Committed to the honor code: an investment model analysis of academic integrity

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Abstract Educators worldwide face challenges surrounding academic integrity. The development of honor codes can promote academic integrity, but understanding how and why honor codes affect behavior is critical to their successful implementation. To date, research has not examined how students' *relationship* to an honor code predicts academic integrity. The present study examined a range of outcomes related to academic integrity and commitment to an honor code from the perspectives of Rusbult's (*J Exp Soc Psychol 16*,172–186, 1980) investment model and social norms. Students at a liberal arts college completed a questionnaire assessing honor code commitment, satisfaction, alternatives, investments, injunctive norms, descriptive norms, and three outcome behaviors: upholding the honor code, willingness to sacrifice for the honor code, and honor code involvement. Investments, satisfaction, and injunctive norms predicted honor code commitment, and both investments and commitment predicted all three self-reported outcomes. Honor code commitment mediated most associations between its predictor variables and the outcomes of interest. This study identifies a theoretical framework for understanding academic integrity through the lens of honor code commitment, and implications of these results for academic settings are discussed. In particular, investments and injunctive norms have broad relevance for creating values-driven school cultures.

Keywords Investment model · Academic integrity · Cheating · Commitment · Social norms

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1 Introduction

In educational settings around the world, young people face decisions about cheating or plagiarism in their academic work. The establishment of the International Center for Academic Integrity and the *International Journal for Educational Integrity* illustrates the widespread relevance of these issues. Additionally, a positive relationship between academic and workplace dishonesty (Hilbert 1985; Lucas and Friedrich 2005) suggests that cheating may have social consequences that extend beyond classrooms.

Honor codes have received attention in the educational and psychological literatures (Hutton 2006; McCabe et al. 2001; Murdock and Anderman 2006) and the popular media (Forna 2012; Shepherd 2007; Snyder 2012) as one approach to minimize dishonesty and create campus cultures of integrity. Although they are found predominantly in North American institutions, interest in honor codes is growing internationally, especially in the United Kingdom. Northumbria University in England adopted an "academic value agreement" likened to a US honor code (Shepherd 2007). Focus groups with staff and students at another UK university recently assessed their attitudes about adopting honor system elements at UK schools. Participants responded favorably to these elements in theory (an "ideal situation"), but were skeptical that they would be effective if applied. Nonetheless, this study illustrates international interest in the implementation of honor codes (Yakovchuk et al. 2011). Furthermore, a number of US universities have established branch campuses in other countries (McMurtrie 2009), suggesting that honor codes may increasingly become internationally relevant. The New York University campus in Abu Dhabi, whose students hail from around the world, recently adopted a "Community Code" that closely resembles an honor code (Hu 2013). The global presence of honor codes extends beyond higher education. For instance, the American Community School, a K-12 international school in Greece, is developing a student-driven honor code (Gialamas 2012).

With growing interest in academic integrity and honor codes, social psychology can illuminate how plagiarism-reducing strategies affect student learning, cheating, and campus culture. The present study uses a theoretical model of interpersonal relationships to examine student commitment to an honor code and its association with pro-honor code behaviors.

1.1 Academic dishonesty and honor codes

Psychologists and educators have identified demographic and attitudinal factors (e.g., Vandehey et al. 2007) as well as contextual factors that predict cheating (e.g., peer norms, faculty responses to cheating, the existence of an honor code; McCabe et al. 2001). Cheating is significantly lower at schools with honor codes than at those without (McCabe and Trevino 1993; McCabe et al. 2002), and in experimental studies, participants who read and signed an honor code were less likely to cheat than were those with no honor code exposure (Shu et al. 2011). Although research on honor codes is encouraging, the literature does not uniformly support their efficacy (e.g., Roig and Marks 2006; Vandehey et al. 2007), and the cultural "embeddedness" (McCabe et al. 1996, p. 464) of codes of conduct may be key to their effectiveness in academic insti-

tutions (McCabe and Trevino 1993; McCabe et al. 2001) and the workplace (McCabe et al. 1996). Studies have compared self-reports of academic dishonesty at schools with and without an honor code (McCabe and Trevino 1993; McCabe et al. 2002) but generally have not focused on the mechanisms through which honor codes promote academic integrity (but see Shu et al. 2011). When an honor code is present, what determines students' attitudes toward it and the likelihood that they will uphold its values? Measuring attitudes toward an honor code itself, rather than attitudes about cheating, may reveal how honor codes are associated with academic behavior.

