The modulatory role of extrinsic motivation in the relationship between fear of failure and student engagement

Dr Ghada Nakhla[a]

[a] Edge Hill University, United Kingdom

Abstract

Teachers often employ various techniques to motivate and engage students. They may choose to use positive fear appeals as a motivational tactic to stimulate fear that will result in students making greater efforts to avoid failure or they may employ extrinsic incentives to engage students. This study examined the modulatory role of extrinsic motivation, as a differentiated construct, in the relationship between fear of failure and student engagement. Data were collected using self-reported instruments and analysed using moderation and mediation analyses. Extending the motivation literature, this study, sheds new light on the positive modulatory role of extrinsic motivation regulations in the relationship between fear of failure and student engagement. Contributions to practice are implied; there is a need for educators to understand the role of self-imposed and self-endorsed behaviours in influencing engagement among students with high and low fear of failure. Comprehending the complexity of the learning environment in light of the complex nature of human behaviours is considered essential to improving teaching and learning.

Practitioner Notes

1. Recognise that self-endorsed (identified) and self-imposed (introjected) motivations influence student engagement differently, shaping how fear of failure affects learning behaviours.
2. Align learning activities with students' values and interests to foster self-endorsed motivation, enhancing skills engagement and positive emotional involvement.
3. Recognise that motivation driven solely by external factors, such as grades and praise, does not effectively mediate fear of failure or sustain engagement.
4. Assess students' motivational profiles to design interventions that leverage self-imposed motivators, especially for those with low fear of failure, to maximise engagement.
5. Create supportive learning environments that encourage autonomy, peer collaboration, and open discussion, reducing the negative impact of fear of failure.

Keywords

Extrinsic motivation, engagement, fear of failure, moderation, mediation.

Introduction

In today's rapidly evolving educational landscape, understanding the factors that drive student engagement has become increasingly vital, especially as learners face heightened academic pressures and performance demands. One critical yet complex influence on engagement is motivation—specifically, extrinsic motivation, which involves undertaking tasks for outcomes separate from the activity itself, such as grades, praise, or recognition. Although often considered a more superficial driver compared to intrinsic motivation, extrinsic motivation has recently gained renewed attention for its nuanced role in both supporting and undermining students' academic behaviour. Of particular interest is how extrinsic motivation interacts with students' emotional responses to academic challenges, such as fear of failure—a psychological phenomenon that can either paralyse or propel learners depending on its context.

Emerging research (Nakhla & Allan, 2025) suggests that extrinsic motivators, when thoughtfully applied, can serve as a shield in managing students' fear of failure and encouraging constructive engagement. This dual role positions extrinsic motivation not merely as an incentive but as a psychological mechanism capable of shaping students' academic identities, goal orientations, and coping strategies. As education increasingly emphasises mental well-being, it is essential to re-evaluate extrinsic motivation through a more differentiated and context-sensitive lens. A deeper understanding of these dynamics can inform more effective pedagogical practices and foster a supportive learning environment for all students. Consequently, a nuanced application of extrinsic rewards holds the potential to reduce the paralysing effects of fear of failure and promote more positive and sustained engagement in learning.

Literature

Extrinsic motivation plays a pivotal role in understanding student engagement and fear of failure, particularly within the framework of Self-Determination Theory. Defined as the pursuit of external rewards or separable outcomes rather than inherent interest (Ryan & Deci, 2000), extrinsic motivation can significantly shape students' academic behaviours. However, its influence is complex, as it can both support and hinder academic engagement depending on its application. While excessive reliance on external rewards may sometimes diminish intrinsic enjoyment of learning (Whang & Hancock, 1994), recent research features its nuanced and multifaceted effects on student engagement. For example, Nakhla and Allan (2025) found a positive association between fear of failure and extrinsic motivation, suggesting that students who fear failing are often driven by external incentives. Their findings further suggest that extrinsic motivators can act as a buffer against avoidance tendencies linked to fear, fostering increased participation and performance engagement among these students. Farndon (2024) supports this notion by demonstrating how extrinsic motivation can help disengaged students make progress toward self-determined forms of motivation by fulfilling psychological needs like competence, autonomy, and relatedness. Additionally, Zhang and Hu (2025) showed that extrinsic motivation mediates the relationship between teacher support and student engagement, stressing its indirect but significant impact on fostering active engagement through participation.

These findings collectively underscore the dual role of extrinsic motivation in addressing both fear of failure and engagement. While fear of failure has been linked to negative outcomes such as academic self-handicapping (De Castella et al., 2013; Martin & Marsh, 2003), studies suggest that certain extrinsic motivators can positively influence engagement by providing structure and

incentives to overcome challenges. For example, Deci et al.'s study (2001) showed that extrinsic motivation in the form of specific reward contingencies can enhance intrinsic motivation when aligned with personal goals. This evidence suggests that the careful application of extrinsic motivation has the potential not only to mitigate the adverse impacts of fear of failure but also to enhance overall engagement. Building on these findings, it becomes evident that a nuanced understanding of extrinsic motivation is essential for optimising its benefits in educational contexts.

Differentiated Forms of Extrinsic Motivation

To clarify the ways in which extrinsic motivation can operate in educational settings, Ryan and Deci (2000) identified four types of extrinsic motivation: external, introjected, identified, and integrated regulation. External regulation involves behaviours driven by external contingencies, such as externally imposed rewards or punishments. Motivation under this regulation tends to wane upon the removal of these contingencies, as behaviour becomes solely reliant on external factors. Introjected regulation describes the internalisation of rules or demands that pressure individuals to behave to avoid self-administered negative consequences like guilt or shame. While partially internalised, these regulations are not fully integrated into the self, resulting in behaviours that lack true self-determination. Identified regulation emerges when individuals come to value the behaviour and accept its regulatory process as personally relevant. The behaviour aligns with their identity, and they willingly engage in it to achieve personally valued outcomes. Although associated with greater commitment and performance, it remains instrumental as the primary driver is not spontaneous enjoyment or satisfaction. Finally, integrated regulation represents the most autonomous form of extrinsic motivation, where the regulatory process is fully assimilated into an individual's sense of self. This type of motivation shares similarities with intrinsic motivation as both are self-regulated. Several factors shape these varying types of extrinsic motivation, which need to be considered to understand their influence.

