

A Study on Evolution of Models Measuring Entrepreneurial Intention

Neha Taneja Chawla* and Hitesh Bhatia

School of Business and Law, Navrachana University, Vasna-Bhayli Road, Vadodara-391410, Gujarat, India

Received: 9 February 2021 Revised: 23 March 2021 Accepted: 6 April 2021 Published: 10 May 2021

*Corresponding Author: nehac@nuv.ac.in

Abstract

Over the years, the studies in the domain on Entrepreneurship have evolved from discussing traits and demographic variables to intentions in determining entrepreneurial behaviour. The current study focuses on evolution of entrepreneurial intention as the closest predictor of entrepreneurial behaviour. The various entrepreneurial intention models are discussed and their antecedents are compared and contrasted. The systematic appraisal of all entrepreneurial intention models revealed that entrepreneurial self-efficacy is the best pre-dominant construct influencing entrepreneurial intention. The construct is ubiquitous in the majority of the models proposing the need for a scientific tool for measuring self-efficacy for the appropriate measure of entrepreneurial behaviour.

Keywords

Entrepreneurship, Entrepreneurial behaviour, Entrepreneurial intention, Self-efficacy

Introduction

The positive impact of entrepreneurship on generating employment, fostering growth, and providing an innovative solution to crucial problems of the economy has drawn the interest of the government in promoting entrepreneurship aggressively. This is mirrored by varied initiatives and schemes of government to foster entrepreneurship like the Start-up India initiative, Atal Innovation Mission, Student Start-up and Innovation Policy, and many more. New Education policy also emphasizes exposing the students to entrepreneurship as a major

career options. Most of the universities across the country are offering compulsory or elective courses on Entrepreneurship. Also, government-aided, as well as private incubators across the nation are promoting and nurturing new ideas and businesses. Currently, India is considered the third-largest start-up ecosystem in the world with more than 55000 start-ups, this is expected to surge to more than 100000 start-ups by 2025¹.

The conclusive success of entrepreneurship initiatives can be appraised through new venture creation, but these initiatives may not lead to immediate venture creation. This has encouraged the academic interest in understanding the pre-determinants of entrepreneurial decisions and actions. The following sections of the paper deliberate and debates the antecedents of entrepreneurial actions used for measuring entrepreneurial behaviour over the years.

The major advancement in Measuring Entrepreneurial Behaviour

The early literature of the 19th and 20th centuries advocates that the decision of pursuing entrepreneurship is primarily dependent on the traits of the individuals. Individuals possessing certain traits like the need for achievement^{2,3}; risk-taking capability^{2,4}; internal locus of control^{4,5}; tolerance of ambiguity³; pro-activeness⁶ etc. are expected to exhibit the entrepreneurial behavior.

Another set of studies focuses on demographic factors like gender, age, family background, education, prior experience^{6,7,8} as the major contributors to the entrepreneurial choice of the individuals. However, largely it is agreed that entrepreneurial behavior is much more complex to be simply predicted with demographic variables like age, gender, family background, etc.⁹. Both, personality theory and demography served as the major approaches in the study of entrepreneurship decision making for a long time.

In 1989, Gartner strongly suggested that the focus of entrepreneurship research should shift from entrepreneurial traits to organizational emergence¹⁰. The personality traits approach for measuring entrepreneurship quotient was not developed specifically for the field of entrepreneurship but rather was borrowed from psychology. Researchers also found that most of the traits considered in entrepreneurship research, were common to any successful person, not necessarily an entrepreneur, and proclaimed that mere presence of these traits cannot be considered as determinants to choosing an entrepreneurial career^{9,10,11,12,13}. The shortcomings

of personality and demographic approaches in predicting entrepreneurial behaviour stimulated the need for developing new paradigms to predict entrepreneurial behaviour. As a consequence, entrepreneurial intention emerged as the alternative approach for measuring entrepreneurial behaviour. This approach had the capability for considering new constructs for measuring entrepreneurial behaviour and at the same time also incorporating the important and relevant personal characteristics.

Barbara Bird in 1988 proposed that entrepreneurial intention strongly determines the action of the entrepreneur towards new venture creation even to the extent of subsequent organizational outcomes like survival, development, growth, and changes¹⁴. Intentions depend upon the situation as well as the person and hence can be a better predictor of behavior as compared to person or situation individually. Intentions are considered to be the best predictor of any planned behavior and as entrepreneurship is a planned behavior, various studies consequently found intention as a major determinant of entrepreneurial behavior^{12,15,16,17}. Intention refers to the state of mind directing a person's attention, action, and experience towards a specific goal to achieve some means. The intention is a function of belief that forms the attitude and finally determines behavior as suggested by Fishbein & Ajzen in 1975 in their Theory of Reasoned Action¹⁸. Their theory suggests the following linear path of beliefs transforming to actions:

Beliefs → Attitudes → Intentions → Behavior

Following the significance of entrepreneurial intention in predicting entrepreneurial behaviour, various intention models have been proposed since the late 20th century. The next section of the paper deliberates on these intention models.

Discussion and comparison of Entrepreneurial Intention Models

Some of the notable intention-based models in the literature are Social Learning Theory, Self-efficacy Theory, Sokol's model of the entrepreneurial event (SEE), Bird's Intention model, Ajzen's Theory of Planned Behaviour (TPB), Entrepreneurial Potential Model, Entrepreneurial Intention Model, etc. The following section discusses the evolution of intention models applied for measuring entrepreneurial intention over the years.

i. Social Learning Theory (1977):

The social learning proposes that the behavior is roughly planned before it is performed. It suggests psychological functioning as the interplay of inner forces and controlling behavior.

Accordingly, human behavior is a combination of stimulus, cognitive skills, and reinforcement control. Behavioral patterns of the people are formed as a result of learning from direct experiences as well as learning from observing the behavior of other people (modelling). The cognitive skills of an individual determine what he/she learns from his own experience and experiences of others and how it influences his/her future actions. Reinforcement also plays a critical role in forming the behavior of an individual. People tend to discard the actions which are unrewarding and frequently perform those which are positively rewarded. There is a continuous interaction between the behavior and the three controlling factors of behavior i.e. stimulus, cognitive skills, and reinforcement that determine the actions of an individual¹⁹.

ii. Self-efficacy Theory (1977):

As an extension to Social Learning Theory which proposed that cognitive processes are primarily responsible for the acquisition and retention of new behavior, Self-efficacy theory elaborated on these cognitive processes. According to it, the two cognitive activities that predominantly motivate an individual to behave in a particular manner include the cognitive ability to foresee the rewarding or punishing outcome of the current behavior (outcome expectancy) and self-evaluation of an individual to be able to perform a particular behavior (self-efficacy).