Students' commitment to an institution's honor code should affect their likelihood of upholding it. Although absent from the literature on academic dishonesty, commitment has been studied in the literatures on romantic relationships (Rusbult 1980) and workplaces (Farrell and Rusbult 1981). Relationship commitment is characterized by a psychological attachment to the partner, a long-term orientation, and the desire for the relationship to continue (Arriaga and Agnew 2001). Honest or dishonest academic behavior may depend on a student's relationship with the honor code, akin to an interpersonal relationship or a connection to a job. The present study applied Rusbult's (1980) investment model of commitment to predict upholding the honor code at a liberal arts college. Illuminating the process underlying the association between honor codes and student behavior can inform approaches to cultivating academic integrity.

1.2 The investment model

Robustly supported in both the literatures on romantic relationships and non-interpersonal commitment (Le and Agnew 2003), the investment model identifies three primary factors that contribute to commitment: *satisfaction* with, *investments* in, and the *quality of alternatives* to the relationship. Satisfaction reflects the extent to which relational outcomes are positive, investments include effort put toward the relationship (e.g., time, emotional disclosure) and benefits associated with it (e.g., shared property, mutual friends), and alternatives refer to other available partners or the absence of a relationship (Rusbult 1980). Satisfaction and investments are positively associated with commitment, whereas alternatives negatively predict commitment; in turn, commitment mediates the association between these variables and aspects of relationship maintenance such as willingness to sacrifice (Rusbult et al. 1994).

The investment model extends to non-interpersonal domains, including brand loyalty (Li and Petrick 2008), commitment to jobs (Farrell and Rusbult 1981), and commitment to the war on terror (Agnew et al. 2007). Furthermore, satisfaction and investments predict commitment to the environment, and commitment, in turn, predicts willingness to sacrifice for the environment (Davis et al. 2011).

In the present study, we extend the investment model to academic integrity. Upholding an honor code is similar to entering an exclusive relationship in that it involves agreeing to certain guidelines: remaining faithful to the values of the honor code and refraining from academic dishonesty. Students receive benefits from this relationship, such as a level of trust with faculty, but it requires resisting self-interested behaviors like cheating. Like an interpersonal relationship, upholding an honor code requires investing considerable energy and resources. Researchers approaching cheating as a

cost-benefit analysis may frame cheating as a decision made by weighing the likelihood of getting caught and the severity of punishment on the one hand, with the potential gain on the other hand (Murdock and Anderman 2006). The cost-benefit approach of the investment model instead posits that an individual weighs positive aspects of the relationship (satisfaction, investments) with negative aspects (resisting high-quality alternatives, low satisfaction) to emerge with a corresponding level of commitment. This alternative cost-benefit approach may provide insights into strategies that cultivate academic integrity.

1.3 Social norms

The present study also explores how social norms influence honor code commitment. Researchers often distinguish between descriptive norms, or others' observable behaviors, and injunctive norms, or what others feel one *ought* to do (Cialdini et al. 1990; Deutsch and Gerard 1955). Both descriptive and injunctive norms uniquely affect risky behaviors such as gambling (Larimer and Neighbors 2003) and smoking (Etcheverry and Agnew 2008). We explored the influence of both descriptive and injunctive norms on academic integrity.

Social norms affect behavior in the contexts of both academic integrity and close relationships. Observations and estimates of peer cheating (Jordan 2001; McCabe and Trevino 1993, 1997; McCabe et al. 2002) predict academically dishonest behavior, and social norms influence cheating behavior when experimentally manipulated (Gino et al. 2009). Highlighting the importance of normative influences, social norms have been incorporated into the investment model and uniquely predict romantic relationship commitment beyond satisfaction, alternatives, and investments (Etcheverry and Agnew 2004).

1.4 The present study

This work approaches academic integrity by examining psychological commitment to an honor code and how commitment and its bases account for pro-honor code behaviors. Little prior research has examined students' individual relationships to an honor code (but see Vandehey et al. 2007). Additionally, although we do assess failure to uphold the honor code, our focus is on the more positive attitudes and outcomes associated with commitment. The present study tests the investment model in the domain of an honor code, extending the contexts to which the investment model can be applied. Past investment model studies of interpersonal relationships have supported the addition of social norms; we examine the contribution of both injunctive and descriptive norms to the investment model in the non-interpersonal domain of academic integrity. Consistent with previous investment model studies, we hypothesized:

H1 Satisfaction with and investments in the honor code will be positively associated, and alternatives negatively associated, with commitment to the honor code.