Factors Influencing Extrinsic Motivation

Extrinsic motivation, at its core, is the desire to perform an activity or task to attain a reward or avoid punishment. It is fundamentally shaped by external factors, including tangible rewards, social status, and the avoidance of negative consequences. Within educational settings, extrinsic motivation is frequently employed to encourage desired student behaviours such as homework completion, exam preparation, and classroom participation. Rewards, arguably the most prevalent extrinsic motivators in education, manifest in various forms, including grades, scholarships, certificates, and tangible prizes. The efficacy of rewards as an extrinsic motivator has been a subject of considerable debate in the literature. Some studies suggest that rewards can indeed enhance motivation and improve performance (Covington & Mueller, 2001; Eisenberger & Shanock, 2003). For instance, Covington and Mueller (2001) found that students receiving rewards for task completion reported higher levels of interest and enjoyment compared to their non-rewarded counterparts. Conversely, other research indicates that rewards can negatively impact intrinsic motivation (Deci, et al., 1999) and can diminish an individual's sense of autonomy and control over their behaviour, consequently hindering motivation.

External pressure constitutes another significant factor influencing extrinsic motivation. Students may experience pressure from parents, teachers, or peers to engage in specific academic behaviours. This pressure can manifest as expectations, demands, or even teachers' fear appeals

before high-stakes examinations (see Putwain et al., 2016, 2017). While a moderate level of external pressure can be motivating for some students, excessive pressure can lead to detrimental outcomes such as anxiety, stress, and a decline in motivation (Pekrun & Elliot, 2009). Understanding these influences provide a foundation for analysing how extrinsic motivation functions not just as a driver, but as a modulator of key educational processes.

The Modulatory Role of Extrinsic Motivation

The literature stresses the moderating role of extrinsic motivation, illustrating how it can influence the relationship between other factors and an individual's behaviour or motivation. For example, research suggests that the presence of extrinsic rewards can amplify the perceived importance of learning, while their absence can diminish the value individuals place on what they learn (Covington & Mueller, 2001). Furthermore, extrinsic motivation can moderate the interplay between task characteristics and intrinsic motivation. Interesting tasks paired with extrinsic rewards may enhance intrinsic motivation, whereas the same rewards applied to uninteresting tasks might undermine it (Deci et al., 1999). Moreover, the extent to which an individual's motivation is extrinsically driven can affect the effectiveness of various interventions or strategies (Cerasoli et al., 2014).

The mediating effects of the different extrinsic motivation regulations shed light on how these regulations can act as pathways between environmental factors and an individual's behaviour or motivation. Specifically, identified regulation and integrated regulation have been shown to bridge external factors and internalised motivation. For instance, Gagné and Deci (2005) found that identified regulation mediated the relationship between rewards and task performance, suggesting that valuing the behaviour and its outcomes facilitates the positive impact of rewards. Similarly, Vansteenkiste et al. (2004) demonstrated that integrated regulation mediated the relationship between autonomy-supportive teaching practices and students' intrinsic motivation, indicating that incorporating a behaviour into one's sense of self strengthens the link between supportive environments and intrinsic drive.

The modulatory effects of the motivation regulations and other constructs such as student engagement remains complex. A 2023 study (Iqbal et al., 2023) revealed that while intrinsic motivation directly improves performance, extrinsic motivation's impact depends on mediating factors like quality culture (Iqbal et al., 2023). This suggests that institutional environments (e.g., reward structures, peer collaboration) modulate how extrinsic drivers translate into engagement (Iqbal et al., 2023). Accordingly, to fully understand the dynamics of motivation, it is essential to further investigate its intricate relationship with student engagement, a complex and multifaceted construct.

Student Engagement

In this context, the notion of student engagement emerges as a central focus for both research and practice. Researchers have characterised the literature on student engagement as a 'mixed bag' (Trowler, 2010, p.9), describing it as a 'meta' and 'multidimensional' construct (Fredricks et al., 2004, pp. 60-61). At its core, engagement is framed as a psychological investment in learning, where students direct their effort toward mastering academic content (Newmann, 1992). This definition intersects with institutional practices, as scholars emphasise the role of universities in fostering meaningful interactions and resource allocation to enhance learning outcomes (Astin, 1985; Love & Love, 1995). Coates (2007) further positions engagement as a tool for quality

assurance, enabling institutions to evaluate and optimise educational provision. Despite these efforts, the literature lacks consensus, with Lester (2013, p. 2) noting that a "unified definition of engagement [has yet to] congeal," reflecting the construct's complexity and contextual variability.

A critical yet paradoxical factor shaping engagement is fear of failure, which exhibits both inhibitory and facilitative effects. Research consistently identifies fear of failure as a barrier to engagement, directly predicting reduced performance and participation engagement among students (Caraway et al., 2003). However, recent findings reveal a counterintuitive twist: students driven by extrinsic motivators (e.g., external rewards or recognition) demonstrate increased performance and participation engagement in tasks despite their heightened fear (Nakhla & Allan, 2025). Such insights challenge simplistic narratives and warrant further examination into the construct of fear of failure within educational contexts.

Fear of Failure in Education

At this juncture, a deeper exploration of the definition of fear of failure in the literature is warranted. Researchers have dedicated significant effort to providing a clear definition of fear of failure. It has been described as the uneasy anticipation of an impending danger that stimulates the urge to escape (Rachman, 1998). Fear of failure is believed to shape 'how the individual defines, orientates to and experience failure in achievement situations' (McGregor & Elliot, 2005, p.219) and is conceptualised as 'a need, a motive and an affective tendency' (Conroy, 2004, p.758). Furthermore, fear of failure has been defined as a factor that can either inspire successful performers or impede their progress (Conroy et al., 2002). However, despite these attempts at definition, Jackson (2010, p.40) emphasised a critical oversight within educational research. She underscored the scarcity of a clear definition in the literature, attributing this to the assumption that 'everyone knows what it is'. This assumption, Jackson argued, has led to the underestimation of fear's pervasive yet understudied role across both academic and social spheres.