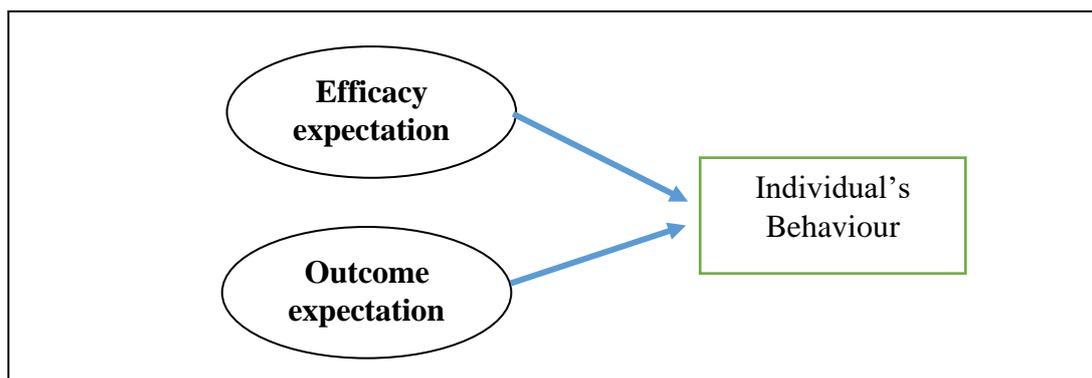


Figure 1: Self-Efficacy Theory²⁰

According to this theory, self-efficacy is the primary influencer of the behavior of an individual. It not only determines the choice of activity, but also the amount of effort and their persistence in the difficult situation faced during performing the selected action.

Self-efficacy theory states that the level and strength of self-efficacy can be enhanced through psychological procedures.

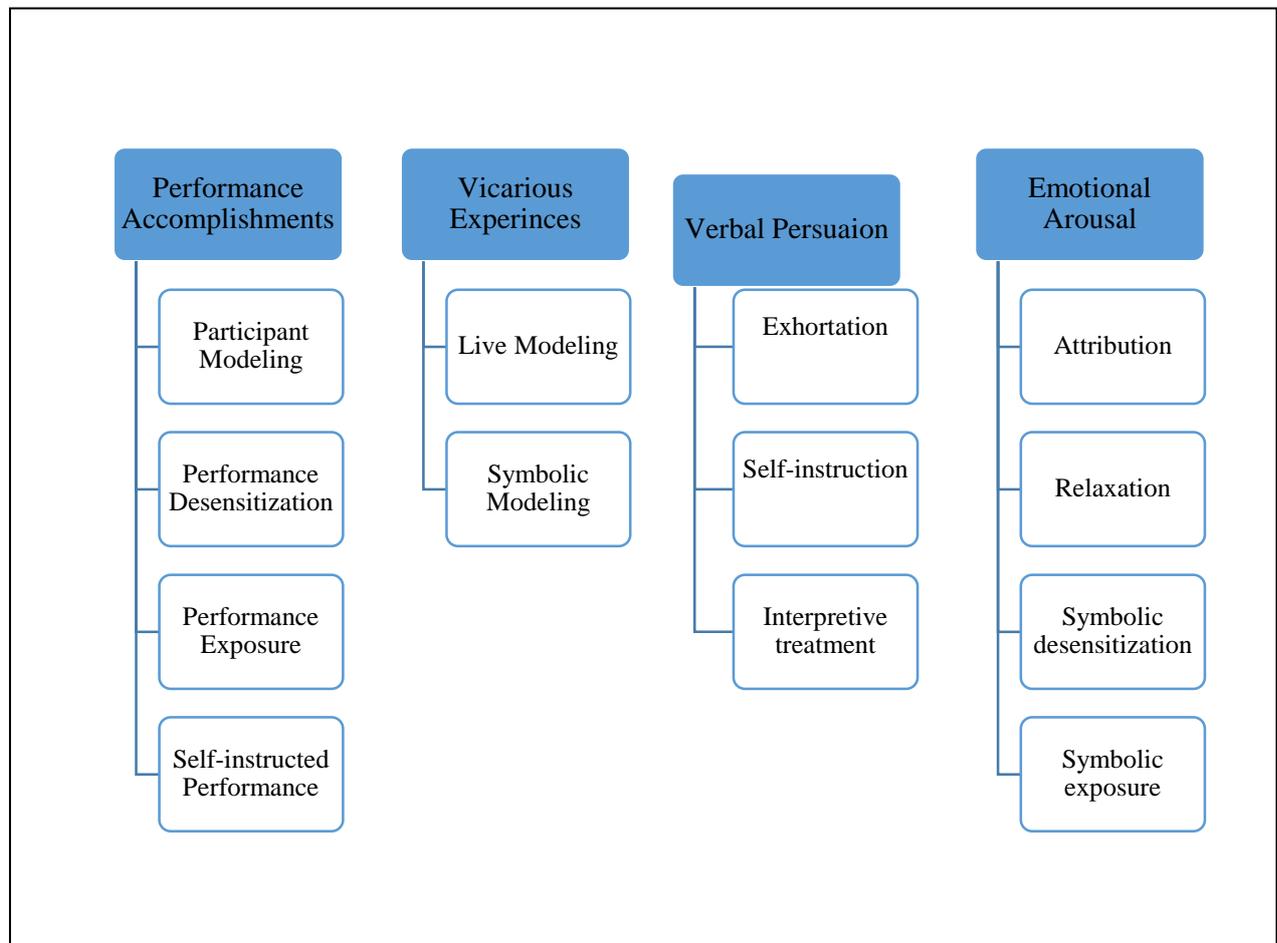


Figure 2: Sources of Self-Efficacy²⁰

The theory proposes four cues i.e. performance accomplishments, vicarious experience, verbal persuasion, and physiological states are the major determinants of self-efficacy²⁰. Figure 2 provides the diagrammatic representation of four main sources of self-efficacy and their sub-components.

iii. Shapero's Entrepreneurial Event (SEE) Theory (1982)

SEE theory proposed by Shapero & Sokol in 1982, is considered to be the first model that specifically focuses on entrepreneurial intention and behavior²¹. According to this theory, entrepreneurial intention is a function of perceived feasibility, personal desirability, and propensity to act. It gives significant importance to the perception of the individual towards attractiveness (perceived desirability) and towards his/her capability of starting a venture(perceived feasibility). Of the three factors contributing to the intention, perceived feasibility has been found to have the highest predicting power. Perceived feasibility and perceived desirability in turn is influenced by prior entrepreneurial experience. Krueger empirically tested the SEE model and even examined the different path models including the direct impact of prior exposure on entrepreneurial intention. It was found a significant impact of prior experience on intention is mediated through perceived feasibility as suggested by SEE and positive prior experience also influence intention by impacting perceived desirability²².

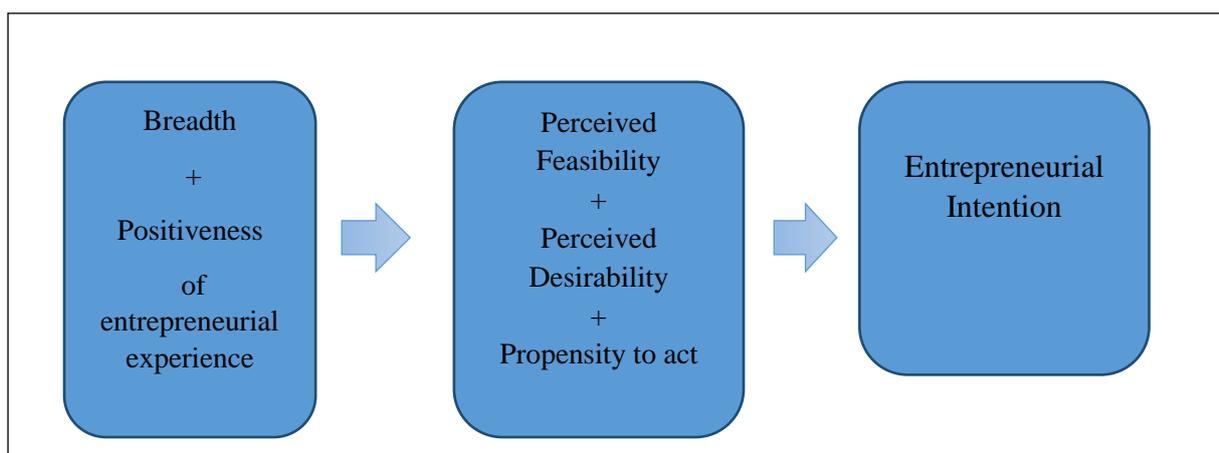


Figure 3: Shapero-Sokol Model of Entrepreneurial Event²¹

iv. Theory of Planned Behavior (1985)