H2 Descriptive and injunctive norms of upholding the honor code will uniquely predict commitment beyond satisfaction, alternatives, and investments.

H3 Commitment and its bases (satisfaction, investments, alternatives, and social norms) will predict the self-reported outcomes of upholding the honor code, involvement in the honor code, and willingness to sacrifice for the honor code.

H4 Commitment will mediate the associations between its bases and the outcome behaviors.

2 Method

Participants were 276 students at a small liberal arts college[1] (approximately 23 % of the student body), distributed across class years (29 % freshmen, 26 % sophomores, 19 % juniors, 26 % seniors).

2.1 Questionnaire

Participants completed an anonymous online questionnaire. We adapted items from previous investment model studies (Etcheverry and Agnew 2004; Rusbult et al. 1998) to fit the honor code and created additional measures of injunctive and descriptive norms. Items were rated on 9-point scales (1 = "do not agree at all," 5 = "neither agree nor disagree," and 9 = "agree completely," or 1 = "never," 5 = "sometimes," and 9 = "always" or "often"). We created composite scores for satisfaction, alternatives, investments, injunctive norms, descriptive norms, honor code commitment, college commitment, willingness to sacrifice for the honor code, upholding the honor code, and honor code involvement (see Appendix).

Eight items ($\alpha = .93$) assessed students' satisfaction with the honor code. Seven items ($\alpha = .75$) assessed students' perception of alternatives to the honor code, which were presented as not having the honor code or believing that other or better ways exist to accomplish the honor code's goals. Nine items ($\alpha = .89$) assessed investments in the honor code: trusting interpersonal relationships, privileges such as take-home exams, and the effort students have put into upholding the honor code. Nine items assessed social norms, with separate composites created for descriptive and injunctive norms. Three descriptive norms items ($\alpha = .61$) referred to the extent to which peers and friends value or uphold the honor code. Six injunctive norms items ($\alpha = .85$) assessed the extent to which participants perceived that others (professors, friends, and fellow students) desire that they uphold the honor code. Finally, seven items ($\alpha = .91$) assessed participants' commitment to the honor code. Five items assessed commitment to the college ($\alpha = .80$), which was included as a control in our analyses.

A series of self-report items measured three honor code-related outcomes. Ten items ($\alpha = .90$), adapted from Davis et al.'s (2011) measure of willingness to sacrifice for the environment, assessed students' willingness to make sacrifices to uphold the honor code. Nine items ($\alpha = .67$) asked students about the extent to which they follow the

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[1] This college has a long history of valuing its honor code: exams are un-proctored, students are obligated to confront peers suspected of violating the honor code, and the student body is responsible for reapproving the honor code each year.

honor code and past behaviors that constitute honor code violations; these comprised our measure of upholding the honor code. Nine items ($\alpha = .82$) assessed involvement in the honor code, including knowledge of the honor code and participation in non-mandatory activities related to the honor code.

3 Results

Analyses used the composite scores for commitment, its bases, and the outcome behaviors. See Table 1 for descriptives and correlations among all study variables.

3.1 Testing the investment model

We hypothesized that satisfaction, investments, and alternatives would predict commitment to the honor code (H1), and that descriptive and injunctive norms would be associated with commitment beyond the effects of the three bases (H2). To test these hypotheses, we regressed commitment to the honor code on satisfaction, investments, alternatives, injunctive norms, descriptive norms, and general college commit-

Table 1 Mean levels of each variable and correlations among commitment, its three bases, and injunctive and descriptive norms

	Mean (SD)	SAT	INV	ALT	IN	DN	WTS	UPHD	INVLVE
COM	7.8	.61**	.67**	−.44**	.53**	.42**	.59**	.40**	.51**
	(1.2)								
SAT	7.3		.52**	−.44**	.34**	.59**	.34**	.13*	.34**
	(1.3)								
INV	6.4			−.45**	.39**	.27**	.61**	.46**	.63**
	(1.4)								
ALT	5.1				−.20**	−.24**	−.21**	−.20**	−.21**
	(1.2)								
IN	7.8					.51**	.43**	.25**	.31**
	(1.1)								
DN	6.9						.27**	.14*	.29**
	(1.2)								
WTS	7.0							.70**	.65**
	(1.3)								
UPHD	7.4								.51**
	(0.8)								
INVLVE	6.7								
	(1.3)								

