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Boudville, I. (2012) The role of Regulatory Focus in sequential resource allocation decisions over time in a New Product Development project. In: 26th Annual Australian and New Zealand Academy of Management Conference 2012, 5-7 December 2012, Perth.

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**The role of Regulatory Focus in sequential resource allocation
decisions over time in a New Product Development project**

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Abstract

Allocating finite resources in a project across stages that are linked and competing is a common managerial task. Little is known, however, about how individuals make decisions in such settings. This experimental study investigates how Regulatory Focus affects the allocation of resources prior to and following a setback. The study found that Regulatory Focus affects the allocation of resources to risky sub-stages in a new product development scenario. Age was also found to affect allocation decisions and interact with Regulatory Focus. The findings are discussed in relation to current Regulatory Focus literature. Future research directions are proposed along with key limitations to the study.

Keywords: Decision making, choice behaviour, motivation, new product development, perception, managerial thinking and cognition

A problem exists when the route to a salient goal state is unclear and problem solving occurs when an information processing system, a task environment and a problem space converge (Simon, 1975). Information processing systems can be a human decision maker or computers. Bromiley (1981 p279) defines the task environment as “all facets of the decision situation that are determined and observable external to the particular individual or group”. This includes the external environment, how the problem is defined, resource availability and the experimental conditions. Dunegan (1993) reports that information framed in the task environment affects perception of the problem space, the third component of problem solving. The problem space is the individual’s subjective interpretation of the problem. It consists of an initial state; an end state and a series of all legal activities linking the initial and end states (Dunbar, 1998). Failure to capture salient features of the task environment may result in poor problem solving as the links to the end state may be incomplete or flawed (Kirs, Pflughoeft, & Kroeck, 2001).

In organizations a particularly insidious manifestation of poor problem solving has been escalation of commitment (Murray, Poole, & Jones, 2006). Escalation of commitment is the ongoing commitment of additional resources to a failing course of action (Brockner, 1992). Research in escalation studies (e.g. Arkes & Blumer, 1985; Keil, 1995; Staw, 1976) commonly use frames to elicit resource allocation decisions (Bazerman, 1984). This method though relies on static, one-off decisions (Vancouver, Weinhardt, & Schmidt, 2010). Such an approach, Hastie (2001) argues, fails to capture the sequential, and often linked, nature of decision making with limited resources. The subjective problem space should be composed of multiple activities, requiring multiple decisions, often involving trade-offs. Hastie asserts that little is known about how decisions are made in this setting. This research seeks to shed light on the role of the decision maker in resource-constrained, linked, sequential settings and proposes that Regulatory Focus affects the construction of the subjective problem space prior to and following a setback.

REGULATORY FOCUS THEORY:

Regulatory Focus Theory (RFT) is a comprehensive theory comprised of two uncorrelated motivational systems: a promotion focus and a prevention focus (Higgins, 1997). Regulatory Focus exists as a chronic orientation or it can be induced by situations (Higgins & Spiegel, 2004). There are two ways to induce regulatory focus in individuals: focussing people on their Ideals/Oughts or by framing gains and losses. A promotion focus is associated with an eagerness to ensure the presence of gains and absence of non-gains (Crowe & Higgins, 1997). Under a promotion focus, individuals are concerned with advancement, aspirations and accomplishments (Higgins, 2002), and regard goals as hopes (Crowe & Higgins, 1997). They avoid errors of omission and choose action over inaction, giving rise to a risky bias (Crowe & Higgins, 1997). A prevention focus is associated with being vigilant to ensure the absence of losses or the presence of non-losses. Goals are prescribed, minimal obligations to be attained by not making mistakes (Crowe & Higgins, 1997). When motivated with a prevention focus individuals are concerned with protection and safety (Higgins, 1997), and being careful and cautious (Grant & Higgins, 2003). They are cautious and conservative, and prefer inaction over action (Bryant & Dunford, 2008).