The theory of planned behavior proposed by Ajzen is an extension of the Theory of Reasoned Action. It proposes that the intention is formed based on attitude towards behavior, subjective norms, and perceived behavioral control. Attitude refers to the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behavior in question. Subjective norm refers to the perceived social pressure to perform or not to perform the behavior and whether people will approve of the particular behavior. Perceived behavioral control refers to

the perceived ease or difficulty of performing the behavior based on the experience, anticipated future obstacles, availability of plan of action, and general self-knowledge²³. Perceived behavioral control is almost synonymous with the concept of self-efficacy proposed by Bandura in 1977. It also empirically established the relationship between perceived control and behavioral performance. A study based on the Theory of Planned Behavior by Ajzenin 1991 advocated the predictive ability of perceived behavioral control along with the intention towards the behavior of an individual²⁴.

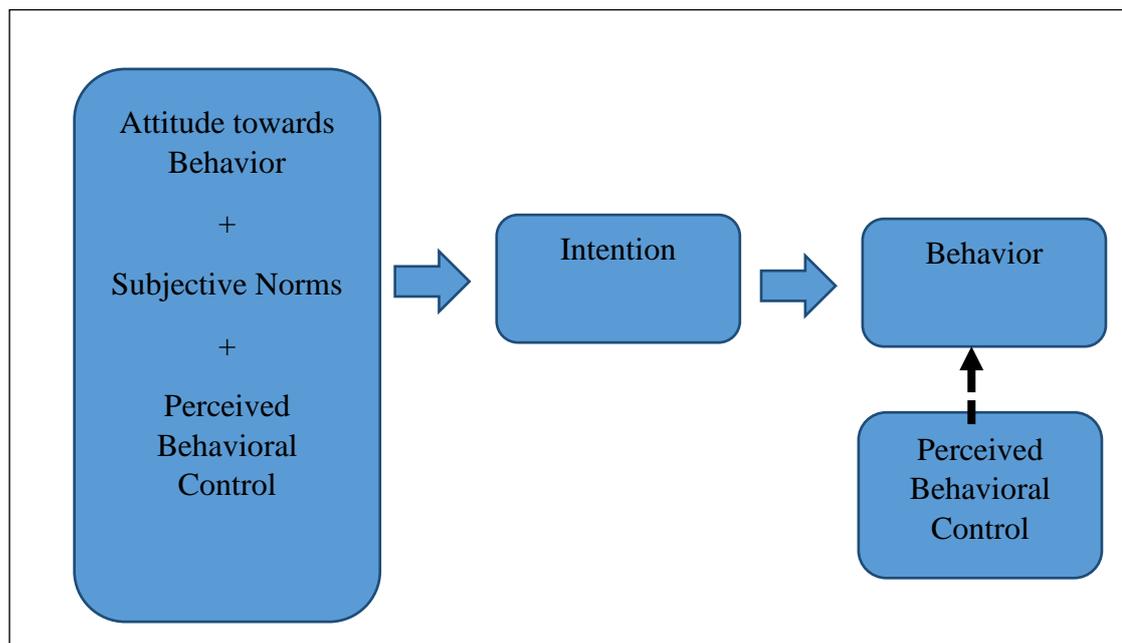


Figure 4: Theory of Planned Behavior²³

v. Bird's Entrepreneurial Intention Model (1988)

Entrepreneurial intention directs the person towards creating a new venture or creating new ideas within the existing venture. Bird in 1988 proposed a framework of Entrepreneurial Intention as interplay rational and intuitive thinking derived from personal and social context (illustrated in Figure 5). The personal factors include prior experience, personality characteristics like locus of control, and abilities like promoting ideas whereas contextual factors affecting the intention include social, economic, and political factors like government regulation, economic scenario, etc. The rational thinking of an individual is framed based upon factors like resource availability, idea feasibility, opportunity analysis whereas intuitive and holistic thinking is influenced by gut feeling and a hunch about the potential of the idea¹⁴.

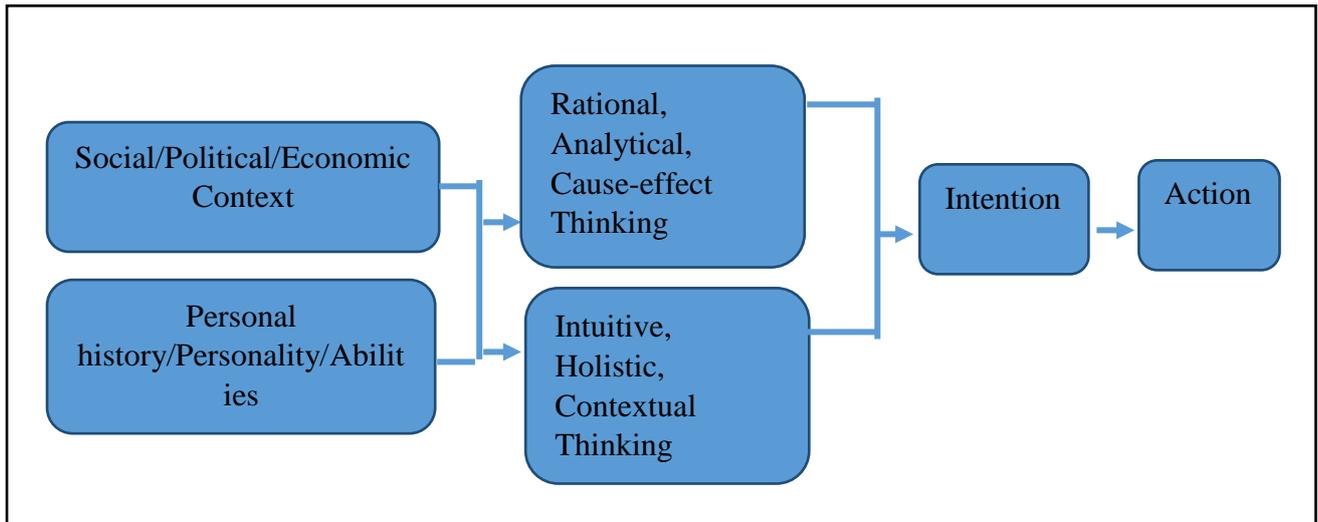


Figure 5: The contexts of intentionality¹⁴

v. Entrepreneurship Attitude Orientation (EAO) Model (1991)

Robinson, Stimpson, Huefner & Hunt also proposed a model to predict entrepreneurial behavior beyond demographics and personality traits⁹. Their EAO model recommended four attitude sub-scales based on their wide-spread and repeated reference in studies about entrepreneurship to distinguish entrepreneurs from non-entrepreneurs. The subscales of the proposed model included achievement in business, business innovation, perceived personal control of the business outcome, and perceived self-esteem in business.

