaching impact on pro-environmental behavior that will yield great dividends for future generations.

Limitations and Future Research Direction

There are several limitations in the current research, which might motivate future research to look further into pro-environmental behavior. Due to the difficulty in recruiting secondary school students as research participants, our sample size is only large enough to achieve a reasonable statistical power. Future research should acquire a bigger sample to test the

conceptual model that we tested in this research to further validate our findings.

We measured preference for a hypothetical summer internship choice and recycling intention. Although these types of variables are correlated with actual behavior (Wan et al., 2017), it will be more insightful to directly measure a real choice related to pro-environmental behavior. For example, students' actual participation in environmental extracurricular activities could be an interesting dependent variable.

Any research seeking to shed light on ways to improve pro-environmental behavior should greatly benefit from a longitudinal study design despite the difficulty of implementing such a design. The present research is limited in the sense that we could only take a snapshot of participants' pro-environmental behavior prompted by PEM. It will be highly informative to track participants' pro-environmental behavior over time to see whether the initial change in such behavior persists to some extent. This type of longitudinal study is important especially given that pro-environmental behavior is essentially forward-looking.

Future research might want to apply our conceptual model to an adult sample to examine whether the effect of PEM on their pro-environmental behavior is stronger or weaker, compared to that of secondary school students. On the one hand, it can be argued that working adults should have a stronger sense of the impact of economic mobility on their lives than secondary school students. It follows that the effect of PEM on pro-environmental behavior could be stronger among adults. On the other hand, it can be asserted that since adult behaviors are generally more difficult to change than their younger counterparts, the effect of PEM on pro-environmental behavior could be weaker among adults. This is a worthwhile research avenue.

It will be interesting to examine the relationship between economic mobility and pro-environmental behavior across different states in the U.S. The U.S. Department of Housing and Urban Development's Office of Policy Development and Research (in short, HUD) measures and publishes economic mobility across all U.S. territories. Thus, one could assess the relationship between HUD economic mobility measures and some variables related to pro-environmental behavior such as the recycling rate of PET bottles and jars per capita across the fifty states. Such a study will provide important real-world public policy implications.

To conclude, we have provided evidence that a causal relationship appears to exist between two highly crucial variables perceived economic mobility and pro-environmental behavior. This is a novel, important, and timely finding. We hope that this research will encourage other researchers to discover further insights into issues related to climate change.

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