Navigating Fear in AI-Guided Financial Services Adoption: Role of Self-Efficacy

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Apprehensive customers often resist innovation, leading to slow adoption and product pullbacks. Understanding drivers and circumstances of innovation adoption, this study lends insight into when fearful consumers can adopt AI-guided financial services. The study first comprehends if fear impedes adoption, and then two experiments test the role of general and situational self-efficacy on fearful consumer behavioural intention. Embracing the role of emotion, the study shows adoption decisions to be more positively (than negatively) influenced by fear when self-efficacy is high due to increased elaborative processing. From a managerial standpoint, it implies enacting self-efficacy beneficial in marketing communications for fear-ridden markets.

Keywords: Fear, Innovation Adoption, Artificial Intelligence, Consumer Behaviour, Self-Efficacy

1. Introduction

The technology landscape is evolving at a rapid pace, with businesses taking unconventional means to create, communicate, deliver, and exchange value to customers. Consequently, AI-based services have become one of the significant shifts in the service industry practice and theory. While technological development has been said to be beneficial, innovation failure and product pullbacks have also increased. This has called for an understanding of the drivers and circumstances of consumer innovation adoption(x). Traditionally, researchers have focused on logical aspects to boost the adoption of innovation. However, considering the significant role emotions play in decision-making and consumer behaviour (Bagozzi et al., 1999; Lerner et al., 2015), an emotional perspective is essential (Valor et al., 2022).

Emotions tend to influence consumers' perceived risk (Han et al., 2007)), their approach and avoidance tendencies(Labroo & Rucker, 2010), which are essential for embracing new technologies. The importance of emotions can be further emphasized, as consumers do not just experience emotions when stimulated. They can anticipate their emotions with respect to a new product/service (Lin et al., 2020; Shih & Schau, 2011). These emotions then can colour consumer evaluation and behaviour in discrete manners. Prior research indicates that innovation might arouse both positive and negative emotions (Wood & Moreau, 2006). A "basic effect" account indicates facilitating and inhibiting the role of positive and negative emotions, respectively. A discrete account of the emotion effect reveals instances where a person's intentions to adopt could be influenced positively by negative emotions such as regret or sadness(Bettiga & Lamberti, 2018; Shih & Schau, 2011)

Considering this growing body of research, we study the effect of fear on innovation adoption. Fear as a negative emotion has been identified as one of the significant factors prohibiting innovation. Consequently, we suggest a calculated strategy to encourage apprehensive consumers to adopt innovation. Our study investigates the role of fear as an antecedent to consumer technology adoption and the moderating role of consumer traits and situational self-efficacy. Grounded in the functionalist theory of emotion, we underscore that fear is not generally dysfunctional to innovation adoption but only when individuals have low self-efficacy. Specifically, we conduct a series of three studies to examine whether fear hinders intention to adopt innovative products (study 1) and whether self-efficacy, chronic (study 2) and situational (study 3) matter to influence consumer behavioural intention.

2. Theoretical Background

Fear and Consumer Behaviour

Fear is an emotional response to the presence or anticipation of threat and uncertainty. It arises from consumer evaluation of an environment as negative, uncertain and not in one's control (Aeron & Rahman, 2023; Ellsworth & Smith, 1988; Kemper & Lazarus, 1992). Based on these emotional patterns of fear, we predict that since new technologies often bring in uncertainty, fear will influence the adoption intention of ai-guided services. We predict that the more fearful the consumer, the less willing they will be to adopt such a service. Consequently, we draw the following hypothesis:

H1: AI-guided financial services are loaded with fear.