Despite the definitional challenges stressed by Jackson, numerous studies have explored the connections between fear of failure and various psychological constructs. These include self-efficacy (Caraway et al., 2003), disorganisation and affective well-being (Berger & Freund, 2012), and shame (McGregor & Elliot, 2005). Notably, fear of failure has been found to precede academic procrastination (Haghbin et al., 2012; Tan, & Prihadi, 2022). Additionally, research has examined its relationship with psychological stress during exams (Buch et al., 2019), fear of success (Jackaway & Teevan, 1976), and its impact on engagement, self-criticism, and self-compassion (Kotera et al., 2021). When associated with anxiety, fear of failure has been shown to negatively affect individuals' mental health and quality of life (Karim et al., 2022). Fear of failure, in the form of teachers' use of fear appeals was examined in relation to students' appraisal and engagement before high-stakes examinations (see Putwain et al., 2016, 2017). Kotera et al. (2021) found that individuals with a high fear of failure tend to be more self-critical and less self-compassionate, which is associated with increased levels of anxiety and depression. Their research underscores the importance of understanding and developing regulatory mechanisms, such as self-compassion, to mitigate the negative effects of fear of failure.

Aims of the Study

Although the mediating effects of motivation regulations have been examined by several researchers (Appleton & Hill, 2012; Georgiadis et al., 2001; Jeno & Diseth, 2014), little is known about how specific forms of extrinsic motivation might influence the relationship between fear of

failure and student engagement. This study takes an exploratory approach to investigate how different types of extrinsic motivation—ranging from externally imposed to fully internalised regulations—may buffer or intensify the effects of fear of failure on student engagement. By exploring these dynamics, the study seeks to generate new insights and highlight the importance of examining both self-endorsed and externally controlled motivation regulations within learning environments.

Method

Participant Demographics

We obtained a diverse sample of undergraduate students (N = 866) from higher education institutions in the north of England, all of whom were enrolled on three-year degree programmes. All participants were on a three-year undergraduate course, with a mean age of 21 years. Participants consisted of 303 students from year 1 (35%), 322 students from year 2 (37.2%), 231 students from year 3 (26.7%), and 10 students who chose not to declare their year group (1.1%). The majority of students identified as White ($n = 793$, 91.6%), with smaller numbers identifying as Asian/Asian British ($n = 41$, 4.7%), Black/Black British ($n = 10$, 1.2%) or other ethnic groups ($n = 22$, 2.5%).

Measures

Extrinsic Motivation Regulations

Extrinsic motivation regulations (External, Introjected and Identified) were measured using items from the Academic Motivation Scale (AMS) developed by Vallerand et al. (1989). This subscale was designed to evaluate Self Determination Theory as theorised by Deci and Ryan (1985; 2000). Items were slightly modified to fit in with the English higher education system. The three regulations' subscale consists of twelve statements in response to an initial question '*Why do you go to university?*' Four items measure identified regulation (e.g. because eventually it will enable me to enter the job market in a field that I like), four items measured introjected regulation (e.g. to prove to myself that I am capable of completing my university degree), and four items measure external regulation (e.g. in order to have a better salary later on). The authors reported acceptable internal consistency for the introjected and external regulation subscales, with Cronbach's alpha values ranging from .83 to .89 at posttest. The identified regulation subscale also demonstrated adequate reliability, with a Cronbach's alpha value of .78 at posttest. Responses were made on a seven-point Likert scale ranging from '*does not correspond at all*' (1) to '*corresponds exactly*' (7).

Student Engagement

Student engagement was measured by eleven items from the Student Course Engagement Questionnaire (SCEQ) developed by Handelsman et al. (2005). This instrument consisted of statements in response to an initial question '*To what extent do the following behaviours, thoughts, and feelings describe you, in this course?*' It consists of four subscales (skills, emotional, participation/interaction and performance engagement) that were found to relate to student engagement. Skills engagement was measured by five items and represents student engagement through practicing skills and educationally relevant behaviours (e.g. making sure to study on a regular basis). Emotional engagement was measured by three items and reflects student engagement through emotional involvement with the class material and how to use it in

their everyday life (e.g. applying course material to my life). Participation engagement was measured by three items and refers to student engagement through participation in class (e.g. participating actively in small-group discussions). Performance engagement was measured by three items and encompasses students' satisfaction with their grades (e.g. getting a high grade).

The instrument was slightly modified to fit in with the English higher education system where the wording of one statement was adjusted from '*asking questions when I don't understand the instructor*' to '*asking questions when I don't understand*'. The authors reported that all student engagement subscales demonstrated acceptable to good internal consistency, with Cronbach's alpha coefficients between .76 and .82, which aligns with standard reliability thresholds (Veiga et al., 2014). Responses were made on a five-point Likert scale ranging from '*not at all characteristic of me*' (1) to '*very characteristic of me*' (5).

Fear of Failure

Fear of failure was measured using the Performance Failure Appraisal Inventory (PFAI – S) developed by Conroy et al. (2002). This instrument consisted of five items linked to five aversive consequences of failing. These were: fear of experiencing shame and embarrassment (e.g. when I am failing, I worry about what others think about me); fear of devaluing one's self-estimate (e.g. when I am failing, I am afraid that I might not have enough talent); fear of having an uncertain future (e.g. when I am failing, it upsets my "plan" for the future); fear of losing social influence (e.g. when I am not succeeding, people are less interested in me); and fear of upsetting important others (e.g. when I am failing, important others are disappointed). The authors reported that the instrument demonstrated acceptable factorial validity, and its internal consistency, as measured by Cronbach's alpha, met the minimum conventional threshold ($\alpha = 0.72$). Responses were made on a five-point Likert scale ranging from '*do not believe at all*' (–2) to '*believe 100% of the time*' (+2). These responses were then scored from 1 (representing –2) to 5 (representing +2).

Procedure

The three instruments, together with a set of demographic questions for the purpose of sample description, were combined to form one questionnaire. All participants received an information sheet outlining purpose of the study, ethical considerations (e.g., voluntary participation, the right to withdraw), an instruction sheet and a consent form. Data were collected using Bristol Online Surveys, a secure, web-based survey platform. The questionnaire link was distributed via email lists to undergraduate students in the United Kingdom. Participants completed the questionnaire at their convenience, with responses automatically recorded and stored securely. Participation was anonymous, and no personally identifying information was collected.