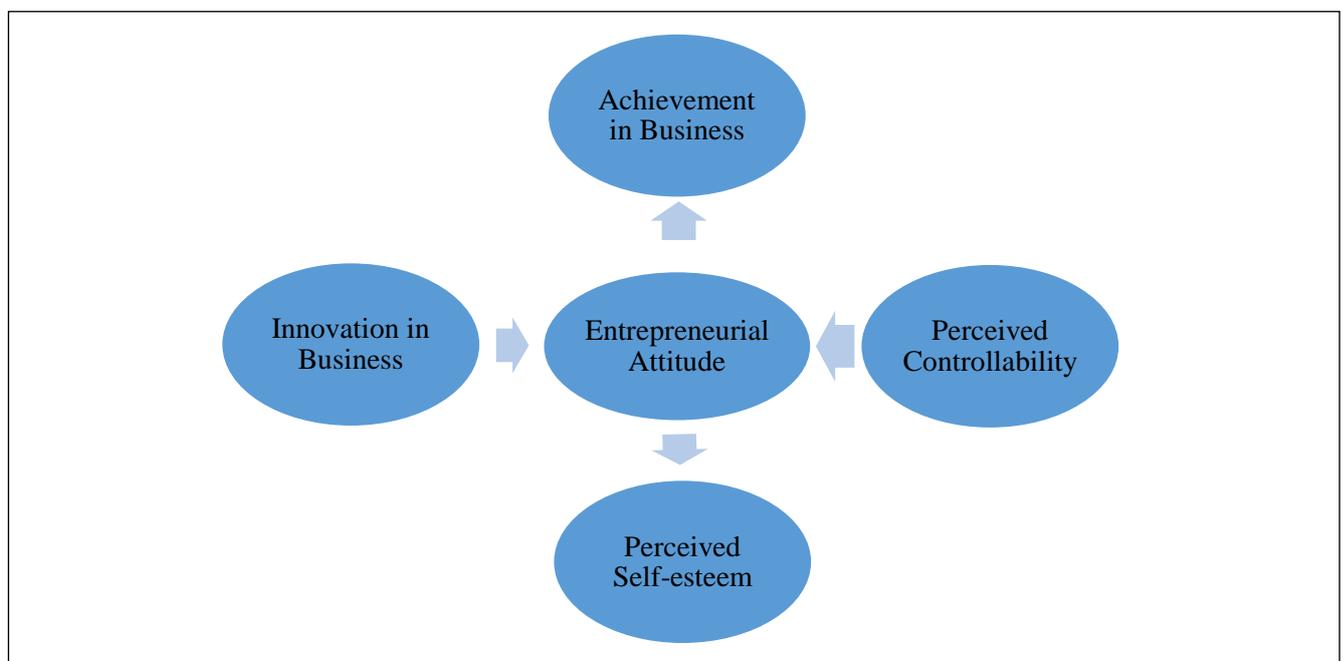


Figure 6: Entrepreneurship Attitude Orientation (EAO) Model⁹

Each of the four attitudinal subscales was measured on three aspects of attitude- cognitive, affect, and conation for entrepreneurs as well as non-entrepreneurs. The construct of perceived personal control refers to the perception of control over one's business and perceived self-esteem pertains to one's confidence and perception about being competent in conjunction with the needs of the business. The results indicated significant differences in the attitude of entrepreneurs' vs non-entrepreneurs on each of the four subscales of attitude validating the significance of EAO. The model is relevant and validated empirically in various consequent studies^{25,26,27}.

vi. Modified Bird's Model of Entrepreneurial Intention (1994)

Boyd & Vozikis in 1994 proposed that self-efficacy is an important explanatory variable in determining entrepreneurial intention and hence should be integrated into Bird's model of entrepreneurial intention²⁸. The significance of self-efficacy in determining the intention was also advocated earlier in Ajzen's Theory of Planned behavior in the form of perceived behavioral control and Shapero and Sokol's SEE theory as Perceived desirability. The self-efficacy was integrated into Bird's model at two levels; as the precursor to the intention and also as a moderating variable between entrepreneurial intention and entrepreneurial action (illustrated in Figure 7).

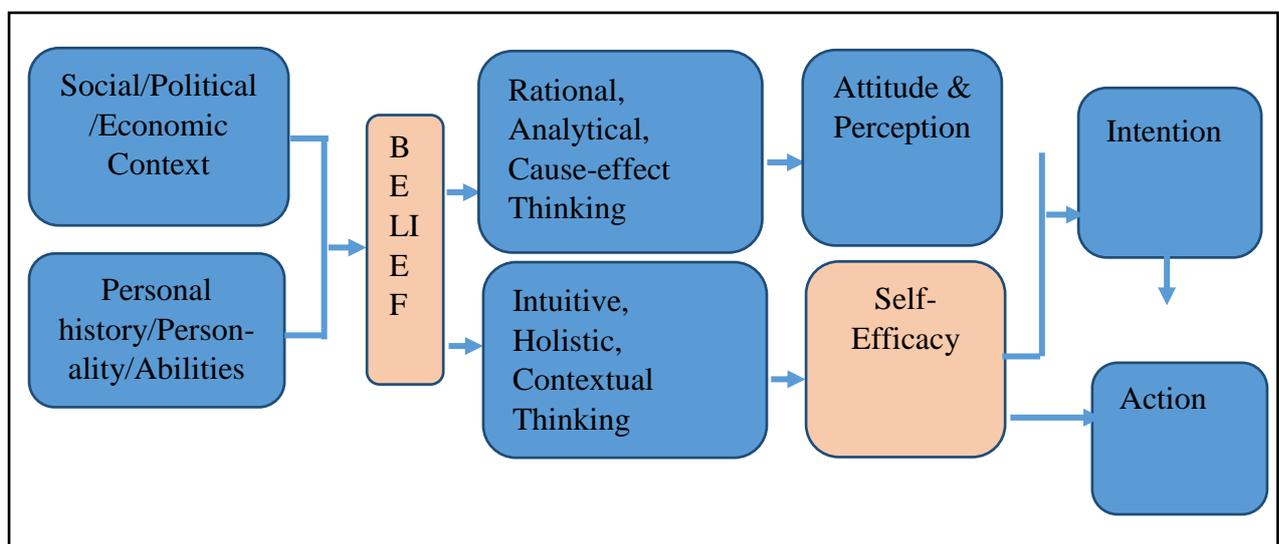


Figure 7: A revised model of Bird's (1988) Contexts of Intentionality²⁸

The model suggests that an individual select only those activities and setting which he/she assumes to be capable of based on self-judgment. The model also proposes that not every entrepreneurial intention results in entrepreneurial action. Only when an individual's self-efficacy for the tasks required for entrepreneurial action is high, entrepreneurial intention results in action.

vii. Entrepreneurial Potential Model (1994)

Krueger and Brazeal in 1994 proposed Entrepreneurial Potential model (EPM) which suggests that the potential of the entrepreneur precedes entrepreneurial intention. The preparedness or potential of the entrepreneur, in turn, is determined by the constructs proposed in SEE i.e. perceived feasibility, perceived desirability, and propensity to act. It further advocated the robustness of Shapero's model and regarded feasibility perceptions (self-efficacy) as the major contributor to explaining intention²⁹. The model was empirically validated by various researchers^{30,31,32}.

