Igniting Young Entrepreneurs - Enhancing Entrepreneurial Attitudes through E-Modules among Higher Secondary Students

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Abstract

In an era of accelerated economic transformation and shifting career paradigms, cultivating a strong entrepreneurial attitude among youth is indispensable for nurturing resilience, innovation, and proactive engagement with emerging opportunities. Entrepreneurial attitude, encompassing dispositions such as need for achievement, calculated risk-taking, drive and determination, autonomy, creative tendency, self-efficacy, and locus of control, forms the foundation for entrepreneurial intentions and behaviors. Recognizing the critical role of mindset in entrepreneurial success, this study investigates the effectiveness of structured e-module interventions on shaping entrepreneurial attitudes among higher secondary school students. Drawing theoretical insights from Maslow's Self-Actualization Theory, Dewey's Pragmatic Theory, and Gardner's Theory of Multiple Intelligences, a quasi-experimental pretest-posttest single-group design was employed to assess attitudinal shifts across key components. The findings affirm that carefully designed e-modules can significantly enhance students' entrepreneurial orientation by promoting self-directed growth, reflective decision-making, creative engagement, and adaptive risk management. Aligned with the National Education Policy (NEP) 2020's emphasis on experiential and competency-based learning, the study underscores the necessity of integrating technology-enabled, attitude-focused entrepreneurship education into formal curricula. By strategically empowering future innovators at the secondary level, the research contributes to the broader endeavor of preparing youth for sustainable participation in dynamic global economies.

Keywords: Entrepreneurial Attitude, E-Modules, Higher Secondary Students, E-Modules

Introduction

Entrepreneurial attitude, defined as the psychological disposition influencing entrepreneurial intentions and behavior (Bird & West, 1998; Gnanamkonda & Naidu, 2024), is a vital attribute in the 21st-century knowledge economy, encompassing traits such as need for achievement, calculated risk-taking, determination, creativity, self-efficacy, autonomy, and locus of control. As traditional employment becomes increasingly uncertain, cultivating these attitudes early—particularly in higher secondary education—is essential for preparing students to navigate dynamic economic landscapes. Despite its importance, entrepreneurship education often remains peripheral in formal curricula, limiting students' readiness for real-world challenges. The National Education Policy (NEP) 2020 underscores the urgency of competency-based, experiential learning, reinforcing the need to nurture entrepreneurial mindsets. Digital tools like e-modules offer flexible, interactive, and student-centered platforms that engage diverse learners, promoting deeper understanding of entrepreneurial concepts while supporting motivational and cognitive development. Grounded in experiential, pragmatic, and psychological theories, this study examines how e-modules

can positively influence entrepreneurial attitudes among higher secondary students, equipping them to adapt, innovate, and lead in a complex, evolving global environment.

Entrepreneurial Attitude Development through Educational Practices

Entrepreneurship is increasingly recognized as a critical driver of economic growth, societal advancement, and individual empowerment, especially amidst rapid technological change and global market volatility. Developing an entrepreneurial attitude—marked by resilience, adaptability, initiative, and reflective decision-making—is essential for youth success, yet many education systems, particularly in countries like India, have not adequately integrated this into secondary curricula. Traditional education often prioritizes rote content mastery over skill and mindset development, leaving higher secondary students ill-prepared for real-world challenges. E-modules, as interactive, technology-enabled tools, offer a promising strategy for cultivating entrepreneurial attitudes by fostering active, self-driven learning rooted in Maslow's Self-Actualization Theory (1943), Dewey's Pragmatic Theory (1916), and Gardner's Theory of Multiple Intelligences (1983). These theoretical foundations support the development of key traits such as need for achievement, calculated risk-taking, determination, autonomy, creativity, self-efficacy, and locus of control. This study explores how such e-modules can bridge the gap between conventional instruction and the urgent demand for entrepreneurial competencies, presenting a scalable model to embed entrepreneurial thinking within mainstream education and produce empowered, innovation-ready learners aligned with national goals of inclusion, innovation, and global competitiveness.

Need and Significance of the Study

In today's volatile global economy, entrepreneurial attitude has become a vital life skill, fostering initiative, resilience, and risk-taking essential for success (Kuratko, 2005). Developing this mindset at the higher secondary level prepares students not just to adapt but to lead in shaping the future. However, education systems often prioritize rote learning over cultivating autonomy, self-efficacy, and creativity—the psychological foundations of entrepreneurship (Bird & West, 1998; Bueckmann et al., 2018). Research shows that entrepreneurship education enhances adaptability and empowers learners to turn challenges into opportunities (Welsh & Dragusin, 2011), while also enabling proactive societal contributions through innovation and leadership (Cooper et al., 2004; Price & Moroe, 1992). In this context, e-modules—interactive, student-centered digital tools—emerge as effective mediums for fostering entrepreneurial attitudes, offering multimedia engagement, real-world applications, and cognitive depth (Tangen, 2016; Hwang & Chang, 2011). Despite their potential, structured and scalable approaches to integrate such tools remain underutilized. This study addresses that gap by designing and evaluating e-modules rooted in experiential, pragmatic, and psychological learning theories, aiming to embed entrepreneurial attitude within formal education and nurture empowered, future-ready innovators.