Results

Descriptive Statistics

Data were screened for missing data, outliers, normality, homoscedasticity, and multicollinearity. The descriptive characteristics of study variables are reported in Table 1. All descriptive values were found to be within expectations. Fear of failure was positively correlated with skills engagement ($r = .06$, $p > .05$), emotional engagement ($r = .02, p > .05$); however, negatively correlated with participation engagement ($r = -.15$, $p > .05$), and performance engagement ($r = -.21, p > .05$). Fear of failure was also positively correlated with extrinsic motivation

external $(r = .21, p < .01)$, extrinsic motivation identified $(r = .16, p < .01)$, and extrinsic motivation introjected $(r = .33, p < .01)$.

Table 1

Descriptive Statistics and Correlations

Variables	*Mean*	*SD*	SE	Var	A	1.	2.	3.	4.	5.	6.	7.	8.
1. Skills Eng	17.6	4.1	.14	17.2	.84	-	.48**	.31**	.34**	.09*	.25**	.20**	.06
2. Emo Eng	10.6	2.7	.09	7.2	.86		-	.41**	.31**	-.04	.12**	.15**	.02
3. Part Eng	11.0	2.9	.10	8.5	.79			-	.42**	.08*	.20**	.16**	-.15*
4. Perf Eng	11.2	2.3	.08	5.4	.89				-	.18**	.11**	.27**	-.21*
5. External	20.7	5.4	.18	28.8	.81					-	.58**	.49**	.21**
6. Identified	23.4	4.3	.15	18.3	.77						-	.42**	.16**
7. Introjected	14.6	4.5	.15	20.1	.83							-	.33**
8. FoF	16.0	4.7	.16	22.4	.80								-

Note. ** p< .01, * p< .05.

Mediation Analyses

Mediation analysis was conducted to explore if external regulation, introjected regulation and identified regulation played a mediating role in the relationship between fear of failure and engagement. The mean scores of the subscales were calculated and used. All mediation analyses were conducted in SPSS software (version 25.0).

The Mediating Role of Identified Regulation

Results showed that fear of failure predicted skills engagement $(F(1, 848) = 5.28, p < .05, R^2 = .01; b = .07, t(848) = 2.30, p < .05)$, and identified regulation $(F(1, 848) = 20.05, p < .001, R^2 = .02; b = .13, t(848) = 4.48, p < .001)$. When the three variables were included together identified regulation predicted skills engagement $b = .18, t(847) = 4.95, p < .001$; however, the effect of fear of failure on skills engagement became insignificant $(b = .05, t(847) = 1.55, p > .05)$. The relationship between fear of failure and skills engagement significantly decreased in strength with the presence of identified regulation (the mediator) and the overall model was statistically significant $(F(2, 847) = 14.98, p < .001, R^2 = .03)$. The Sobel test indicated a significant mediating effect of identified regulation $(Z = 3.28, p < .01)$ suggesting that identified regulation fully mediated the relationship between fear of failure and skills engagement.

Fear of failure was also found to predict emotional engagement $(F(1, 848) = 27.52, p < .001, R^2 = .03; b = .14, t(848) = 5.25, p < .001)$; and identified regulation $(F(1, 848) = 20.05, p < .001, R^2 = .02; b = .13, t(848) = 4.48, p < .001)$. When the three variables were included together, identified regulation predicted emotional engagement $(b = .21, t(847) = 6.62, p < .001)$; and fear of failure also predicted emotional engagement $(b = .12, t(847) = 4.31, p < .001)$. The relationship between fear of failure and emotional engagement decreased in strength with the presence of

introjected regulation (the mediator) but remained significant $(F(2, 847) = 36.35, p < .001, R^2 = .08)$.

Table 2

Mediation Effects of External, Introjected and Identified Regulations on Skills and Emotional Engagement

Mediator	Outcome variable	P	Model	b	T
External Regulation	Skills	C	$F(1, 848) = 5.28, p < .05, R^2 = .01$	.07	2.30*
		A	$F(1, 848) = 19.66, \ p < .001, R^2 = .02$	.16	4.43***
		B	$F(2, 847) = 3.00, p > .05, R^2 = .01$	.02	.85
		c'		.06	2.14*
	Sobel Test		$Z = .81 \ , p > .05$		
External Regulation	Emotional	C	$F(1, 848) = 27.52, p < .001, R^2 = .03$	.14	5.25***
		A	$F(1, 848) = 19.66, \ p < .001, R^2 = .02$	.16	4.43***
		B	$F(2, 847) = 15.22, p < .001, R^2 = .03$	.04	1.69
		c'		.13	4.94***
	Sobel Test		$Z = 1.55 \ , p > .05$		
Introjected Regulation	Skills	C	$F(1, 848) = 5.28, p < .05, R^2 = .01$	.07	2.30*
		A	$F(1, 848) = 31.34, \ p < .001, R^2 = .04$	.25	5.60***
		B	$F(2, 847) = 20.25, p < .001, R^2 = .05$	.13	5.92***
		c'		.04	1.18
	Sobel Test		$Z = 4.04 \ , p < .001$		
Introjected Regulation	Emotional	C	$F(1, 848) = 27.52, p < .001, R^2 = .03$	.14	5.25***
		A	$F(1, 848) = 31.34, \ p < .001, R^2 = .04$	.25	5.60***
		B	$F(2, 847) = 34.21, p < .001, R^2 = .07$	.13	6.30***
		c'		.11	4.08***
	Sobel Test		$Z = 4.15 \ , p < .001$		
Identified Regulation	Skills	C	$F(1, 848) = 5.28, p < .05, R^2 = .01$	.07	2.30*
		A	$F(1, 848) = 20.05, \ p < .001, R^2 = .02$	.13	4.48***
		B	$F(2, 847) = 14.98, p < .001, R^2 = .03$	.18	4.95***
		c'		.05	1.55
	Sobel Test		$Z = 3.28 \ , p < .01$		
Identified Regulation	Emotional	C	$F(1, 848) = 27.52, p < .001, R^2 = .03$	.14	5.25***
		A	$F(1, 848) = 20.05, \ p < .001, R^2 = .02$	.13	4.48***
		B	$F(2, 847) = 36.35, p < .001, R^2 = .08$	.21	6.62***
		c'		.12	4.31***
	Sobel Test		$Z = 3.68 \ , p < .001$		

Note. *p<.05, **p<.01, ***p<.001
Path a represents X predicting M, path b represents M predicting Y, path c' represents X predicting Y after introducing M, and path c represents X predicting Y.