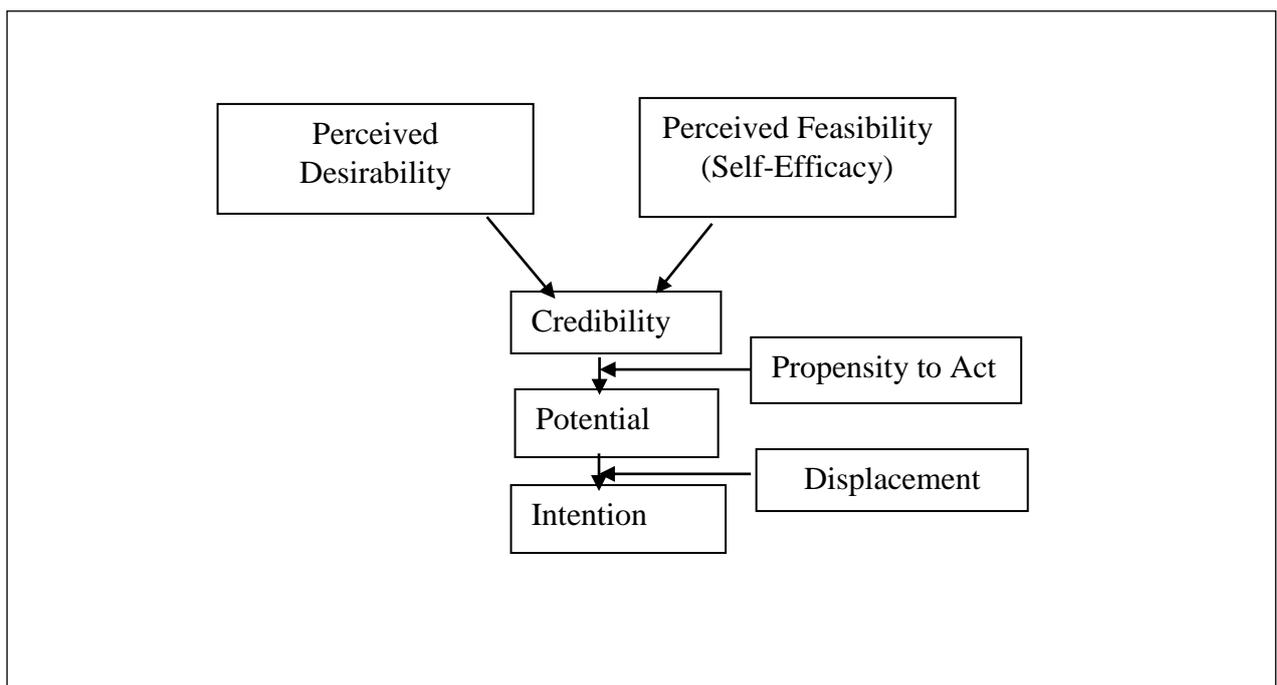


Figure 8: Entrepreneurial Potential Model²⁹

viii. Davidsson Model (1995)

Another model for measuring entrepreneurial intention was proposed by Davidsson in 1995³³. It was considered as the latest model for measuring entrepreneurial intention till 2008³¹. Davidsson's model takes into account psycho-economic factors determining entrepreneurial intention. He integrated the already existing determinants from the various theories and models like SEE, TPB, Bird's intention model, Entrepreneurial Potential model and other studies encompassing cultural and structural influences into a single model. According to this model entrepreneurial intention is determined by conviction and situation (i.e. current employment status). Conviction in turn is determined by general attitude (willingness to change, competitiveness, achievement motivation, and need for autonomy) and domain attitude (expected pay off, societal contribution, and perceived know-how). The general and domain attitude are also influenced by personal factors like age, gender, education background, vicarious experience, and radical change experience. Empirical testing of the model revealed the direct or indirect influence of all the variables included in the model but the conviction was found to be the highest influencing variable. Conviction is similar to the concept of self-efficacy proposed by Albert Bandurain 1982³⁴.

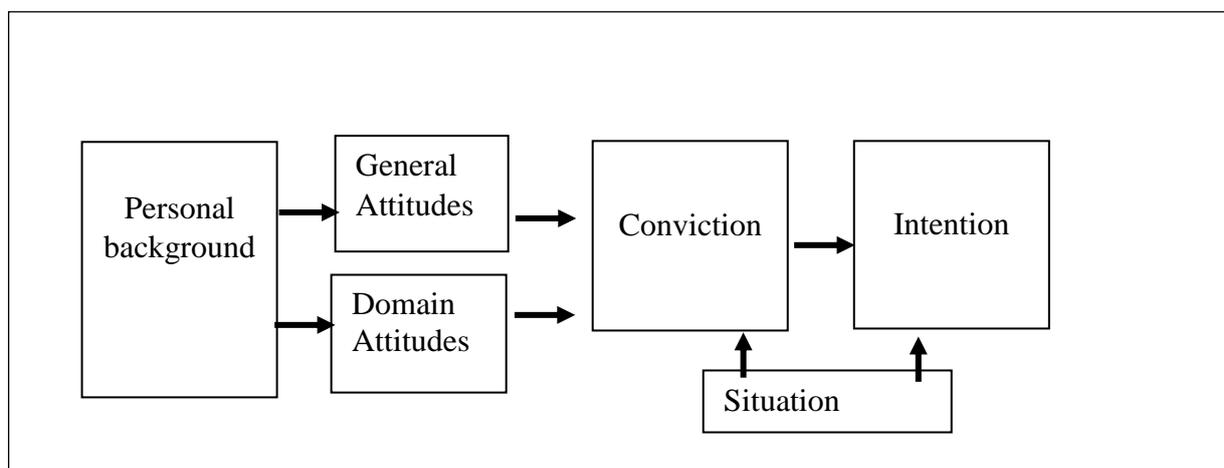


Figure 9: Davidsson Model³³

ix. Entrepreneurial Intention Model-EIM (2000)

Segal, Borgia & Schoenfeld in 2000 proposed another integrated model for predicting and measuring the entrepreneurial intention based upon the Shapero-Krueger framework and

other economics-based models of entrepreneurial intention. According to this model, the perceived desirability of pursuing entrepreneurship would be based on one's perception of higher valuable outcomes of pursuing entrepreneurship as compared to working for others. The net perceived advantage of self-employment over working for others designated as Perceived Net Desirability of self-employment would be one of the determinants of entrepreneurial intention. Another important modification in the model proposed by them was based on the rationale that an individual's propensity to act entrepreneurially will be highly dependent on his/her willingness to take calculated risks³⁵. Figure 12 represents the EIM

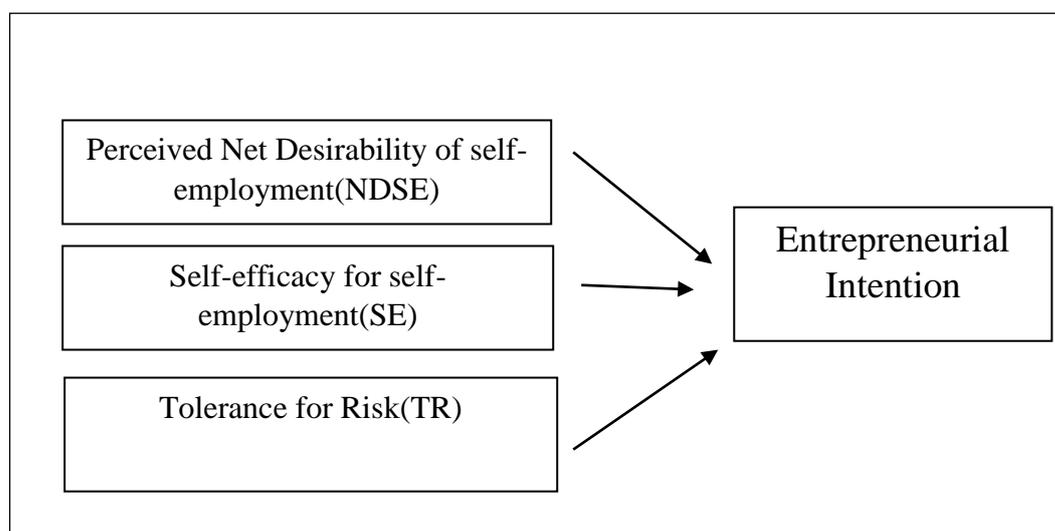


Figure 10: Entrepreneurial Intention Model³⁵

x. Extended Models

a) Extension of Systemic Entrepreneurship Intention Model-SEIM-(2019)