Prior to presenting the hypotheses of this research, the setting of this study needs to be introduced. A new product development (NPD) project has been selected for this study as it is a staged process. NPD scenarios have also been extensively used in escalation of commitment research. This study will use Cooper and Kleinschmidt's (1988) NPD model (See Figure 1) composed of three stages sub-divided into twelve sub-stages. NPD is one of the riskiest activities an organisation can undertake particularly if the product is new-to-world (Cooper, 2003). Risk can be technical, market or business related. Market and business risk can be mitigated with good market intelligence (Workman, 1993). Technical risk is associated with technical hurdles and is the focus of the R & D department (Song & Montoya-Weiss, 1998). The greatest amount of risk is perceived to exist in actual product development (Foxall, 1984), which may account for Cooper and Kleinschmidt's (1988) finding that it receives the most funding.

Insert Figure 1 about here

The goal of NPD is the launch of a new product into the market place. The framing of this goal as a promotion or prevention goal should affect how resource allocation decisions are made in the NPD process. Zhou and Pham (2004 Study 4) found that individuals in a prevention focus made less risky investments, while those in a promotion focus made riskier investments. This finding is in line with the promotion-risky, prevention-conservative bias reported in early regulatory focus research. This bias is also the basis for speed and accuracy trade-offs, with promotion individuals using a riskier processing style to make faster but less accurate decisions to maximise gains, while prevention individuals make slower but more accurate decisions to avoid loss (Förster, Higgins, & Bianco, 2003). Werth and Förster's 2007 study however found that a prevention individual reacted faster than a promotion individual in an equivocal setting. This demonstrated three things: firstly that regulatory focus affects the anticipation of risk; secondly the strategic goal of eagerness or vigilance can be served by risky or conservative tactics; and thirdly, contrary to Scholer, Zou, Fujita, Stroessner, & Higgins' (2010) findings, this activation of a risky or conservative tactic can occur in advance of actual loss. Thus in planning an NPD project, regulatory focus would affect the anticipation of risk in the NPD problem space, affecting resource allocation such that:

H1a: In a resource constrained new product development project with sequential, linked stages, prevention focussed individuals will plan to allocate more person days to the Product Development sub-stage than promotion-focussed individuals.

H1b: In a resource constrained new product development project with sequential, linked stages, prevention focussed individuals will plan to allocate more funds to the Product Development sub-stage than promotion-focussed individuals.

Setbacks are common in NPD projects (Crawford & Di Benedetto, 2006). A setback can be viewed as a loss or a non-gain, depending on an individual's regulatory focus. As a prevention focus is associated with a local processing style and a promotion focus with a global processing style (Förster & Higgins, 2005), a prevention focussed individual would focus at the local level on the

threatened sub-stage and regard it as their duty to overcome this threat. The setback is also experienced more intensely as a loss by a prevention individual than a non-gain by a promotion individual (Idson, Liberman, & Higgins, 2000). Given this intensity, Scholer et al (2010) found that, rather than being conservative and risk averse, a prevention individual would be willing to take greater risks at the tactical level in order to ensure success at the strategic level. Thus when faced with a setback at one of the sub-stages in the NPD process, the prevention individual would vigilantly strive to shepherd the product through the process, and would make riskier decisions than a promotion individual in order to recoup that loss.

H2a: When faced with a setback in a resource constrained new product development project with sequential, linked stages, prevention focussed will re-allocate more person days than promotion-focussed individuals to the sub-stage where the setback occurred.

H2b: When faced with a setback in a resource constrained new product development project with sequential, linked stages, prevention focussed will re-allocate more funds than promotion-focussed individuals to the sub-stage where the setback occurred.

METHOD:

Data was collected as part of a wider study on decision-making in an NPD project. 118 senior undergraduates (42 male, 64 female, 12 gender not provided) studying accounting and management at an Australian university were recruited for the study. These students voluntarily completed an NPD decision scenario as part of their studies. The scenario placed participants as a senior executive in a hypothetical NPD scenario where they were asked to allocate \$100 million and 10,000 person-days to the sub-stages of an NPD project. These scenarios were framed either as gains/non-gains (promotion frame) or loss/non-loss (prevention frame). Following their initial allocations, participants were informed that a setback had occurred and that a request had been made for additional funds to complete the sub-stage so as to progress the NPD project.