COM commitment to the honor code, *SAT* satisfaction, *INV* investments, *ALT* alternatives, *IN* injunctive norms, *DN* descriptive norms; *WTS* willingness to sacrifice, *UPHD* upholding the honor code, *INVLVE* involvement in the honor code

* $p < .05$; ** $p < .01$

Table 2 Investment model variables predicting commitment to the honor code, controlling for college commitment

	β	t	p	R^2	F	df	p
Model				.610	69.043	6, 271	<.001
Satisfaction	.269	4.793	<.001				
Alternatives	−.084	−1.889	.060				
Investments	.383	7.715	<.001				
Injunctive norms	.267	5.642	<.001				
Descript. norms	−.012	−.226	.821				
College COM	.051	1.232	.219				

Descript. norms descriptive norms, *College COM* college commitment

ment (see Table 2). Both satisfaction and investments robustly predicted commitment (β = .269 and .383, respectively, p < .001) and alternatives approached significance (β = −.084, p = .060). Injunctive (β = .267; p < .001) but not descriptive (β = −.012, p = .821) norms significantly predicted commitment.

3.2 Predicting outcome behaviors

We hypothesized that commitment and its bases would predict self-reported behavior (H3). To test this hypothesis, we regressed each outcome behavior (willingness to sacrifice for, upholding, and involvement in the honor code) on commitment to the honor code, satisfaction, alternatives, investments, injunctive norms, descriptive norms, and general college commitment (see Table 3). Investments, injunctive norms, alternatives,[2] and honor code commitment significantly predicted willingness to sacrifice for the honor code. Satisfaction,[3] investments, and commitment significantly predicted upholding the honor code. Finally, investments, alternatives,[4] descriptive norms, and commitment significantly predicted involvement in the honor code, and satisfaction[5] approached significance. Thus, our hypothesis was largely supported. Investments and

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[2] In this multiple regression, alternatives were positively associated with willingness to sacrifice. This finding, which is directly opposite to predictions, may be due to a suppressor effect that reversed the direction of the association when honor code commitment, which is strongly associated with alternatives, was included in the model (Cohen et al. 2003). Consistent with our hypotheses, there was a significant negative bivariate correlation between alternatives and willingness to sacrifice (See Table 1).

[3] Similar to the previously discussed suppressor effect (footnote 1), satisfaction was negatively associated with upholding the honor code in this regression, opposite to predictions. However, consistent with our hypotheses, there was a significant positive bivariate correlation between satisfaction and upholding the honor code (see Table 1).

[4] Similar to the previously discussed suppressor effect (footnote 1), alternatives were positively associated with involvement in this regression, opposite to predictions. However, consistent with our hypotheses, there was a significant negative bivariate correlation between alternatives and involvement (see Table 1).

[5] Similar to the previously discussed suppressor effect (footnote 1), satisfaction was negatively associated with involvement in this regression, opposite to predictions. However, consistent with our hypotheses, there was a significant positive bivariate correlation between satisfaction and involvement (see Table 1).

Table 3 Investment model variables predicting self-reported honor code-related behaviors, controlling for college commitment

	β	t	p	R^2	F	df	p
Willingness to sacrifice							
Model				.456	31.674	7, 271	<.001
Satisfaction	−.095	−1.375	.170				
Alternatives	.128	2.417	.016				
Investments	.437	6.736	<.001				
Injunctive norms	.124	2.102	.037				
Descript. norms	.031	.494	.621				
Commitment	.313	4.314	<.001				
College COM	.038	.776	.438				
Upholding the honor code							
Model				.270	13.964	7, 271	<.001
Satisfaction	−.300	−3.742	<.001				
Alternatives	−.010	−.160	.873				
Investments	.420	5.584	<.001				
Injunctive norms	.011	.153	.878				
Descript. norms	.104	1.441	.151				
Commitment	.248	2.949	.003				
College COM	−.020	−.347	.729				
Involvement in the honor code							
Model				.441	29.707	7, 271	<.001
Satisfaction	−.134	−1.903	.058				
Alternatives	.116	2.160	.032				
Investments	.597	9.073	<.001				
Injunctive norms	−.047	−.774	.439				
Descript. norms	.157	2.482	.014				
Commitment	.167	2.261	.025				
College COM	.095	1.885	.060				

Commitment commitment to the honor code, *Descript. norms* descriptive norms, *College COM* college commitment

commitment predicted all three outcomes, and the remaining variables predicted at least one outcome.