Díez-Echavarría, Valencia, Bermúdez-Hernández, Orlando, Lucelly & Adolfo in 2019 proposed an extension of EIM including new constructs for determining entrepreneurial intention. The proposed model suggested additional constructs of entrepreneurial behavior and personal attitude to be incorporated along with the existing determinants³⁶.

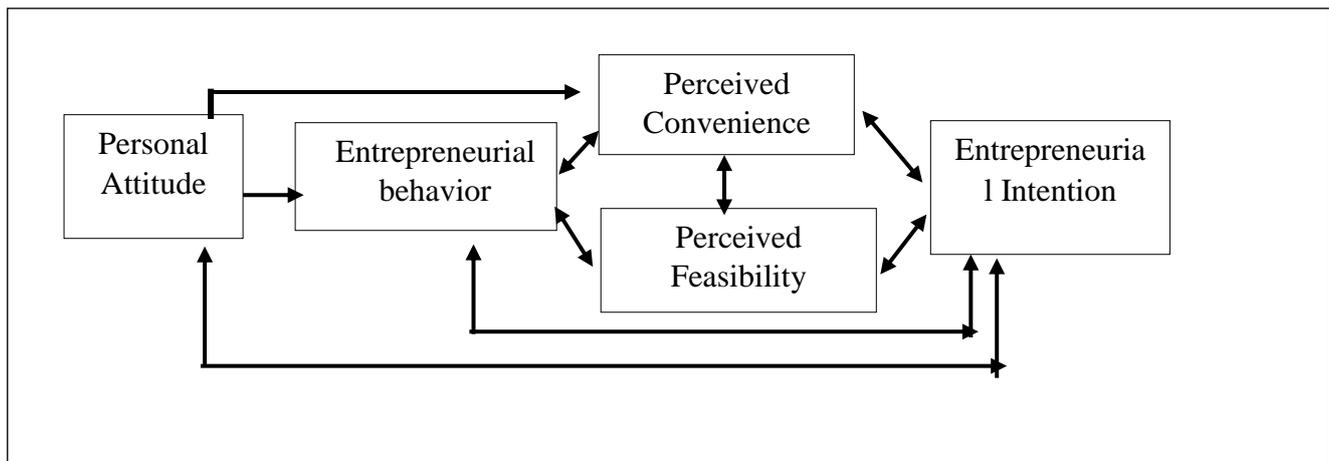


Figure 11: Extension of Systemic Entrepreneurship Intention Model-SEIM-(2019)

b) Hierarchical Model of Perceived Behavioral Control (2002)

Ajzen in 2002 further elaborated on the construct of perceived behavioral control and created a Hierarchical Model of Perceived Behavioral Control. Perceived behavioral control, comprises self-efficacy and controllability. Both are distinguished in the manner that self-efficacy is ease or difficulty in performing a particular action whereas controllability is the extent to which performance of particular action is within the control of an individual. The model also proposed that both self-efficacy and controllability are influenced by factors internal to an individual as well as external factors and some of these factors may overlap in influencing both self-efficacy and controllability³⁷.

Findings

As intention models are found to demonstrate high predictive ability of consequent entrepreneurial behavior, the entrepreneurial intention and its antecedents appear to be most relevant measures for examining the entrepreneurial behavior of an individual since the actual behavior is a long term phenomenon and hence difficult to observe considering the time-frame of most of the research works.

Various empirical studies have also demonstrated the significant contribution of different variables included across these models in predicting entrepreneurial intention as well as entrepreneurial actions. Souitaris, Zerbinati & Al-Lahamin their study on entrepreneurial intention using TPB found positive correlation of all the three antecedents in the model i.e.

attitude($r=0.42$), subjective norms ($r=0.53$) and perceived behavioural control($r=0.39$) with entrepreneurial intention³⁸. Another study establishing the significance of Entrepreneurial Potential Model found statistically significant relationship of entrepreneurial intention with perceived desirability and feasibility at 99% confidence level³¹. Sanchez in their study on entrepreneurial competency and intention of students in Spain observed positive correlation between like self-efficacy ($r=0.44$), pro-activeness($r=0.4$) and risk($r=0.27$) with entrepreneurial intention³⁹. Kolvereid in his study on Norwegian students found strong correlation ($r=0.598, 0.452, 0.6$) between self-efficacy, attitude and subjective norm with entrepreneurial intention respectively. Moreover, the influence of demographic variables on self-employment choice was also mediated through attitude, subjective norms and perceived self-efficacy¹⁵. Krueger, Reilly & Carsrud also advocated that the influence of personal and situational factors is mediated through antecedents of entrepreneurial intention rather than directly influencing entrepreneurial intention thereby proposing the significance of studying antecedents of entrepreneurial intention¹².

Table-1 summarizes various antecedents of different entrepreneurial intention models discussed in the previous section to identify the most commonly occurring variables across all models.

Table 1: Comparison of antecedents of entrepreneurial intention in various Entrepreneurial Intention Models

S.No	Author	Year	Model	Variables Included										
				Perceived Feasibility	Perceived Desirability	Attitude	Social Norms	Propensity to Act	Outcome expectation	Perceived Controllability	Personal, Economic, Political Factors	Rational and Intuitive Thinking	Other factors	
1	Albert Bandura	1977	Self-efficacy Theory	Efficacy expectation						Outcome expectation				
2	Shapero and Sokol	1982	Shapero Entrepreneurial Event	Perceived Feasibility	Perceived Desirability			Propensity to Act				Prior Entrepreneurial Experience		
3	Ajzen	1985	Theory of Planned Behavior	Perceived behavioral control		Attitude	Social Norms							
4	Bird	1988	Bird's Entrepreneurial Intention Model				Social Factors					Personal, Economic, Political Factors	Rational and Intuitive Thinking	
5	Boyd & Vozikis	1994	Revised Model of Bird's Entrepreneurial Intentionality	Self-efficacy		Attitude	Social Factors					Personal, Economic, Political Factors	Rational and Intuitive Thinking	
6	Robinson, Stimpson, Huefner & Hunt	1991	Entrepreneurial Attitude Orientation	Perceived self-esteem		Attitude					Perceived Controllability	Achievement in business		Innovation in Business
7	Krueger & Brazeal	1994	Entrepreneurial Potential Model	Perceived Feasibility	Perceived Desirability		Social Norms	Propensity to Act				Precipitating Event		