PROCEDURE:

Participants completed the NPD decision scenario online. Participants first completed the PANAS scale (Watson & Clark, 1994) which was part of the wider study on decision-making and then commenced the resource constrained, linked sequential decision-making scenario. Participants were instructed to assume the role of a senior executive in an optics company looking to build an invisibility device. They were then randomly assigned to either a promotion or prevention frame which used Shah and Higgins' (1997) method of focussing on either gains gain/non-gain or loss/non-loss. An extract of the prevention frame (promotion) induction is presented below.

“You are a senior executive of “Plain Sight”. You have the responsibility (opportunity) of introducing a new product into the market. The new product is a vehicle mounted device that will make the vehicle ‘invisible’. Your chances of a setback (prosperous entry) in the new segment will be less (greater) if the new product does not fail (is successful) than if it does (is not). To fulfil this obligation (seize this opportunity) you have been given \$100 million and 10,000 person-days. You are aware that 50% of new products Plain Sight introduces are failures (successful). The ultimate goal is to protect (improve) Plain Sight’s position in the industrial optics industry.

Participants were asked to characterize the scenario they faced as either avoiding a bad result or pursuing a desired result. To strengthen the manipulation, participants listed their duties (hopes) as the executive in charge of the project. Participants then allocated 2 key resources (\$100 million and 10,000 person-days) to the sub-stages of the NPD project (see Figure 1) and chose a one or two year time horizon to complete the project. On completing the first round of decisions, participants were told that a ‘most-likely’ scenario was being generated based on their decisions. In reality no ‘most likely’ scenario was generated and the same setback information was presented to all participants- that all the Pre-Development stage funds and person-days had been expended and the Product Development sub-stage funds and person days were near exhaustion. As the executive-in-charge,

participants received a request for additional funds and person-days to complete the ‘Product Development’ sub-stage. Participants were asked to re-allocate their remaining funds and person-days to the remaining sub-stages, including the option of making no re-allocation to complete the ‘Product Development’ sub-stage, thereby maintaining the original allocation. Following this re-allocation decision, participants continued with the wider study. At the end of that study, age, gender and ethnicity data was collected.

RESULTS:

118 participants commenced the on-line decision making scenario but 9 were excluded as they did not complete the entire scenario. A further 4 were excluded as their allocations exceeded the resources available. Five multivariate outliers were detected but all were retained as they comprised all the members of one age group. As a result, data from 105 participants are reported. Due to the large number of allocation decisions, each of which can be a dependent variable in the study, only the intercorrelations, means and standard deviations for dependent variables that had a significant correlation with age and gender are reported (See Tables 1 and 2). The allocation decisions not reported had no significant relationship with any demographic variable. There were no significant differences in resource allocation decisions associated with mood (PANAS-state), time horizon of one or two years, or ethnicity.

Insert Tables 1 and 2 here

Manipulation check:

The manipulation check question asked if participants viewed the scenario as ‘Avoiding an undesirable outcome’ (Prevention) or ‘Pursuing a desirable outcome’ (Promotion) on a 9 point scale anchored by 1 (*Avoiding*) and 9 (*Pursuing*). Participants in the Promotion condition (n=52) had a mean score of 6.94 ($SD = 2.51$) while participants in the Prevention condition (n=53) had a mean score of 6.38 ($SD=2.51$). While the direction of the manipulation was predicted, the difference was not significant ($t(105) = -1.18, p = 0.24, 95\% CI[-1.51, 0.38]$).