The Sobel test indicated a significant mediating effect of identified regulation $(Z = 3.68, p < .001)$ suggesting that identified regulation partially mediated the relationship between fear of failure and

emotional engagement. Table 2 shows the mediation effects of identified regulation on skills and emotional engagement. In summary, we interpret these findings to suggest that identified regulation fully mediated the relationship between fear of failure and skills engagement; however, it partially mediated the relationship between fear of failure and emotional engagement.

The Mediating Role of Introjected Regulation

Results showed that fear of failure predicted skills engagement ($F(1, 848) = 5.28, p < .05, R^2 = .01; b = .07, t(848) = 2.30, p < .05$) and introjected regulation ($F(1, 848) = 31.34, p < .001, R^2 = .04; b = .25, t(848) = 5.60, p < .001$). When the three variables were included in the model together, introjected regulation predicted skills engagement ($b = .13, t(847) = 5.29, p < .001$), but the effect of fear of failure on skills engagement became insignificant ($b = .04, t(847) = 1.18, p > .05$). The relationship between fear of failure and skills engagement significantly decreased in strength with the presence of introjected regulation (the mediator) and the overall model was statistically significant ($F(2, 847) = 20.25, p < .001, R^2 = .05$). The Sobel test indicated a significant mediating effect of introjected regulation ($Z = 4.04, p < .001$) suggesting that introjected regulation fully mediated the relationship between fear of failure and skills engagement.

Fear of failure was also found to predict emotional engagement ($F(1, 848) = 27.52, p < .001, R^2 = .03; b = .14, t(848) = 5.25, p < .001$); and introjected regulation ($F(1,848) = 31.34, p < .001, R^2 = .04; b = .25, t(848) = 5.60, p < .001$). When the three variables were included together, introjected regulation predicted emotional engagement ($b = .13, t(847) = 6.30, p < .001$); and fear of failure also predicted emotional engagement ($b = .11, t(847) = 4.08, p < .001$). The relationship between fear of failure and emotional engagement decreased in strength with the presence of introjected regulation (the mediator) but remained statistically significant ($F(2, 847) = 34.21, p < .001, R^2 = .07$). The Sobel test indicated a significant mediating effect of introjected regulation ($Z = 4.15, p < .001$) suggesting that introjected regulation partially mediated the relationship between fear of failure and emotional engagement. Table 2 shows the mediation effects of introjected regulation on skills and emotional engagement.

In summary, results suggest that introjected regulation played a mediating role in the relationship between fear of failure and both skills and emotional engagement. Introjected regulation fully mediated the relationship between fear of failure and skills engagement; however, it partially mediated the relationship between fear of failure and emotional engagement.

The Mediating Role of External Regulation

The mediating effect of external regulation on skills engagement ($Z = .81, p > .05$) and emotional engagement ($Z = 1.55, p > .05$) was not statistically significant. This means that externally imposed rewards do not mediate the relationship between fear of failure and either skills engagement or emotional engagement. Table 2 shows the mediation effects of external regulation on skills and emotional engagement. Post hoc power analyses using G*Power software (Faul, Erdfelder, Buchner, & Lang, 2009) for all the significant tests above revealed adequate power ranging from 0.74 to 0.99. All post hoc power analyses were conducted for a calculated effect size from sample statistics and an $\alpha = 0.05$.

Moderation Analyses

Moderation analyses were conducted to explore the modulatory role of extrinsic motivation as a differentiated construct in predicting engagement. This included examining if external regulation, introjected regulation and identified regulation played a moderating role in the relationship between fear of failure, and engagement. The mean scores of the items were calculated and used. All moderation analyses were conducted in SPSS software (version 25.0), using the PROCESS plug in (version 2.16).

Results from moderation analyses indicated that fear of failure and introjected regulation independently accounted for a significant amount of variance in the overall model for participation engagement ($F(3, 846) = 23.09, p < .001, R^2 = .08$). Fear of failure predicted negative participation engagement ($b = -.18, t(846) = -5.45, p < .001$), and introjected regulation predicted positive participation engagement ($b = .18, t(846) = 6.86, p < .001$). The predicted interaction between the variables was statistically significant ($b = .06, t(846) = 2.92, p < .01$).

Figure 1

Interaction between Fear of Failure and Introjected Regulation on Participation Engagement
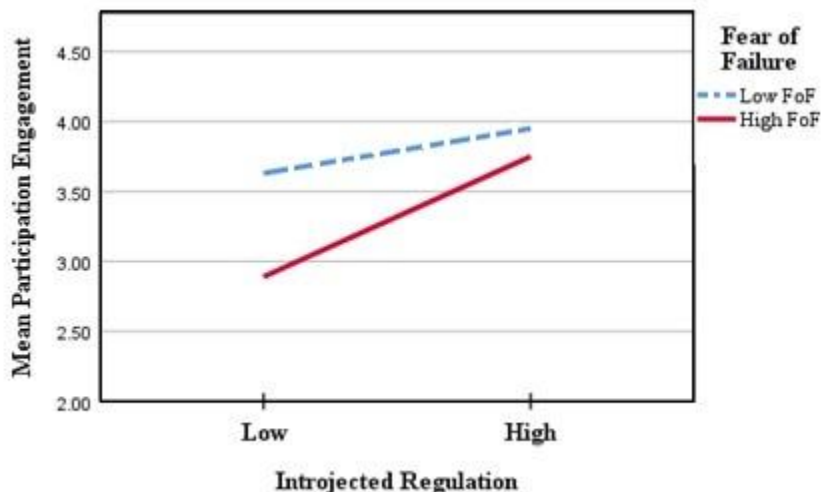
To interpret the interaction effect (see Figure 1), the predicted values were computed for participation engagement and graphed at 1 *SD* above and below the mean for fear of failure and introjected regulation (see Aiken et al., 1991). Analyses of simple slopes for participation engagement with standardized variables indicated that when students held low fear of failure (1 *SD* below the mean) there was a significant positive relationship between introjected regulation and participation engagement ($b = .10, t(846) = 2.74, p < .01$). This relationship remained significant for students who held high fear of failure (1 *SD* above the mean) ($b = .26, t(846) = 6.29, p < .001$).