Review of Related Literature

Entrepreneurial attitude development has been examined through various theoretical lenses that inform its cultivation in education. Ajzen's Theory of Planned Behavior (1991) highlights how attitudes, norms, and perceived control shape entrepreneurial intention. Kolb's Experiential Learning Theory (1984) emphasizes learning through active engagement and reflection, essential for fostering entrepreneurial traits. Maslow's Hierarchy of Needs (1943) links self-actualization with personal drive, while Dewey's Pragmatic Theory (1916) underscores real-life, problem-based learning. Gardner's Theory of Multiple Intelligences (1983) identifies interpersonal and intrapersonal intelligences as key to entrepreneurial self-awareness. Mayer's Cognitive Theory of Multimedia Learning (2009) supports using visual and auditory tools in e-module design, enhancing understanding. Constructivist principles from Piaget and Vygotsky stress active knowledge construction, and Siemens' Connectivism (2005) explains how digital tools expand access to entrepreneurial knowledge. Together, these frameworks provide a strong foundation for using e-modules to develop entrepreneurial attitudes among higher secondary students.

Objectives of the Study

1. To study the current level of entrepreneurial attitude among higher secondary school students.
2. To determine the effectiveness of the e-modules in enhancing the entrepreneurial attitude of higher secondary school students.
3. To determine the effectiveness of the e-modules in enhancing the entrepreneurial attitude of higher secondary school students based on the components of:

    a) Need for Achievement

    b) Calculated Risk Taking

    c) Drive and Determination

    d) Need for Autonomy

    e) Creative Tendency

    f) Self-Efficacy and

    g) Locus of Control

Hypotheses of the Study

1. There is significant difference in the entrepreneurial attitude among higher secondary school students before and after the implementation of the e-modules on entrepreneurship.
2. There is significant difference in the entrepreneurial attitude among higher secondary school students before and after the implementation of the e-modules on entrepreneurship based on the components of: a) Need for Achievement b) Calculated Risk Taking c) Drive and Determination d) Need for Autonomy e) Creative Tendency f) Self-Efficacy g) Locus of Control

Methodology

This study investigates the impact of e-modules on entrepreneurial attitude among higher secondary school students using a quasi-experimental pretest-posttest single-group design. Students' entrepreneurial attitudes were assessed before (O_1) and after (O_2) the e-module intervention (X) to determine changes across key components. The e-modules served as the experimental treatment aimed at enhancing students' entrepreneurial dispositions.

Variables

Independent Variable: E-modules—digital instructional tools designed to cultivate entrepreneurial attitude through interactive, student-centered activities.

Dependent Variable: Entrepreneurial Attitude—students' disposition towards entrepreneurship, measured across components like need for achievement, risk-taking, drive and determination, autonomy, creative tendency, self-efficacy, and locus of control.

Sample Selection

Cluster sampling was used for the selection process. Schools are randomly selected, and students meeting inclusion criteria participate. One division of Class XI students from Government Higher Secondary School, Kudamaloor, was chosen for statistical reliability. The final sample consisted of 47 students participating in the Entrepreneurial Attitude Scale assessments.

Tools and Materials

E-Modules: A series of structured digital modules addressing entrepreneurial competencies including motivation, risk-taking, self-efficacy, creativity, and independence.

Entrepreneurial Attitude Scale: A standardized instrument developed and validated to assess the entrepreneurial attitude components under investigation.

Data Analysis and Discussion

Pretest and posttest data on entrepreneurial attitude were analyzed using descriptive and inferential statistics. Descriptive measures (mean, median, mode, and standard deviation) summarized student scores. A paired t-test was employed to determine whether changes in entrepreneurial attitude were statistically significant after the e-module intervention. These analyses provided an evidence-based evaluation of the e-modules' impact on shaping entrepreneurial mindsets.

Table 1

Results of Test of Significance of Difference Between Means of Pretest and Post-test Scores on Entrepreneurial Attitude of the Total Sample in the Experimental Group.

Paired Samples T-Test									
			statistic	**df**	**p**	**Mean difference**	**SE difference**		**Effect Size**
Entrepreneurial Attitude Post Test	Entrepreneurial Attitude Pretest	Student's t	7.22	46.0	< .001	22.6	3.13	Cohen's d	1.05

Note. $H_a\ \mu_{\text{Measure 1 - Measure 2}} \neq 0$

Table 2

Mean Median and Standard deviation of Entrepreneurial Awareness Test					
	N	**Mean**	**Median**	**SD**	**SE**
Entrepreneurial Attitude Post Test	47	150	148	20.9	3.04
Entrepreneurial Attitude Pretest	47	128	128	13.6	1.98

The overall entrepreneurial attitude of students showed significant improvement after using the e-modules.