A second manipulation that was intended to strengthen the Regulatory Focus induction asked participants to write statements reflecting either their duties/obligations or hopes/aspirations. 18 participants (9 promotion, 9 prevention) did not provide statements leaving 87 statements to be coded. The statements were coded by 2 coders, blind to the purpose of the study, as reflecting either duties/obligations or hopes/aspirations. Differences were resolved through discussion. The correlation ($\chi^2(1, n=87)=26.81, p=0.001$) between the Regulatory Focus condition and the coded statements was significant and the effect size measured by Cramer's V was 0.56 ($p=0.001$). Given the strength of the association, the manipulation was deemed successful.

Table 3 presents the mean allocations and re-allocations to the Product Development sub-stage. As Age and Gender were correlated with allocations prior to and following the setback multiple-regression was used to determine the effect of Regulatory Focus, Age and Gender on the resource allocation decisions made at each sub-stage. Age was median-centred, and Regulatory Focus and Gender were both centred using dichotomous codes of $-1/2$ (Prevention Focus and Female) and $1/2$ (Promotion Focus and Male) as recommended by Kraemer and Blasey (2004). Separate regressions were then conducted for allocation decisions made at each sub-stage. The dependent variables were not centred as advocated Aiken, West and Reno (1991).

[Insert Table 3 about here](#)

Table 4 presents the results of the multiple regressions for allocations before the setback and Table 5 after the setback. Consistent with Hypothesis 1a participants in the Prevention Focus condition allocated significantly more person days to the Product Development sub-stage than participants in the Promotion Focus condition. The regression also revealed a significant Gender main effect but none for Age. Regulatory Focus and Gender each uniquely account for 5% of the variance in person day allocations to the Product Development sub-stage. Though Prevention individuals allocated more funds than promotion individuals, this difference was not significant. As such, there is support for H1a but not for H1b. Following the setback, neither Regulatory Focus nor Gender affected

re-allocations of funds or person days to the Product Development sub-stage. There is thus no support for H2a and H2b (See Table 5).

Insert Tables 4 and 5 about here

While Regulatory Focus and Gender were associated with initial allocations of person days, but not funds, to the Product Development sub-stage before the setback, Age was associated with re-allocation of funds, but not person days, to complete the Product Development sub-stage post-setback. Younger participants re-allocated more funds than older participants to complete the Product Development sub-stage.

Multiple regressions were also conducted on the allocations of funds and person days to the Production Start up sub-stage prior to, and following, the setback, regressed on Age, Gender and Regulatory Focus. Results are presented in Tables 6 and 7. For the initial allocations, as shown in Table 6, older participants allocated more funds and person days than younger participants to the Production Start up stages. Before the setback the unique contributions of Age on allocations, after the effects of Regulatory Focus and Gender are removed, was 14% and 18% for person days and funds respectively. After the setback, this unique contribution increased to 22% and 31% for person days and funds respectively.

To explore the effects of Age further, the interaction of Age and Regulatory Focus was added to the regression model for the Production Start up sub-stage, with results shown in Model 2 of Table 7. The interaction of Age and Regulatory Focus was significantly associated with person day and fund re-allocations to the same sub-stage (Figures 2). Older participants, under a Prevention Focus, allocated significantly more resources to the Production Start up sub-stage than older participants under a Promotion Focus. Conversely, younger participants under a Promotion Focus allocated more resources to the Production Start up sub-stage than those under a Prevention Focus.

Insert Tables 6 and 7 and Figures 2 and 3 about here

DISCUSSION:

This study sought to demonstrate that regulatory focus affected the construction of the problem space in a resource-constrained, linked sequential decision-making scenario such that prevention focused individuals would allocate more resources to threatening sub-stages than promotion individuals. Results of the study provide partial support for this view. When planning an NPD project, prevention focused individuals allocated significantly more person days, but not funds, to the Product Development sub-stage of an NPD scenario.

This result advances the understanding of regulatory focus in two ways. Firstly, it shows that when planning the allocation of resources in a resource constrained linked sequential setting, prevention individuals are willing to employ a riskier tactic at the local level to reduce overall strategic risk. Unlike Scholer's findings (Scholer, Stroessner, & Higgins, 2008; Scholer, et al., 2010), this riskier tactic is taken in advance of the setback to pre-empt loss. Secondly, regulatory focus is related to the perception of organisational resources as more person days, but not funds, were allocated to overcome this anticipated risk.