The resulting graph indicated that introjected regulation appeared to moderate the negative association between fear of failure and participation engagement. At high introjected regulation, students with low fear of failure showed more participation engagement than those with high fear of failure, while at low introjected regulation, students with low fear of failure participated more

than those with high fear of failure. Participation engagement was the highest among students who held low fear of failure and high introjected regulation. Introjected regulation also increased the participation engagement of students with high fear of failure. At high introjected regulation, the participation engagement gap decreased between students with high and low fear of failure compared to those with low introjected regulation.

Results from moderation analyses for performance engagement indicated that fear of failure and introjected regulation independently accounted for a significant amount of variance in the overall model for performance engagement $(F(3,846) = 37.12, p < .001, R^2 = .11)$. Fear of failure predicted negative performance engagement $(b = -.21, t(846) = -10.01, p < .001)$, and introjected regulation predicted positive performance engagement $(b = .09, t(846) = 4.72, p < .001)$. The predicted interactions between the variables were statistically significant $(b = .03, t(846) = 2.09, p < .05)$.

Figure 2

Interaction between Fear of Failure and Introjected Regulation on Performance Engagement
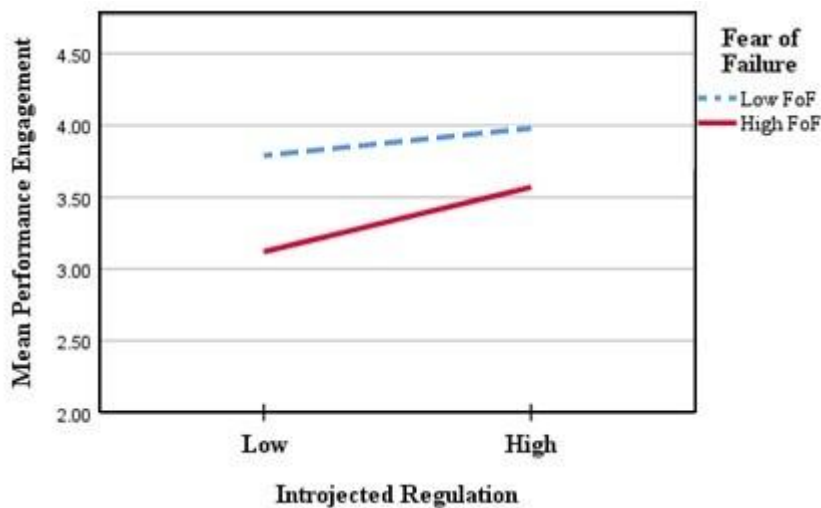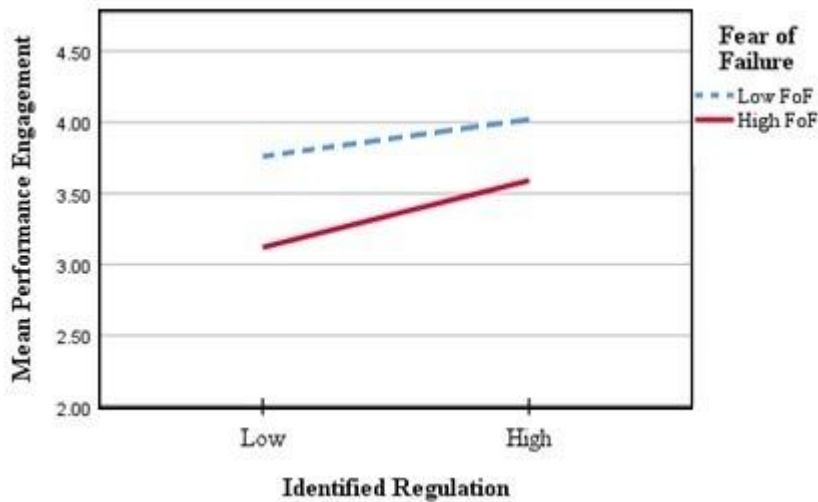

To interpret the interaction effect (see Figure 2), the predicted values were computed for performance engagement and graphed at 1 *SD* above and below the mean for fear of failure and introjected regulation (see Aiken et al., 1991). Analyses of simple slopes for performance engagement showed that when students held low fear of failure (1 *SD* below the mean) there was a significant positive relationship between introjected regulation and performance engagement $(b = .06, t(846) = 2.59, p < .01)$. This relationship remained significant for students who held higher fear of failure (1 *SD* above the mean) $(b = .13, t(846) = 4.18, p < .001)$.

The resulting graph indicated that introjected regulation appeared to moderate the negative association between fear of failure and performance engagement. At high introjected regulation, students with low fear of failure showed better performance engagement than those with high fear of failure. At low introjected regulation, students with low fear of failure performed better than those with high fear of failure. Performance engagement was the highest among students who held low fear of failure and high introjected regulation. Introjected regulation also increased the performance of students with high fear of failure. The performance gap decreased between students with high and low fear of failure at high introjected regulation.

Further analyses indicated that fear of failure and identified regulation independently accounted for a significant amount of variance in the overall model for performance engagement ($F(3, 846) = 40.20, p < .001, R^2 = .12$). Fear of failure predicted negative performance engagement ($b = -.21, t(846) = -10.03, p < .001$), and identified regulation predicted positive performance engagement ($b = .17, t(846) = 5.70, p < .001$). The predicted interactions between the variables were at the threshold of being significant for performance engagement ($b = .04, t(846) = 1.96, p = .05$).

Figure 3

Interaction between Fear of Failure and Identified Regulation on Performance Engagement.

To interpret the interaction effect (see Figure 3), the predicted values were computed for performance engagement and graphed at 1 *SD* above and below the mean for fear of failure and introjected regulation (see Aiken et al., 1991). All other tested interactions were not statistically significant. Post hoc power analysis using G*Power software (Faul et al., 2009) for all the significant tests above revealed adequate power ranging from 0.74 to 0.99. All post hoc power analyses were conducted for a calculated effect size from sample statistics and an $\alpha = 0.05$.