3.3 Commitment as a mediator

To test whether commitment mediated the relationship between the bases of commitment and honor code-related behaviors, we used Preacher and Hayes' (2008) SPSS macro to conduct several mediational analyses using bootstrapping. Analyses used 5,000 bootstrap resamples and a 95 % confidence interval (CI), and CIs for indirect effects were considered significant if they did not include zero. For each outcome

Table 4 Results of bootstrapping analyses testing commitment as a mediator

Outcome	Variable	Effect on outcome before COM (β)	Effect on outcome with COM in model (β)	95 % CI for indirect effect
Willingness to sacrifice	Satisfaction	.0020	−.0887	0.042, 0.166
	Alternatives	.1078[†]	.1366*	−0.064, −0.002
	Investments	.5136***	.4025***	0.050, 0.186
	Inj. norms	.2657***	.1594*	0.053, 0.186
	Des. norms	.0354	.0384	−0.050, 0.040
Upholding the honor code	Satisfaction	−.1490**	−.1929***	0.015, 0.087
	Alternatives	−.0206	−.0065	−0.036, −0.002
	Investments	.2996***	.2451***	0.018, 0.101
	Inj. norms	.0582	.0061	0.020, 0.098
	Des. norms	.0690	.0703	−0.025, 0.021
Involvement in the honor code	Satisfaction	−.0612	−.1122	0.006, 0.119
	Alternatives	.1080[†]	.1242*	−0.047, −0.001
	Investments	.6065***	.5440***	0.004, 0.135
	Inj. norms	.0161	−.0436	0.009, 0.133
	Des. norms	.1778*	.1795**	−0.039, 0.021

Confidence intervals (CI) are considered significant if they do not include zero

COM commitment to the honor code, *Inj.norms* injunctive norms, *Des.norms* descriptive norms

[†] $p < .07$ * $p < .05$ ** $p < .01$ *** $p < .001$

behavior (willingness to sacrifice, upholding the honor code, and involvement in the honor code), we conducted separate bootstrapping analyses for each of the five predictor variables (for a total of fifteen). Each analysis included the other four bases alongside the independent variable as covariates, enabling all five predictors to be included in the same model (see Preacher and Hayes 2008). In support of H4, four of the five bases (satisfaction, alternatives, investments, and injunctive norms) exerted a significant indirect effect on each of the three behaviors through commitment (see Table 4).[6]

4 Discussion

This work responds to the call for greater theory to guide research on academic integrity (Jurdi et al. 2012; Murdock and Anderman 2006). Building upon a well-established theoretical foundation (Rusbult 1980), our model of honor code commit-

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[6] The suppressor effects described in footnotes 2–5 also appear in the bootstrapping analyses. These can explain the observed negative association between satisfaction and willingness to sacrifice and the positive association between alternatives and willingness to sacrifice when commitment is included. It can also explain why, when commitment is included, we see the negative association between satisfaction and upholding the honor code, the negative association between satisfaction and involvement, and the positive association between alternatives and involvement (see Table 4).

ment and related outcomes found robust support. These results highlight the mechanisms through which students' attitudes about an honor code manifest themselves by demonstrating that commitment mediates associations between investment model variables and honor code-related outcomes. Additionally, our results indicate that social norms complement the investment model (Etcheverry and Agnew 2004) and influence academic integrity (Gino et al. 2009; Jordan 2001; McCabe and Trevino 1993, 1997; McCabe et al. 2002).

4.1 Predicting honor code commitment and outcomes

In support of our primary hypothesis, the investment model predicted commitment to the honor code: investments and satisfaction were significantly associated with commitment. The finding that alternatives were weakly associated with commitment is consistent with other investment model research in non-interpersonal domains (Agnew et al. 2007; Le and Agnew 2003). Davis et al. (2011) suggest that alternatives may be less relevant for non-exclusive relationships and note that, in contrast to romantic relationships, platonic friendships or relationships with the environment may co-occur with other relationships. Similarly, alternatives may not be as salient in the domain of the honor code as in romantic relationships. Furthermore, alternatives to a relationship may be easier to imagine (e.g., a different partner) than alternatives to the honor code, which we did not operationalize with great specificity.