Faced with anticipated or actual loss, individuals invest additional resources to counter or mitigate the threat (Hobfoll, 2002). As resources are finite, they must be deployed selectively (Muraven, Shmueli, & Burkley, 2006). As all NPD sub-stages need to be completed to avoid loss, the results of this study suggest that Prevention individuals deem it less risky to assume greater risk at a risky part of the process in order to guard against not completing the new product. Although Scholer et al did find evidence to support Prevention individuals assuming greater risk after a setback, the findings here suggest that greater risk can also be incurred in advance of the setback, at the planning stages, to offset anticipated loss.

Regulatory Focus affected person day, but not fund, allocations to Product Development sub-stage. Poiesz (1998) asserts that, due to individual differences, decision makers starting with the same amount of several different resources may combine these resources differently to achieve the same outcome. Priming a prevention focus makes interdependent self-construals more salient (Aaker &

Lee, 2001), which Adler (2007) argues leads to the recognition of the importance of human capital. As human capital is the basis for innovation (Amabile, Conti, Coon, Lazenby, & Herron, 1996), the more human capital that can be focused on a problem, the more likely a loss can be avoided, prompting greater allocation of person days by Prevention than Promotion individuals. This suggests that the process of resource allocation in resource constrained linked situations is more nuanced than previous research suggests. In this scenario, regulatory focus affected the extent to which a sub-stage was perceived to be a barrier to successfully navigating a problem space and thus the combination of resources allocated to ensure the process continued.

The finding that Age was associated with fund re-allocations to the Product Development sub-stage, and all the Production Start-up sub-stages was unexpected. In this study, older participants were 35 years and above, while younger participants were under 22 years of age. A full account of this result is beyond the scope of this paper but initial thoughts are presented as a starting point.

Age is known to influence behaviours such as gambling (Deakin, Aitken, Robbins, & Sahakian, 2004), driving (Matthews & Moran, 1986) and health-related habits like smoking and drug-use (Reyna & Farley, 2006). These behaviours, according to Peters and Slovic (1996), arise from an individual's perception of risk. Worthy, Gorlick, Pacheco, Schnyer and Maddox (2011) reported that younger decision makers focus on immediate benefits and perform better on standalone tasks. Older decision makers performed better in serial decisions where their past experiences and knowledge can be utilized. In this study, prior to the setback, younger participants may have allocated more to the Product Development sub-stage as it represented the more immediate goal to be attained. Older participants however may have planned to allocate less to this sub-stage as they wanted to allocate more to the Production Start up sub-stage. This desire may have been driven by their lived experience of the fixed costs involved in building a production line, staffing it and acquiring raw materials.

The interaction between Age and Regulatory Focus may be the result of age differences in the perception of goals and the affective intensity of a loss/non-gain position. At the point of the setback, the Production Start up sub-stage was a future event. However, older individuals tend to perceive the

future as being closer than do younger individuals (Lang & Carstensen, 2002). This may be a significant factor as the reduced proximity to the future perceived by older participants activates a process goal focus. Younger participants do not experience this time compression and retain an abstract, outcome goal focus which does not emphasise the situational context (Freund, Hennecke, & Riediger, 2008). Due to their lived experience, older participants, aware of the minutia associated with production, and feeling that this important stage is close, re-allocated more to the Production Start up than younger participants. As a loss is experienced more intensely than a non-gain of the same magnitude by a promotion individual (Idson, et al., 2000), older, prevention focused participants may have re-allocated more to the Production Start up sub-stage than promotion focused participants.