The experience of fear, while enhancing attention and processing, also induces a flight response in individuals, as they are neither accountable nor able to alleviate the fear (Achar et al., 2020). The Protection Motivation Theory (PMT) further indicates that fear-based appeals lead to denial (Keller & Block, 1996). In the context of innovation adoption, research has found fear to be an inhibiting factor. While true, the fear effect can vary (Aeron & Rahman, 2023). A study on the effect of fear appeal identifies that fear is necessary to gain attention. However, it alone does not account for action tendencies. Therefore,

strategically influencing contextual factors can lead to action tendencies. For instance, an affective feeling of self-accountability can create a behavioural outcome(Passyn & Sujan, 2006); similarly, construal can also influence feared individual action tendencies(Achar et al., 2020). Prior studies have also found that consumers sometimes feel unmotivated due to complicated products. Using fear appeal can motivate them. However, the self-efficacy of individuals should be increased (Ben-Ami et al., 2014). In a similar line, we propose self-efficacy as a measure to impel fearful Individuals to adopt AI-based financial services.

Role of Self-Efficacy
Bandura (1986, p. 391) defined self-efficacy as people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances". Several psychologists have further differentiated between self-efficacy as a generalized trait and its situational dispositions. Situational Self-efficacy (SSE) refers to "individuals' beliefs about their prospects for success at specific tasks in specific situations" (Luszczynska et al., 2005). Judge et al. (1998, p. 170) defined General self-efficacy (GSE) as "individuals' perception of their ability to perform across a variety of different situations".

Researchers indicate that Individuals can vary in their level of SSE And GSE (Ben-Ami et al., 2014). Furthermore, SSE can be manipulated by experimental treatments to produce performance improvements (Eden et al., 2008). In the case of fearful Individuals, we contend that higher trait self-efficacy or strategically increasing self-efficacy will increase consumer adoption intention, as self-efficacy will increase people's belief in their ability to mitigate fear. Based on the above logic, we draw the following hypothesis

H2: General self-efficacy moderates the effect of fear on innovation adoption.
H3: Boosting Situational self-efficacy increases innovation adoption for fearful individuals.

Study 1: Fear and Innovation Adoption Link
Study Design and Procedure: The study consists of a within-subjects experimental design. The participants were 21 postgraduates from a national higher education institute. The objective of this study 1 is to test whether technological innovation is loaded with fear. Specifically, we measured consumers' intentions to adopt AI-guided financial services.

After being described AI tool, Participants report their willingness to adopt it on a 4-point scale ("Would you like to use AI tool as a financial advisor, if it becomes available or not? where 1 = "no, definitely not," 2= "no, probably not," 3= "yes, probably," and 4 = "yes, definitely") and their feelings on an affective measure developed using different discrete emotions measures, including different positive and negative emotions, out of which fear was our variable of interest. We measured fear by asking respondents, "How fearful do they feel about adopting an AI-guided financial service?" on a scale of 1 to 4, 1= not at all fearful, 4= very fearful. In this study, fear is relevant because respondents were informed of both the risks and benefits of AI tools. We include hope emotion measures to differentiate fear from other uncertainty appraisal emotions.

Results
Effects on adoption intentions: Table 1 shows the correlations among constructs (Table WA1). As expected, fear was negatively correlated with the intention to adopt (r = -0.824, p= 0.000), whereas hope, a discrete positive emotion with a defining characteristic of uncertainty, was positively correlated with an intention to adopt (r= 0.630, p= 0.002).

Because the independent and dependent variables were both measured and continuous, we ran a regression analysis, and all measured variables were mean-centred (Hayes 2017) to reduce multicollinearity. As we expected, the main effect of fear was significant and negative. The more respondents feared the AI-guided services, the less likely they intended to adopt them (b=-0.712 SE=0.177, t= -4.226, p = 0.001). However, there was no main effect of hope (b=0.204 SE= 0.196, t= 1.037, p = 0.314).

Table 1 *Correlations*

		mc_willingness	mc_fear	mc_hope
mc_willingness	Pearson Correlation	1	-.824**	.630**
	Sig. (2-tailed)		.000	.002
	N	21	21	21
mc_fear	Pearson Correlation	-.824**	1	-.638**
	Sig. (2-tailed)	.000		.002
	N	21	21	21
mc_hope	Pearson Correlation	.630**	-.638**	1
	Sig. (2-tailed)	.002	.002	
	N	21	21	21
**. Correlation is significant at the 0.01 level (2-tailed).				
*. Correlation is significant at the 0.05 level (2-tailed).				