Consistent with our expectations, satisfaction with the honor code significantly predicted commitment. Yet even more important than satisfaction were investments in the honor code, representing the energy already put into the honor code and the privileges resulting from it (e.g., unique student-professor relationships, take-home exams). Given that applications of the investment model consistently find satisfaction to be the most robust predictor of commitment (Le and Agnew 2003; cf. Davis et al. 2011), the strength of investments in this context is notable. This effect may occur because the honor code is less voluntary than most romantic relationships.

For educators, the utility of studying commitment to an honor code largely depends on its ability to predict behavioral intentions and actual behavior. In support of our third hypothesis, commitment and its bases predicted self-reported behavior in three areas: willingness to sacrifice for the honor code, upholding the honor code, and involvement in the honor code.

4.2 The addition of social norms

We included social norms (injunctive and descriptive) in our model and found that injunctive norms significantly predicted both commitment and willingness to sacrifice for the honor code, above and beyond the traditional investment model variables. Past research on social norms and the investment model operationalized social norms as injunctive norms (Etcheverry and Agnew 2004), and our findings are consistent with this work. More research is needed to determine whether injunctive norms consistently contribute to the investment model in applications to non-interpersonal contexts, but our work offers initial support for their inclusion. Future research should also differ-

entiate between peer- and professor-generated injunctive norms to explore the relative weights of each in particular situations.

Descriptive and injunctive norms influence smoking behavior (Etcheverry and Agnew 2008), and observing others' cheating behavior is related to self-reported academic dishonesty (Jordan 2001; McCabe and Trevino 1993; McCabe et al. 2002), so we expected that descriptive norms would be associated with commitment. Contrary to predictions, they were not. Given the frequency of take-home exams and the presence of pro-honor code injunctive norms, students at the college studied may have few opportunities to observe others cheating or upholding the honor code. Future research should explore whether descriptive norms consistently fail to predict commitment or whether they exert their influence in contexts where cheating is more visible.

4.3 Honor code commitment as a mediator

Our fourth hypothesis assessed the investment model's generalizability to the domain of the honor code by testing commitment as a mediator (Davis et al. 2011; Rusbult et al. 1994), and we found that four of the bases of commitment exerted indirect effects on the three self-reported outcomes through commitment. This suggests that the investment model variables are related to these outcomes in part through their effect on commitment to the honor code. Although our mediational analyses demonstrated a significant indirect effect of investments on all three honor code-related behaviors through commitment, the direct effect of investments remained significant. This highlights the central role of investments in predicting behavior in the realm of the honor code.

4.4 Implications

Our work suggests that increasing student commitment to a school's values may reduce cheating. Elevating satisfaction with the honor code and fostering student conviction that alternatives are less desirable should increase commitment. However, perhaps the best way to promote commitment and pro-honor code behavior is to increase students' investments in a school's values. In our work, investments consisted of both intangible elements, such as past effort toward the honor code, and tangible benefits, such as take-home exams (Goodfriend and Agnew 2008). Fostering investments could include asking students to discuss the role the honor code plays on campus, with the goal of creating awareness of the concrete benefits that students enjoy as a product of the honor code. Educators should be mindful, however, of the importance that students independently generate these advantages, without authoritarian pressure to uphold the honor code, if students are to internalize the honor code's values effectively (Lepper 1983).

Although previous research on academic integrity has highlighted peer disapproval (McCabe and Trevino 1997), which overlaps with our injunctive norms measure, the present study identifies investments as central to academic integrity. Investments and injunctive norms resonate with the concept of the "embeddedness" of codes of conduct (McCabe et al. 1996). An honor code may be embedded in school culture when students experience substantial commitment to it. The present study was conducted at a college

with an honor code sufficiently grounded in the school's culture that tangible invest-ments are clear and pro-honor code injunctive norms exist from students and faculty. This research identifies factors that contribute to embeddedness (investments, injunc-tive norms) and provides a concrete strategy for measuring them. Although McCabe et al. (2002) developed a reliable scale for embeddedness, it is difficult to extract key guiding variables from these items that would suggest how to create embeddedness. Considering injunctive norms and investments as antecedents of embeddedness may provide a simplified and theoretically driven way to operationalize embeddedness.