CONCLUSION AND LIMITATIONS:

While no claim is made as to whether one mode of behaviour is more effective than the other, the findings of this study add another dimension to understanding the kinds of decisions taken by managers. In problem spaces with multiple activities, where success is contingent upon completion of all the activities, Regulatory Focus affects the manner in which the problem space is perceived and activities resourced. Equivocal problem spaces make prevention individuals anticipate sources of potential danger which they attempt to mitigate by allocating more resources. This extends the understanding of Regulatory Focus as the employment of risky tactics need not be activated by actual loss but by the anticipation of danger. Regulatory Focus also seems to affect the use of resources as significantly more person days, but not funds, were allocated by prevention relative to promotion individuals. That the expected result was not obtained following the setback does not obviate the influence of Regulatory Focus. Future research needs to tease out the conditions affecting the choice of conservative or risky tactics employed by prevention individuals as this may significantly impact resource allocation decisions in escalation situations. This study also showed that Age, was related to all Production Start up sub-stages.

Additional research is also needed to determine if the same effect would have resulted if the setback occurred at a different point in the NPD process so as to determine if immediate or anticipated

risk interacts with regulatory focus to affect re-allocation decisions. The scenario also did not include future payoffs or benefits which may affect investment decisions (Heath, 1995).

This study assumed that the Product Development sub-stage was perceived by the participants as the riskiest stage of the NPD project. While the extant research literature does support this view, no measure was in place to determine if participants had a similar assessment. The scenario used also required participants to allocate all the resources before and after the setback. As such, participants may have expended more than they actually wanted to. Consequently, Cooper and Kleinschmidt's (1988) suspicion that human effort is used in lieu of money in failing projects could not be tested. Thirdly, this research is based on a simulation using students as participants and thus has limited external validity managerial decision-making. Despite these limitations, this research does shed more light on how regulatory focus affects decision-makers allocation resources within a staged process, an area that has received little attention in decision making research despite it being a pervasive part of managerial life.

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Table 1:

Intercorrelations between selected dependent variables and independent variables before the setback

Intercorrelations before the setback									
	Age	Gender	Pre-commercialisation financial analysis Funds	Production Start up Funds	Product Development Person Days	Pre-commercialisation financial analysis Person Days	Production Start up Person Days	Mean	S.D.
Age	-								
Gender	0.08	-							
Pre-commercialisation financial analysis Funds	0.02	-0.21*	-					6.42	4.10
Production Start up Funds	0.43***	0.09	0.01	-				12.90	7.49
Product Development Person Days	-0.07	0.26*	-0.23*	-0.08	-			16.88	9.30
Pre-commercialisation financial analysis Person days	-0.08	-0.21*	0.24*	0.03	-0.19	-		6.92	4.32
Production Start up Person Days	0.37***	-0.04	0.07	0.42***	-0.23*	0.00	-	11.04	7.62

Notes: Due to missing data, $N_{\text{Age}}=101$, $N_{\text{Gender}}=100$. All other $N=105$

* $p<.05$. ** $p<0.01$.

*** $p<0.001$

Table 2:

Intercorrelations between selected dependent variables and independent variables after the setback

Intercorrelations after the setback										
	Age	Gender	Product Development Funds	Trial Sell Funds	Production Start up Funds	Market Launch Funds	Product Development Person Days	Production Start up Person Days	Mean	S.D.
Age	-									
Gender	0.08	-								
Product Development Funds	-0.22*	0.11	-						11.20	6.58
Trial Sell Funds	0.04	-0.20*	-0.19	-					5.42	3.27
Production Start up Funds	0.52***	-0.07	-0.25**	0.15	-				9.29	6.62
Market Launch Funds	0.23*	0.06	-0.30**	0.35***	0.25**	-			9.31	5.66
Product Development Person Days	-0.22*	-0.03	0.64***	-0.07	-0.17	-0.26**	-		10.92	6.38
Production Start up Person Days	0.46***	-0.11	-0.24*	0.05	0.64***	0.31***	-0.27**	-	8.76	5.95

Notes: Due to missing data, N_{Age}=101, N_{Gender}=100. All other N=105

* $p < .05$. ** $p < 0.01$. *** $p < 0.001$

Table 3:

Descriptives of allocations and re-allocations to the product development sub-stage before and after the setback