8	Davidsson	1995	Davidsson Model			General and Domain attitude					Age, Experience, Education, Gender		
9	Segal, Borgia & Schoenfeld	2000	Entrepreneur Intention Model	Self-efficacy	Perceived Net Desirability						Tolerance for Risk		
10	Ajzen	2002	Hierarchical Model of Perceived Behavioral Control	Perceived Self-efficacy			Social Factors			Perceived Controllability			
11	Ajzen	2019	Extension of Systemic Entrepreneurship Intention Model (SEIM)	Perceived feasibility	Perceived convenience	Personal Attitude					Risk Tolerance		Entrepreneurial Behavior

The different precursors of entrepreneurial intention as can be identified from Table-1 are:

- | | |
|--|------------------------------------|
| i. Perceived feasibility | ix. Risk Tolerance |
| ii. Perceived desirability | x. Rational and Intuitive thinking |
| iii. Social Norms/factors | xi. Innovation in business |
| iv. Perceived controllability | xii. Economic factors |
| v. Attitude | xiii. Political factors |
| vi. Outcome Expectations | xiv. Entrepreneurial behavior |
| vii. Personal factors(Demographic) | xv. Entrepreneurial potential |
| viii. Prior entrepreneurial experience | |

Among all the antecedents of entrepreneurial intention, entrepreneurial self-efficacy is common across most of the entrepreneurial intention models. It is found to not only directly impact entrepreneurial intention but also moderate the impact of other variables like personal, economic, and political factors on entrepreneurial intention. Krueger, Reilly & Carsud in their empirical study validating the significance of competing models of entrepreneurial intention particularly TPB and SEE, also found that all antecedents were significantly related to entrepreneurial intentions but the entrepreneurial self-efficacy had stronger influence on entrepreneurial intention ($p < 0.005$)¹². In another study by Hattab on the Egyptian students, regression analysis revealed that 95% of variation in entrepreneurial intention is attributed by self-efficacy and perceived desirability⁴⁰. Literature suggests that self-efficacy do not only influence the choice of activity but also the effort one puts in any activity as well as the performance. A meta-analysis of 114 studies on self-efficacy by Stajkovic and Luthans found a significant weighted average correlation with r value of 0.38, between self-efficacy and work-related performance⁴¹.

Research Gaps:

To propose a robust model predicting entrepreneurial behaviour, none of the existing research has considered all the constructs derived from various intention models in a single study. A comprehensive model measuring the contribution of all the identified antecedents on entrepreneurial intention will help in establishing the relative significance of each of the precursors of entrepreneurial intention. Further, all the entrepreneurial intention models are

developed in the western context, their application to studies about entrepreneurial intention in India and other developing countries may establish its validity further.

Conclusion:

The comparison of various models for measuring entrepreneurial intention suggests that perceived self-efficacy is the most pre-dominantly occurring antecedent of entrepreneurial intention in most of the intention models.

Various other studies have also empirically established that self-efficacy plays the most critical role in influencing the entrepreneurial intention^{12,15,17,29,33, 35,42,43,44,45,46,47,48,49,50}. Zhao, Seibert, and Hills evaluated various models for the prediction of entrepreneurial intention found that the impact of all factors on entrepreneurial intention is fully mediated through self-efficacy. The models proposing the direct influence of education, risk propensity, and gender on the entrepreneurial intention were empirically disproved⁵¹. High entrepreneurial self-efficacy on the other hand was found to increase the perception of venture feasibility and opportunity¹² thereby not only directing entrepreneurial behavior but also influencing venture growth and success⁵².

As perceived entrepreneurial self-efficacy has emerged as the most critical construct for determining entrepreneurial intention and entrepreneurial behaviour, and appropriate measurement of entrepreneurial self-efficacy can play a determining role in entrepreneurial studies. The impact of various interventions for enhancing and promoting entrepreneurial behaviour can be measured through observing the change in entrepreneurial self-efficacy.

Future Direction:

As the research highlights the significance of entrepreneurial self-efficacy in predicting entrepreneurial behaviour, a robust instrument for measuring self-efficacy would play a critical role in the entrepreneurship research domain. The existing instruments of entrepreneurial self-efficacy may be reviewed to analyze the advancement of research in that area and the need for further refinement and adaption of self-efficacy instruments.

References:

1. Singh, S. (2020) *Presenting the State of Indian Startup Ecosystem Report 2020*. Inc42. <https://inc42.com/datalab/presenting-the-state-of-indian-startup-ecosystem-report-2020/>
2. McClelland, D. C, & Mac Clelland, D. C. (1961). *Achieving society* (Vol. 92051). Simon and Schuster.
3. Hornaday, J. A, & Aboud, J. (1971). Characteristics of successful entrepreneurs. *Personnel psychology*, 24 (2), 141–153. <https://doi.org/10.1111/j.1744-6570.1971.tb02469.x>
4. Timmons, J. A. (1978). Characteristics and role demands of entrepreneurship. *American Journal of Small Business*, 3(1), 5–17.
5. Borland, C. M. (1975). *Locus of control, need for achievement and entrepreneurship* [Doctoral dissertation, University of Texas]. ProQuest Information & Learning.
6. Crant, J. (1996). The Proactive Personality Scale as a Predictor of Entrepreneurial Intention. *Journal of Small Business Management*, 34(3),42-49.
7. Reynolds, P. (1997). Who Starts New Firms? – Preliminary Explorations of Firms-in-Gestation. *Small Business Economics*, 9(5), 449–462. <https://doi.org/10.1023/A:1007935726528>
8. Delmar, F, & Davidsson, P. (2000). Where do they come from? Prevalence and characteristics of nascent entrepreneurs. *Entrepreneurship & Regional Development*, 12(1), 1–23.
9. Robinson, P. B, Stimpson, D. V, Huefner, J. C, & Hunt, H. K. (1991). An attitude approach to the prediction of entrepreneurship. *Entrepreneurship Theory and Practice*, 15(4), 13-32.
10. Gartner, W. (1989). Who is an Entrepreneur? Is the Wrong Question. *Entrepreneurship Theory and Practice*, 13(4), 47–68.
11. Brockhaus Sr, R. H. (1980). Risk taking propensity of entrepreneurs. *Academy of Management Journal*, 23(3), 509–520.
12. KruegerJR, N., Reilly, M., & Carsrud, A. (2000). Competing Models of Entrepreneurial Intention. *Journal of Business Venturing*, 15(5-6), 411–432. [https://doi.org/10.1016/S0883-9026\(98\)00033-0](https://doi.org/10.1016/S0883-9026(98)00033-0)

13. Gird, A., & Bagraim, J. J. (2008). The Theory of Planned Behaviour as Predictor of Entrepreneurial Intent Amongst Final-Year University Students. *South African Journal of Psychology*, 38(4), 711–724. <https://doi.org/10.1177/008124630803800410>
14. Bird, B. (1988). Implementing entrepreneurial ideas: The case for intention. *Academy of Management Review*, 13(3), 442–453.
15. Kolvereid, L. (1996). Prediction of Employment Status Choice Intentions. *Entrepreneurship Theory and Practice*, 21(1), 47–58. <https://doi.org/10.1177/104225879602100104>
16. Liñán, F. (2004). Intention-Based Models of Entrepreneurship Education. *Piccola Impresa / Small Business*, 3(1), 11–35.
17. Fayolle, A., & Gailly, B. (2005). *Using the theory of planned behaviour to assess entrepreneurship teaching programmers* (Working paper No.5). Center for research in change, innovation and strategy of Louvain School of Management. <https://www.redalyc.org/pdf/716/71617238005.pdf>
18. Fishbein, M, & Ajzen, I. (1975). Belief, attitude, intention and behavior: *An introduction to theory and research*. Addison-Wesley Publications.
19. Bandura, A. B., A. (1977). *Social learning theory*. General Learning Press.
20. Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191–215. <https://doi.org/10.1037/0033-295X.84.2.191>
21. Shapero, A., & Sokol, L. (1982). The Social Dimensions of Entrepreneurship. *Encyclopedia of Entrepreneurship*, 72–90.
22. Krueger, N. (1993). The Impact of Prior Entrepreneurial Exposure on Perceptions of New Venture Feasibility and Desirability. *Entrepreneurship Theory and Practice*, 18(1), 3–21. <https://doi.org/10.1177/104225879301800101>
23. Ajzen, I. (1985). From Intentions to Actions: A Theory of Planned Behavior. In J. Kuhl & J. Beckmann (Eds.), *Action Control: From Cognition to Behavior* (pp. 11–39). Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-642-69746-3_2
24. Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)