As noted above, this work has relevance for instructors interested in establishing or strengthening an honor code. More broadly, however, it can inform the development of two desirable characteristics in students: integrity and student agency. Some educators have argued that schools should not only teach academic skills, but also develop lead-ership skills (Gialamas 2012). Commitment to an honor code represents a recognized interdependence with community standards, and this internalized commitment to a set of values exemplifies character education.

Central to honor codes is faculty trust of students, which may promote positive academic outcomes. Achievement is higher at elementary schools where teachers collectively trust parents and students, and student self-regulated learning mediates the association between collective trust and academic outcomes (Adams and Forsyth 2013). Adams and Forsyth suggest that collective trust shapes the classroom environ-ment such that teachers can innovate, be student-centered, and rely on cooperation rather than control, all of which facilitate self-motivated learning (Adams and Forsyth 2013). Understanding the antecedents of honor code commitment can help teachers create environments that build trust and promote academic achievement.

4.5 Strengths, limitations, and future directions

By drawing from the literatures on academic dishonesty and the investment model, this work provides a novel approach to understanding academic integrity. The strategies that flow from our findings highlight cultivating a sense of commitment to school values rather than focusing on punitive measures. However, our focus on a school with a unique honor code culture limits generalizability. The emphasis on the honor code during the admissions process likely results in a self-selecting student body. On the other hand, the investment model provides a useful framework applicable in both high- and low-commitment contexts. Commitment was relatively high in our sample (which may have attenuated the associations that emerged in our analyses). When investments and satisfaction are low, and alternatives are high, commitment levels should be correspondingly low, producing increased academic dishonesty. Future work could explore the model in lower commitment contexts, such as an institution with a less strongly embedded honor code. Future research should also examine how honor codes affect the classroom environment and learning outcomes. For instance, given that mastery motivation is negatively related to academic dishonesty (Jordan 2001; Murdock and Anderman 2006), future work might explore how honor codes relate to intrinsic academic motivation.

The present study does not conclusively address causal associations between the investment model and honor code outcomes. Manipulating the bases of commitment and observing subsequent behavior is a crucial next step. It will also be important to test interventions that aim to build honor code commitment at an institution that struggles with academic dishonesty. Leveraging the investment model, especially investments and injunctive norms, to increase honor code commitment and decrease academic dishonesty would be a key extension of our initial application of the investment model to the domain of academic integrity.

4.6 Conclusion

Conflicting voices abound on how best to reduce academic dishonesty and create environments that foster integrity. In most studies on this topic, acts of dishonesty are of primary interest. Our approach differed by focusing on commitment; we conceptualized students' relationship to the honor code as akin to an interpersonal relationship. This theoretically grounded approach demonstrated that the bases of commitment, particularly investments, are associated with a culture of academic integrity in which students are committed to the honor code and uphold its values. In turn, these concepts mark concrete areas on which researchers and educators may focus in order to strengthen student relationships to the values of an institution.

5 Appendix: Adapted investment model scale and behavioral items

Unless otherwise noted, 1 = do not agree at all, 5 = neither agree nor disagree, 9 = agree completely.

5.1 Satisfaction

1. I feel satisfied with the honor code.
2. The honor code does a good job of creating a positive environment at Haverford.
3. The honor code helps create an atmosphere of trust, respect, and concern.
4. I am satisfied with having unproctored and take-home exams.
5. The environment created by the code at Haverford makes it a better environment than at other schools.
6. The honor code does a good job expressing community values.
7. I am satisfied with the way the honor code functions.
8. The honor code does a good job of fulfilling my needs for a trusting academic environment.

5.2 Perception of alternatives

1. There are better ways to prevent cheating than having the honor code.
2. There are other ways to have trust between professors and students than with our honor code.

3. There are better ways to create a positive social environment than our honor code.
4. There are other ways to prevent academic dishonesty than having the honor code.
5. If Haverford didn't have the honor code, the atmosphere of the college would be fine.
6. There are other ways to create an atmosphere of trust, respect, and concern than through the honor code.
7. Having an honor code is the best possible system to prevent cheating (Reverse).