Discussion

This study builds on existing literature by examining the novel modulatory role of extrinsic motivation, as a differentiated construct, in the relationship between fear of failure and engagement among undergraduate students in the United Kingdom. While decades of research have explored academic motivation, this study advances the field by investigating how extrinsic motivation modulates the relationship between fear of failure and engagement. By challenging the assumption that extrinsic motivation necessarily undermines intrinsic motivation—a well-established driver of deep and sustained learning—this work reframes their dynamic interplay. Fear of failure has been associated with a range of negative outcomes, such as maladaptive self-protective behaviours (De Castella et al., 2013), shame (McGregor & Elliot, 2005), disorganization (Berger & Freund, 2012), and academic procrastination (Schouwenburg, 1992). In contrast, engagement is crucial for measuring educational outcomes (Krause & Coates, 2008), and improving both learning (Coates, 2005) and retention (Kuh, 2009a). Therefore, understanding the

complex interplay between these variables can inform efforts to support students' academic success.

The Mediating Role of Extrinsic Motivation as a Differentiated Construct

This study found that identified regulation fully mediated the association between fear of failure and skills engagement. Self-Determination Theory suggests that identification is a self-endorsed regulatory process where students feel a sense of choice or volition in their behaviour and become willing to accept and change their actions for a desired outcome. Skills engagement refers to the strategies students use to master their work, including active involvement through attendance, effort, persistence, and concentration (Fredricks et al., 2004). Such strategies require high levels of commitment and willingness to accept and endorse specific behaviours, such as attending lectures. Consistent with Self-Determination Theory principles positing that internalised motivations buffer against maladaptive outcomes, identified regulation was found to fully mediate the relationship between fear of failure and skills engagement. For instance, a student who fears failing due to poor attendance may adopt the belief that lectures are crucial for success. In such cases, the student's identification with lecture attendance fully mediates the relationship between fear of failure and skills engagement, as fear no longer directly predicts engagement once internalised values are adopted.

Previous studies have suggested that emotional engagement reflects a student's affective interaction with course materials, including the presence of task-facilitating emotions such as interest, happiness, and enjoyment and the absence of task-withdrawing emotions (Sciarra & Seirup, 2008; Skinner & Belmont, 1993). This study found that the relationship between fear of failure and emotional engagement was partially mediated by identified regulation. According to Self-Determination Theory, identified regulation is a self-endorsed process in which the student feels a sense of choice or volition about behaving as they become willing to accept and change their behaviour for a desired outcome. This process can reduce the task-withdrawing emotions associated with fear of failure and encourage the presence of task-facilitating emotions, such as interest and happiness, leading to emotional engagement (Deci & Ryan, 2000). For instance, a student who is afraid of failing and is also experiencing task-withdrawing emotions may be willing to engage emotionally with the course material because they believe that this is important for success. The student's identification with the required behaviour and their willingness to change their course of action partially mediates the relationship between fear of failure and emotional engagement.

The study also revealed that introjected regulation fully mediated the relationship between fear of failure and skills engagement and partially mediated the relationship between fear of failure and emotional engagement. This is likely to be because introjection involves internalised rules that pressure one to behave to avoid the consequences administered by the individuals to themselves (Deci & Ryan, 2000). These take the form of self-inflicted behaviours such as ego involvements or threats of guilt or shame to maintain self-worth in the eyes of others. Self-imposed behaviours to protect ego act to minimise the strength of the relationship between fear of failure and skills engagement and reduce the strength of the relationship between fear of failure and emotional engagement. A student, for example, who is not attending lectures (i.e. not demonstrating skills engagement) is afraid of failing as a result. The student's self-imposed feelings of ego to maintain self-worth in the eyes of others (i.e. their introjected behaviour) pressure the student to attend lectures. Similarly, the student's introjected behaviour reduces (i.e. partially mediates) the

relationship between fear of failure and emotional engagement by reducing the task-withdrawing emotions the student is experiencing.

As was expected, external regulation, which involves behaviour that is controlled by external factors such as rewards, praise, grades, scholarships and written feedback, did not mediate the relationship between fear of failure and engagement. This finding is consistent with previous research (De Charms, 2013; Deci & Ryan, 1985; Heider, 1958), which has shown that external factors can diminish feelings of autonomy and lead to poor maintenance of motivation when the external factors are withdrawn.

To summarise, the results of this study provide evidence that self-endorsed behaviours, specifically identified regulation, and self-imposed behaviours, such as introjected regulation, reduce fear of failure and increase skills engagement (e.g., concentration, persistence) and task-facilitating emotions (e.g., interest, happiness). These findings build upon previous research (Appleton & Hill, 2012; Jeno & Diseth, 2014), which found that motivation regulations mediate the relationship between fear of failure and engagement, as well as research (Georgiadis et al., 2001) that found identified regulation strongly influences self-worth.

The Moderating Role of Extrinsic Motivation as a Differentiated Construct

This study examined if identified, introjected, and external regulations moderate the relationship between fear of failure and participation and performance engagement. Results showed that introjected regulation moderated this relationship, with students who had high introjected regulation and low fear of failure showing better engagement than those with high fear of failure. Students with high self-imposed behaviours and low fear of failure showed better participation and performance engagement than students with high fear of failure. The performance and participation engagement gap decreased among students who held high introjected regulation. Introjected regulation appeared to moderate the relationship between fear of failure and both participation and performance engagement. Self-inflicted behaviours that are self-administered (such as ego or feelings of guilt or shame), appeared to increase the participation and performance of students with high fear of failure. Performance and participation engagement was the highest among students who held low fear of failure but high introjected regulation. These findings extend the research (Jeno & Diseth, 2014) where autonomous forms of motivation were found to be positively associated with perceived school performance.

In contrast, Identified and external regulations did not play a moderating role in the relationship between fear of failure and either participation or performance engagement. This suggests that not all forms of extrinsic motivation are equally influential in shaping how fear of failure impacts student engagement. While introjected regulation-characterised by internal pressures such as guilt or self-worth-can buffer or even enhance engagement under conditions of low fear, more externally regulated forms of motivation, such as those driven by external rewards or identification with outcomes, do not appear to alter the negative effects of fear of failure. This finding highlights the differentiated nature of extrinsic motivation and underscores the importance of considering the specific type of regulation when examining the interplay between fear of failure and student engagement. It also aligns with recent literature, which calls for a more nuanced understanding of how various motivational regulations interact with emotional factors to influence learning behaviours (Nakhla & Allan, 2025).