Descriptive	Product Development sub-stage - Person Day allocations		Product Development sub-stage - Fund allocations	
	Promotion	Prevention	Promotion	Prevention
<i>Before negative feedback</i>				
Mean	14.39	19.31	16.45	19.24
Standard Deviation	6.43	10.96	7.82	11.01
95% CI	[12.60, 16.19]	[16.29, 22.33]	[14.28, 18.63]	[16.20, 22.27]
<i>After negative feedback</i>				
Mean	10.03	11.79	10.1	12.27
Standard Deviation	5.55	7.05	5.81	7.16
95% CI	[8.48, 11.57]	[9.85, 13.73]	[8.48, 11.71]	[10.3, 14.24]

Note: N_{Promotion}= 52, N_{Prevention}= 53

Table 4:

Results of Hypothesis tests on allocations to the Product Development sub-stage

Predictor	H1a		H1b	
	Product Development sub-stage - Person Day allocations		Product Development sub-stage - Fund allocations	
	Model 1		Model 1	
	<i>B</i>	95% CI	<i>B</i>	95% CI
Constant	17.51***	[15.67, 19.36]	18.39***	[16.60, 20.37]
Age	-0.3	[-0.96, 0.37]	-0.28	[-1.00, 0.44]
RF# (sr ²)	-4.31* (0.05)	[-7.85, -0.78]	-2.31	[-6.11, 1.50]
Gender (sr ²)	4.42* (0.05)	[0.79, 8.05]	3.42	[-0.49, 7.33]
<i>R</i> ²	0.13		0.06	
<i>F</i> (df1,df2)	4.69** (3,96)		1.85 (3,96)	

Note: n=100. #: Regulatory Focus

p*<.05. **p*<0.001

Table 5:

Results of Hypothesis tests on re-allocations to the Product Development sub-stage

Predictor	H2a		H2b	
	Product Development sub-stage - Person Day re-allocations		Product Development sub-stage - Fund re-allocations	
	Model 1		Model 1	
	<i>B</i>	95% CI	<i>B</i>	95% CI
Constant	11.17***	[9.85, 12.48]	11.68***	[10.35, 13.02]
Age (sr ²)	-0.50*	[-0.98, -0.30]	-0.57* (0.05)	[-1.05, -0.08]
RF#	-1.71	[-4.22, 0.80]	-1.88	[-4.44, 0.68]
Gender	-0.35	[-2.93, 2.24]	1.53	[-1.10, 4.15]
<i>R</i> ²	0.07		0.09	
<i>F</i> (df1,df2)	2.21 (3,96)		3.09* (3,96)	

Note: n=100. #: Regulatory Focus

p*<.05. **p*<0.001

Table 6:

Age as a predictor of allocations to the Production Start up sub-stage

Before Negative Feedback				
	Production Start up sub-stage - Person Day allocations		Production Start up sub-stage - Fund allocations	
	Model 1		Model 1	
	<i>B</i>	95% CI	<i>B</i>	95% CI
Constant	10.28***	[8.78, 11.78]	12.26** *	[10.84, 13.69]
Age	1.09***	[0.55, 1.63]	1.21***	[0.70, 1.73]
RF [#]	-0.23	[-3.00, 2.64]	-1.52	[-4.25, 1.21]
Gender	-1.08	[-4.02, 1.87]	0.65	[-2.16, 3.45]
<i>R</i> ²	0.15		0.20	
<i>F</i> (df1,df2)	5.44** (3,96)		7.88*** (3,96)	

n=100. #: Regulatory Focus

*p<.05. **p<0.01. ***p<0.001

Table 7:

Age as a predictor of re-allocations to the Production Start up sub-stage

After the setback						
Predictor	Production Start up sub-stage - Person Day Re-allocation			Production Start up sub-stage - Fund Re-allocation		
	Model 1	Model 2		Model 1	Model 2	
	<i>B</i>	<i>B</i>	95% CI	<i>B</i>	<i>B</i>	95% CI
Constant	7.97***	7.85***	[6.76, 8.93]	8.34***	8.20***	[7.04, 9.36]
Age (sr ²)	1.04*** (0.22)	1.12*** (0.23)	[0.72, 1.52]	1.33*** (0.28)	1.44*** (0.31)	[1.02, 1.87]
RF [#]	0.89	1.06	[-1.13, 3.24]	-0.35	-0.24	[-2.57, 2.10]
Gender	-1.64	-1.84	[-4.03, 0.34]	-1.57	-1.55	[-3.88, 0.79]
Age x RF (sr ²)		-0.93* (0.04)	[-1.77, -0.09]		-1.06* (0.04)	[-1.96, -0.17]
RF x Gender		-3.15	[-7.40, 1.1]		-4.36	[-8.91, 0.18]
Gender x Age		0.16	[-0.67, 0.99]		-0.27	[-1.16, 0.62]
<i>R</i> ²	0.24	0.30		0.29	0.36	
<i>F</i> (df1,df2)	9.9*** (3,96)	6.78*** (6,93)		12.79* (3,96)	8.59*** (6,93)	
ΔR^2		0.07			0.07	
ΔF (df1, df2)		3.03* (3,93)			3.42* (3, 93)	

Note: n=100. #: Regulatory Focus

p*<.05. *p*<0.01. ****p*<0.001

Figure 1:

Sub-stages in the NPD process depicting allocation and re-allocation decision points

		Pre-Development Sub-stages				Development sub-stages			Commercialisation sub-stages			
Allocation (T1)	Initial Screen	Preliminary market analysis	Preliminary technical analysis	Detailed market study	Pre- development financial and business analysis	Product development	In- house tests	Customer tests	Trial sell	Pre- commercialisation financial analysis	Production start-up	Market launch
	Re- Allocation (T2)					Product development	In- house tests	Customer tests	Trial sell	Pre- commercialisation financial analysis	Production start-up	Market launch

Figure 2:

Interaction of Age and Regulatory Focus on person day re-allocations to the Production Start up sub-stage

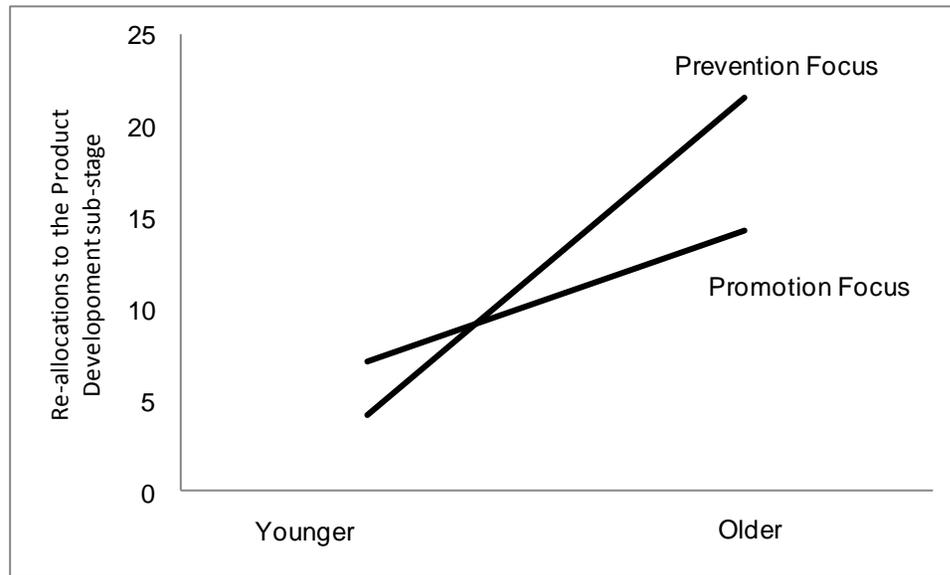


Figure 3:

Interaction of Age and Regulatory Focus on fund re-allocations to the Production Start up sub-stage