5.3 Investments

1. I feel very involved in the honor code—like I have put a great deal into it.
2. My relationships with other students would be worse if Haverford didn't have an honor code anymore.
3. Many aspects of my Haverford experience are linked to the honor code (e.g. my relationships with my professors, being able to decide when and where to take exams).
4. I have put a lot of time, energy, and effort into maintaining an atmosphere of trust, respect, and concern.
5. My relationships with my professors would be worse if Haverford didn't have an honor code anymore.
6. I have invested a great deal in the honor code (e.g. following the honor code, voting during the honor code ratification process, attending abstract discussions).
7. If Haverford didn't have the honor code, I would miss having take-home exams.
8. I have put a lot of time, energy, and effort into keeping the honor code alive at Haverford (e.g. participating in confrontation, following exam guidelines, thinking about the effects of my actions).
9. Overall, I have a lot invested in the honor code.

5.4 Social norms (injunctive norms: items 1–6; descriptive norms: items 7–9)

1. My friends think it is important for me to follow the honor code.
2. Most people who are important to me at Haverford think that acting in accordance with the honor code is desirable.
3. My professors would view me negatively if they thought I didn't follow the honor code.
4. Other students would view me negatively if they thought I didn't follow the honor code.
5. My professors think it is important for me to follow the honor code.
6. My friends would view me negatively if they thought I didn't follow the honor code.
7. I do not get the impression from other students that they value the honor code (Reverse).
8. My friends follow the honor code.
9. Other students follow the honor code.

5.5 Commitment

1. I want the honor code to be a part of Haverford for a very long time.
2. I am committed to the honor code at Haverford.
3. When I am doing assignments, I think about whether my actions are consistent with the honor code.
4. I am committed to maintaining the honor code at Haverford.
5. I want Haverford to always have the honor code.
6. I think about following the honor code when I take exams and write papers.
7. I am committed to keeping the honor code alive at Haverford.

5.6 College commitment

1. How long would you like to remain enrolled here?
   1 = short period of time, 9 = until I graduate
2. How likely is it that you will either drop out or transfer to another school in the near future? (Reverse)
   1 = not at all likely, 9 = extremely likely
3. How committed are you to staying at Haverford until you graduate?
   1 = not at all committed, 9 = extremely committed
4. How attached are you to Haverford?
   1 = not at all attached, 9 = extremely attached
5. How often do you seriously think about dropping out or transferring? (Reverse)
   1 = not at all, 9 = very often

5.7 Willingness to sacrifice for the honor code

1. I am willing to confront another student if I think I see them cheating.
2. I follow the honor code even when it is not convenient.
3. I stop writing on a timed exam the moment the time is up, even if I am not finished.
4. I am willing to serve as a juror for an Honor Council proceeding even though it is a big time commitment.
5. I follow the honor code even if it means I might get a lower grade than if I cheated.
6. I am willing to confront another student even if I am worried it might be awkward.
7. I would report myself to Honor Council if I believed I violated the honor code, even if I knew there would be consequences.
8. I am willing to give up something I enjoy doing (e.g. playing music, talking loudly) if someone asks me to stop.
9. I am willing to confront a friend even if I am worried that it may affect our friendship.
10. I am willing to bring a case to Honor Council if I feel that someone has violated the honor code.

5.8 Involvement in the honor code

1. I feel that I have a good grasp of the honor code.
2. I participated in the voting process when the honor code was up for re-ratification this year.
3. I have read the honor code.
4. I am not very familiar with what the honor code actually says (Reverse).
5. I have said yes or would say yes if asked to serve as a juror on an Honor Council proceeding.
6. I attend Honor Council-sponsored events (e.g. abstract discussions; Pizza, Professors, and the Code).
7. I consider myself knowledgeable about the honor code.
8. I read new abstracts when they come out.
   1 = never, 5 = sometimes, 9 = always
9. I attend Plenary.
   1 = never, 5 = sometimes, 9 = always

5.9 Upholding the honor code

1 = never, 5 = sometimes, 9 = often

1. I have collaborated on an assignment on which collaboration was not allowed. (Reverse)
2. Sometimes I take a few extra minutes on a timed take-home exam. (Reverse)
3. I have confronted another student.
4. I follow the honor code.
5. I discuss the form, content, or degree of difficulty of an exam with other students. (Reverse)
6. I have copied from another student's exam, quiz, problem set, lab report, or other type of assignment. (Reverse)
7. I have plagiarized on a paper. (Reverse)
8. I am willing to violate the honor code to get a better grade. (Reverse)
9. I engage in confrontation when someone's conduct disturbs me.

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