Implications for Theory

This study explored the importance of using self-endorsed and self-imposed regulations to moderate the influence of fear of failure on student engagement, in conjunction with extrinsic motivation. The findings advance theory by demonstrating how extrinsic motivation, as a differentiated construct, moderates fear of failure and its impact on engagement. Specifically, the study reveals that self-imposed (introjected) and self-endorsed (identified) regulations operate distinctly: while introjected regulation may amplify pressure, integrated extrinsic motivation (e.g., valuing external goals aligned with personal growth) can buffer fear of failure's negative effects. This dual role enriches theories of achievement motivation by clarifying how extrinsic motivators interact with fear appraisals to shape engagement. By unpacking extrinsic motivation into self-imposed and self-endorsed forms, the study provides a framework for understanding when extrinsic motivators exacerbate or mitigate fear of failure. This advances Self-Determination Theory by integrating fear appraisals into the autonomy continuum.

Implications for Practice

Recognising the importance of prompting self-inflicted behaviours, particularly through introjected regulation, is crucial for moderating the relationship between fear of failure and both participation and performance engagement. One effective approach involves using positive fear appeal messages that students perceive as challenging rather than threatening. These messages guide students on how to take constructive actions to avoid failure, as demonstrated in studies by Putwain et al. (2016, 2017) and Nicholson, Putwain, Nakhla et al. (2018). Additionally, creating events that support self-determined functioning, such as communicating competence, tends not to undermine students' overall engagement.

Educators can translate these insights into practice by implementing evidence-based strategies that address both engagement and fear of failure. Designing assessments that balance challenge with skill level is essential to prevent students from feeling overwhelmed while simultaneously promoting their growth. Employing positive fear appeals that reframe failure as an opportunity for growth, emphasising how tasks stretch skills but remain achievable, shifts students' focus from perceiving threat to pursuing actionable improvement. Moreover, aligning learning activities with students' interests fosters self-endorsed motivation, ensuring that learners perceive genuine value in their efforts. Providing feedback that highlights competence and offers clear, actionable next steps reinforces students' sense of progress and encourages sustained engagement.

To further mitigate fear of failure, educators should reduce the reliance on grades as the primary motivator, as this can trigger harmful introjected pressure. Instead, supporting students' psychological needs by fostering autonomy through offering choices in assignments, building competence by breaking complex tasks into manageable steps, and enhancing relatedness by creating opportunities for peer collaboration can create a more supportive learning environment. Sustaining engagement also requires the use of interactive teaching methods, such as debates and case studies, which ignite curiosity and encourage active participation. Linking content to real-world applications reinforces the relevance of learning. As Higgins et al. (2014) emphasise, engaged learners thrive when tasks demand strategic problem-solving. Educators can nurture this by normalising "productive struggle," teaching metacognitive strategies such as breaking problems into smaller parts, and framing setbacks as natural and valuable steps in the learning

process. Through these approaches, fear of failure can be transformed from a barrier into a catalyst for deeper engagement and learning.

Limitations

While this study provides insights into the role of extrinsic motivation in academic engagement, several limitations should be acknowledged. First, the reliance on self-report questionnaires introduces the potential for social desirability bias, particularly given the constructs' close ties to self-image. Participants may have subconsciously emphasised positive behaviours or minimised negative impressions. Second, the cross-sectional design limits causal inferences; longitudinal or experimental approaches are needed to better establish temporal relationships between fear of failure, motivation, and engagement. Third, the moderation analyses, while clarifying how extrinsic motivation operates as a differentiated construct, have inherent constraints. The interaction effects assume linear relationships, which may oversimplify real-world dynamics (e.g., threshold effects where extrinsic motivators shift from helpful to harmful). Additionally, the models do not account for potential contextual moderators (e.g., classroom climate) that could influence outcomes. Fourth, while mediation pathways were explored (e.g., identified regulation's role in linking fear of failure to engagement), the cross-sectional design precludes robust causal mediation claims. Consequently, the mediation findings in this study should be interpreted as preliminary and descriptive rather than definitive evidence of causal mechanisms.

Future Research

The findings of this study highlight several avenues for future inquiry. Although the sample, composed exclusively of undergraduate students, provides valuable insights into higher education contexts, it may not capture the full diversity of educational settings, such as vocational training or postgraduate programmes. Future studies should examine the modulatory role of extrinsic motivation in broader populations, including secondary school students and adult learners in professional settings, to better understand how these factors operate across different educational and developmental contexts. The role of extrinsic motivation is inherently complex. While self-endorsed forms (e.g., identified regulation) may buffer the negative effects of fear, external rewards (e.g., grades) risk fostering avoidance behaviours or undermining long-term intrinsic motivation. Longitudinal studies are needed to investigate how extrinsic motivators, such as grades, shape engagement trajectories over extended periods. Additionally, research should explore how fear of failure operates in collaborative contexts by examining whether group dynamics (e.g., peer pressure or shared accountability) moderate its effects on engagement and motivation.

Technological advancements in education offer exciting opportunities for future research. For example, studies could test whether tools like gamified learning platforms, AI-based feedback systems, and online group work environments affect how extrinsic motivation and fear of failure influence students' engagement. Similarly, research could examine how online collaboration tools impact student engagement when they are working in teams and experiencing fear of failure. Although this study explored mediation pathways (e.g., self-regulation's role), the cross-sectional design limits causal claims. Longitudinal or experimental research would be better suited to establish the directionality of these relationships. Additionally, replication in diverse cultural and institutional contexts would help clarify the universality of these mechanisms and provide a more

comprehensive understanding of how fear of failure and extrinsic motivation interact across varied settings.

Conclusion

The aim of this study was to fill gaps in the literature by investigating the modulating role of extrinsic motivation as a distinct construct. The analysis explored the mediating role of identified regulation, introjected regulation, and external regulation in the association between fear of failure and skills and emotional engagement. Findings indicated that identified and introjected regulations fully mediated the relationship between fear of failure and skills engagement, but partially mediated the relationship between fear of failure and emotional engagement. The moderation analysis examined the interaction between fear of failure and extrinsic motivation (external, identified, and introjected) on participation and performance engagement. Results showed significant interactions between introjected regulation and fear of failure on both participation and performance engagement. Understanding the interplay between extrinsic motivation, fear of failure, and student engagement is crucial for comprehending the complexity of the learning environment and human behaviour.

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