Study 2: Fear Effect for High vs Low Self-Efficacy Individuals
Design and procedure: Study 2 is aimed to test our proposed strategic intervention and whether self-efficacy affects the intention to adopt. The study consists of a between-subjects experimental design. The participants were 30 scholars from a national higher education institute. We did an ANOVA (analysis of variance) as the independent variable was categorical, and the dependent variable was continuous. All participants read a description of the AI-financial services recommendation tool. We further manipulated for strong fear by asking participants to read potential goal-congruent and goal-incongruent outcomes using the

new recommendation tool (see web appendix for AI-guided financial service description and fear manipulation). After reading the description and emotion-imbued comment, participants indicate their willingness to adopt /use the recommendation tool. Next, participants fill out a general survey about themselves, which incorporates the General self-efficacy scale. We use the 8-item new general self-efficacy scale by (Chen et al., 2001). We expected that individuals high on self-efficacy, compared to the ones low on self-efficacy, would have a relatively higher intention to adopt innovation.

Results

Manipulation check: As we expected, respondents in the strong fear condition felt stronger fear from using an AI-guided financial service provider ($M_{strong\ fear}$= 3.57) than did those in the weak fear condition ($M_{weak\ fear}$= 2.67; $t(28) = -6.259$, $p < 0.001$). Furthermore, following the relative techniques, the participant means score of self-efficacies was subtracted from each participant's self-efficacy score. This helped us identify participants with relatively higher general self-efficacy. Participants with difference scores greater than zero were identified as high self-efficacy Individuals, and participants with difference scores less than or equal to zero were identified as low self-efficacy Individuals. Additionally, an ANOVA with fear (weak vs strong) * self-efficacy (weak vs strong) indicated only the main effect of fear ($p<0.05$).

 Intention to adopt: A two-way ANOVA was conducted that examined the effect of self-efficacy and fear level on innovation adoption. There was a statistically significant interaction between the effects of fear and self-efficacy level on treatment adoption, $F(1, 26) = 4.699$, $p = .040$. Furthermore, A Simple main effects analysis showed that fearful individuals were significantly more interested in treatment only when self-efficacy was high ($p = .0192$),

Study 3 Fear Effect for Situational High/Low Self-Efficacy.

Study design and procedure: Study 3 was conducted to test whether situational self-efficacy affects the fearful individual adoption intention after controlling for general self-efficacy. It consists of a between-subjects experimental design. 40 scholars participated in this experiment. Firstly, participants completed an NGSE questionnaire. Then, we presented all participants in this study with a description of AI-guided financial services with a stronger vs weaker fear association. On the next page, we randomly manipulated participants' situational self-efficacy (Control vs high self-efficacy) (see appendix for SSE manipulation). Following that, we measured intentions to adopt as the primary dependent variable and measured the independent variables as well.

Results

Manipulation check: A 2 (fear: weak, strong) × 2 (SSE: baseline, high control) individual ANOVA was run with self-reported feelings of fear. As expected, only the main effect of emotion was significant, revealing strong emotion-induction effects ($p< 0.001$). Further, participants felt significantly more fear in the high fear conditions $p<0.001$) and significantly higher self-efficacy in the high SSE condition $p< 0.001$).

 Intention to adopt: A two-way ANCOVA is used to determine whether there is an interaction effect between fear and SSE after controlling for GSE. The results indicate that while the main effect of fear and SSE was significant, their interaction effect, controlling for general self-efficacy, was not significant ($p= 0.099$).

3.   General Discussion

The present research shows the carryover effect of fear on consumer innovation adoption. Our study1 indicates that AI-based services are loaded with fear due to uncertainty associated with the innovation. More importantly, the study helps us understand how fear can be attenuated in the market by strategically manipulating consumer self-efficacy. Study 2 establishes the interaction effect of fear and general self-efficacy (GSE), indicating that fear, though generally leading to negative evaluations, may have different effects on consumers. Such that, Individuals who have a high general self-efficacy have a significantly higher intention to adopt, despite being fearful. The result thus establishes the contextualistic effect of emotion, varying based on individual characteristics.