25. Koh, H. C. (1995). Factors associated with entrepreneurial inclination: an empirical study of business undergraduates in hong kong. *Journal of Small Business & Entrepreneurship*, 12(2), 29–41. <https://doi.org/10.1080/08276331.1995.10600487>
26. Tan, W.-L., Long, W. A., & Robinson, P. (1996). Entrepreneurship attitude orientation and the intention to start a business. *Journal of Small Business & Entrepreneurship*, 13(4), 50–61. <https://doi.org/10.1080/08276331.1996.10600536>
27. Shetty, P. (2004). Attitude towards Entrepreneurship in Organizations. *The Journal of Entrepreneurship*, 13(1), 53–68. <https://doi.org/10.1177/097135570401300103>
28. Boyd, N. G., & Vozikis, G. S. (1994). The Influence of Self-Efficacy on the Development of Entrepreneurial Intentions and Actions. *Entrepreneurship Theory and Practice*, 18(4), 63–77. <https://doi.org/10.1177/104225879401800404>
29. Krueger, N. F., & Brazeal, D. V. (1994). Entrepreneurial Potential and Potential Entrepreneurs. *Entrepreneurship Theory and Practice*, 18(3), 91–104. <https://doi.org/10.1177/104225879401800307>
30. Veciana, J. M., Aponte, M., & Urbano, D. (2005). University Student Attitudes Towards Entrepreneurship: A Two Countries Comparison. *The International Entrepreneurship and Management Journal*, 1(2), 165–182.
31. Guerrero, M., Josep, R., & Urbano, D. (2008). The impact of desirability and feasibility on entrepreneurial intentions: A structural equation model. *International Entrepreneurship and Management Journal*, 4(1), 35–50. <https://doi.org/10.1007/s11365-006-0032-x>
32. Farashah, A. D., (2013). The process of impact of entrepreneurship education and training on entrepreneurship perception and intention: Study of educational system of Iran. *Education+ Training*, 55(8/9), 868-885
33. Davidsson, P. (1995). Determinants of Entrepreneurial Intentions. *Jonskoping International Business School*, 72-90.
34. Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, 37(2), 122–147. <https://doi.org/10.1037/0003-066X.37.2.122>
35. Segal, G, Borgia, D, & Schoenfeld, J. (2002). Using social cognitive career theory to predict self-employment goals. *New England Journal of Entrepreneurship*, 5(2), 47–56.

36. Díez-Echavarría, L, Valencia, A. A, Bermúdez-Hernández, J, Orlando, M. P. F, Lucelly, U. M. M, & Adolfo, T. V. J. (2019). Extension of the systemic entrepreneurship intention model in university students. *Serbian Journal of Management*, 14(2), 277–297.
37. Ajzen, I. (2002). Perceived Behavioral Control, Self-Efficacy, Locus of Control, and the Theory of Planned Behavior. *Journal of Applied Social Psychology*, 32, 665–683. <https://doi.org/10.1111/j.1559-1816.2002.tb00236.x>
38. Souitaris, V, Zerbinati, S, & Al-Laham, A. (2007). Do entrepreneurship programmers raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources. *Journal of Business Venturing*, 22(4), 566–59.
39. Sánchez, J. C. (2013). The Impact of an Entrepreneurship Education Program on Entrepreneurial Competencies and Intention. *Journal of Small Business Management*, 51(3), 447–465. <https://doi.org/10.1111/jsbm.12025>
40. Hattab, H. W. (2014). Impact of Entrepreneurship Education on Entrepreneurial Intentions of University Students in Egypt. *The Journal of Entrepreneurship*, 23(1), 1–18. <https://doi.org/10.1177/0971355713513346>
41. Stajkovic, A. D, & Luthans, F. (1998). Self-efficacy and work-related performance: A meta-analysis. *Psychological Bulletin*, 124(2), 240.
42. Chen, C, Greene, P, & Crick, A. (1998). Does entrepreneurial self-efficacy distinguish entrepreneurs from managers? *Journal of Business Venturing*, 13(4), 295–316.
43. Kickul, J. R., & D’Intino, R. S. (2005). Measure for measure: Modeling entrepreneurial self-efficacy onto instrumental tasks within the new venture creation process. *New England Journal of Entrepreneurship*, 8(2), 39–47.
44. Sequeira, J, Mueller, S. L, & McGee, J. E. (2007). The influence of social ties and self-efficacy in forming entrepreneurial intentions and motivating nascent behavior. *Journal of Developmental Entrepreneurship*, 12(03), 275–293.
45. McStay, D. (2008). *An investigation of undergraduate student self-employment intention and the impact of entrepreneurship education and previous entrepreneurial experience* [Doctoral Thesis, Bond Business School]. Bond University archive. <https://research.bond.edu.au/en/studentTheses/an-investigation-of-undergraduate-student-self-employment-intenti>.

46. Hamidi, D.Y, Wennberg, K, & Berglund, H. (2008). Creativity in entrepreneurship education. *Journal of Small Business and Enterprise Development*, 15(2), 304–320.
47. McGee, J. E., Peterson, M., Mueller, S. L., & Sequeira, J. M. (2009). Entrepreneurial Self-Efficacy: Refining the Measure. *Entrepreneurship Theory and Practice*, 33(4), 965–988. <https://doi.org/10.1111/j.1540-6520.2009.00304.x>
48. Sánchez, J. C. (2013). The impact of an entrepreneurship education program on entrepreneurial competencies and intention. *Journal of Small Business Management*, 51(3), 447–465.
49. Malebana, M. J, & Swanepoel, E. (2014). The relationship between exposure to entrepreneurship education and entrepreneurial self-efficacy. *Southern African Business Review*, 18(1), 1–26.
50. Shinnar, R. S., Hsu, D. K, & Powell, B. C. (2014). Self-efficacy, entrepreneurial intentions, and gender: Assessing the impact of entrepreneurship education longitudinally. *The International Journal of Management Education*, 12(3), 561–570.
51. Zhao, H, Seibert, S. E, & Hills, G. E. (2005). The mediating role of self-efficacy in the development of entrepreneurial intentions. *Journal of Applied Psychology*, 90(6), 1265–1272.
52. Barakat, S, Mclellan, R, Winfield, S, Ihasz, Q, & Vyakarnam, S. S. (2010, November 3-4). *Same programme, different students: Same or different self-efficacy effects?* [Paper presentation] The Institute for Small Business and Entrepreneurship 33rd annual conference, London, UK.