 Furthermore, building on a core facet of consumer-based strategy, that marketers can influence the independent variable (Hamilton, 2016), our study 3 situationally manipulates self-efficacy while controlling for general self-efficacy. The results of Study 3 were not significant. However, When the interaction effect is not significant, we can consider following up on our analysis using the main effect. Bonferroni-adjusted comparisons indicated that there is a significant difference between the intention of high-low Situational self-efficacy participants in the high fear condition only ($p= 0.024$).

Implications and Future Research Directions

Our findings aim to show that fear inhibits buyers from weighing the benefits and drawbacks of an innovation, which results in lower adoption. However, when consumer self-efficacy is manipulatively or chronically high, fear increases adoption intention. In three studies, manipulating and measuring fear and self-efficacy, we study the interactive effect of fear and self-efficacy on innovation adoption.

 Our study adds significant pieces to the body of knowledge. Firstly, we embrace the role of emotion in technology adoption and show that adoption decisions can be influenced more positively (than negatively) by the emotion of fear. Accordingly, fear can cause an approach response (than avoidance), encouraging information seeking and laborious information processing. From a managerial standpoint, our findings imply that when innovative services are introduced to the market, adoption may rise when self-efficacy is high. Therefore, managers can benefit by enacting self-efficacy in marketing communications.

While we established self-efficacy as a moderator to fear influence, future research could explore the internal and external nature of self-efficacy. We contend that increasing consumer external self-efficacy can be proven fruitful, given that it will reinstate the accuracy of AI-based services. We also suggest future research to explore factors such as family income and education, given their relationship with self-efficacy. It will also enhance the scope for personalized intervention.

4. References

1. Achar, C., Agrawal, N., & Hsieh, M.-H. (2020). Fear of Detection and Efficacy of Prevention: Using Construal Level to Encourage Health Behaviors. Journal of Marketing Research, 57(3), 582–598. https://doi.org/10.1177/0022243720912443
2. Aeron, S., & Rahman, Z. (2023). Discrete emotions effect on consumer evaluation and behaviour: A contextual perspective and directions for future research. Journal of Consumer Behaviour. https://doi.org/10.1002/cb.2243
3. Bandura, A. (1986), Social Foundations of Thought and Action, Prentice-Hall, Engelwood Cliffs, NJ.
4. Bagozzi, R. P., Gopinath, M., & Nyer, P. U. (1999). The Role of Emotions in Marketing. Journal of the Academy of Marketing Science, 27(2), 184–206. https://doi.org/10.1177/0092070399272005
5. Ben-Ami, M., Hornik, J., Eden, D., & Kaplan, O. (2014). Boosting consumers' self-efficacy by repositioning the self. European Journal of Marketing, 48(11/12), 1914–1938. https://doi.org/10.1108/EJM-09-2010-0502
6. Bettiga, D., & Lamberti, L. (2018). Exploring the role of anticipated emotions in product adoption and usage. Journal of Consumer Marketing, 35(3), 300–316. https://doi.org/10.1108/JCM-06-2016-1860/FULL/PDF
7. Chen, G., Gully, S. M., & Eden, D. (2001). Validation of a New General Self-Efficacy Scale. Organizational Research Methods, 4(1), 62–83. https://doi.org/10.1177/109442810141004
8. Eden, D., Ganzach, Y., Flumin-Granat, R., & Zigman, T. (2008). Augmenting Means Efficacy to Boost Performance: Two Field Experiments. Https://Doi.Org/10.1177/0149206308321553, 36(3), 687–713. https://doi.org/10.1177/0149206308321553
9. Ellsworth, P. C., & Smith, C. A. (1988). From appraisal to emotion: Differences among unpleasant feelings. Motivation and Emotion, 12(3), 271–302. https://doi.org/10.1007/BF00993115
10. Hamilton, R. (2016). Consumer-based strategy: using multiple methods to generate consumer insights that inform strategy. Journal of the Academy of Marketing Science, 44(3), 281–285. https://doi.org/10.1007/s11747-016-0476-7
11. Han, S., Lerner, J. S., & Keltner, D. (2007). Feelings and Consumer Decision Making: The Appraisal-Tendency Framework. Journal of Consumer Psychology, 17(3), 158–168. https://doi.org/10.1016/S1057-7408(07)70023-2
12. Judge, T.A., Erez, A. and Bono, J.A. (1998), "The power of being positive: the relation between positive self-concept and job performance", Human Performance, Vol. 11 No. 2, pp. 167-187
13. Keller, P. A., & Block, L. G. (1996). Increasing the Persuasiveness of Fear Appeals: The Effect of Arousal and Elaboration. Journal of Consumer Research, 22(4), 448. https://doi.org/10.1086/209461
14. Kemper, T. D., & Lazarus, R. S. (1992). Emotion and Adaptation. Contemporary Sociology, 21(4), 522. https://doi.org/10.2307/2075902
15. Labroo, A. A., & Rucker, D. D. (2010). The Orientation-Matching Hypothesis: An Emotion-Specificity Approach to Affect Regulation. Journal of Marketing Research, 47(5), 955–966. https://doi.org/10.1509/jmkr.47.5.955
16. Lerner, J. S., Li, Y., Valdesolo, P., & Kassam, K. S. (2015). Emotion and Decision Making. Annual Review of Psychology, 66(1), 799–823. https://doi.org/10.1146/annurev-psych-010213-115043
17. Lin, Y.-T., MacInnis, D. J., & Eisingerich, A. B. (2020). Strong Anxiety Boosts New Product Adoption When Hope Is Also Strong. Journal of Marketing, 84(5), 60–78. https://doi.org/10.1177/0022242920934495
18. Luszczynska, A., Gutiérrez-Doña, B., & Schwarzer, R. (2005). General self-efficacy in various domains of human functioning: Evidence from five countries. International Journal of Psychology, 40(2), 80–89. https://doi.org/10.1080/00207590444000041
19. Passyn, K., & Sujan, M. (2006). Self-Accountability Emotions and Fear Appeals: Motivating Behavior. Journal of Consumer Research, 32(4), 583–589. https://doi.org/10.1086/500488
20. Shih, E., & Schau, H. J. (2011). To Justify or Not to Justify: The Role of Anticipated Regret on Consumers' Decisions to Upgrade Technological Innovations. Journal of Retailing, 87(2), 242–251. https://doi.org/10.1016/j.jretai.2011.01.006
21. Valor, C., Antonetti, P., & Crisafulli, B. (2022). Emotions and consumers' adoption of innovations: An integrative review and research agenda. Technological Forecasting and Social Change, 179, 121609. https://doi.org/10.1016/J.TECHFORE.2022.121609
22. Wood, S. L., & Moreau, C. P. (2006). From Fear to Loathing? How Emotion Influences the Evaluation and Early Use of Innovations. Journal of Marketing, 70(3), 44–57. https://doi.org/10.1509/jmkg.70.3.044

5. Appendix

Description For AI-Based Service

Experience personalized, efficient, and accessible financial advice with our ai-guided financial service AI-Fin. Our App provides real-time insights tailored to your financial goals and preferences. We provide a cost-effective financial advising platform. Join us and step into the future of finance.

Disclaimer: We use an automatic plan generator based on the data provided by the consumer. It may lead to oversights, and

users are responsible for their actions taken based on the information provided in the App. While efforts are made to keep plans accurate and updated, there's no guarantee of the accuracy, completeness or returns on the information provided.

Fear Manipulation
Low Fear: AI-fin has been a great experience; it has helped me reach my goal.
High-Fear: AI-Fin is not unto Mark; I have lost my money. Its automation has many oversights.

SSE Manipulation
High SSE: That's great! Your results show a strong level of persistence and self-discipline. This suggests that you are likely to excel in tasks that require a high degree of persistence.
Control: Thank you. Your answers were coded and stored in our database.