Entrepreneurial attitude significantly improved after using the e-modules. A paired t-test showed a significant difference at the 0.01 level, with the mean score rising from 128 (pre-test) to 150 (post-test). The t-statistic (7.22) and p-value (<0.001) confirm the e-modules' effectiveness

The e-modules are effective in enhancing entrepreneurial attitude among higher secondary school students.

The paired t-test showed a significant improvement in entrepreneurial attitude at the 0.01 level. The pre-test mean (128) and post-test mean (150) indicate a substantial increase. For df = 46, significance levels were 2.013 and 2.682, confirming the e-modules' effectiveness.

The e-modules are effective in enhancing Entrepreneurial Attitude – Component wise analysis **- Need of Achievement**

Table 3

Entrepreneurial Attitude – Need of Achievement					
	N	**Mean**	**Median**	**SD**	**SE**
Post Experimental	47	10.26	11	2.53	0.369
Pre Experimental	47	9.15	9	2.32	0.339

The paired t-test showed a significant improvement in Need for Achievement at the 0.01 level. The pre-test mean (9.15) increased to 10.26 post-test ($t = 3.53$, $p < 0.001$), confirming the e-modules' effectiveness.

Table 4

Results of Pretest and Post-test Scores on Component wise analysis **- *Calculated Risk taking***

Entrepreneurial Attitude - Calculated Risk taking					
	N	**Mean**	**Median**	**SD**	**SE**
Post Experimental	47	25.1	25	4.53	0.661
Pre Experimental	47	21.6	22	3.98	0.581

The paired t-test showed a significant improvement in Calculated Risk Taking at the 0.01 level. The pre-test mean (21.6) increased to 25.1 post-test ($t = 3.53$, $p < 0.001$), confirming the e-modules' effectiveness.

Table 5

Results of Pretest and Post-test Scores on Component wise analysis **- *Drive and Determination***

Entrepreneurial Attitude - Drive and Determination					
	N	**Mean**	**Median**	**SD**	**SE**
Post Experimental	47	24.7	25	4.13	0.603
Pre- Experimental	47	21.3	21	3.90	0.569

The paired t-test showed a significant improvement in Drive and Determination at the 0.01 level. The pre-test mean (21.3) increased to 24.7 post-test ($t = 3.53$, $p < 0.001$), confirming the e-modules' effectiveness.

Table 6

*Results of Pretest and Post-test Scores on Component wise analysis - **Need of Autonomy***

Entrepreneurial Attitude - Need of Autonomy					
	N	**Mean**	**Median**	**SD**	**SE**
Post Experimental	47	14.6	14	2.59	0.378
Pre Experimental	47	10.9	11	1.91	0.278

The paired t-test showed a significant improvement in Need for Autonomy at the 0.01 level. The pre-test mean (10.9) increased to 14.6 post-test ($t = 3.53$, $p < 0.001$), confirming the e-modules' effectiveness.

Table 7

*Results of Pretest and Post-test Scores on Component wise analysis - **Creative Tendency***

Entrepreneurial Attitude - Creative Tendency					
	N	**Mean**	**Median**	**SD**	**SE**
Post Experimental	47	21.4	21	4.27	0.622
Pre - Experimental	47	17.7	17	3.84	0.560

The paired t-test showed a significant improvement in Creative Tendency at the 0.01 level. The pre-test mean (17.7) increased to 21.4 post-test ($t = 3.53$, $p < 0.001$), confirming the e-modules' effectiveness.

Table 8

*Results of Pretest and Post-test Scores on Component wise analysis - **Self Efficacy***

Entrepreneurial Attitude - Self Efficacy					
	N	**Mean**	**Median**	**SD**	**SE**
Post Experimental	47	31.8	31	5.41	0.788
Pre - Experimental	47	27.6	28	3.93	0.573

The paired t-test showed a significant improvement in Self-Efficacy at the 0.01 level. The pre-test mean (27.6) increased to 31.8 post-test ($t = 3.53$, $p < 0.001$), confirming the e-modules' effectiveness.

Table 9

*Results of Pretest and Post-test Scores on Component wise analysis - **Locus of Control***

Entrepreneurial Attitude - Locus of Control					
	N	**Mean**	**Median**	**SD**	**SE**
Post Experimental	47	22.2	22	3.99	0.582
Pre- Experimental	47	19.4	20	3.03	0.442

The paired t-test showed a significant improvement in Locus of Control at the 0.01 level. The pre-test mean (19.4) increased to 22.2 post-test ($t = 3.53$, $p < 0.001$), confirming the e-modules' effectiveness.

Findings

1. The study revealed that the use of structured e-modules brought about a significant enhancement in the entrepreneurial attitude of higher secondary school students. Post-intervention assessments showed a marked improvement across critical psychological components essential for entrepreneurial development.
2. The analysis indicated that students demonstrated significant positive shifts in: a) Need for Achievement b) Calculated Risk Taking c) Drive and Determination d) Need for Autonomy e) Creative Tendency f) Self-Efficacy g) Locus of Control
3. The consistent growth across these seven components highlights the effectiveness of integrating digital, interactive modules into secondary education to foster entrepreneurial mindsets. These findings affirm that well-designed e-learning interventions can cultivate future innovators equipped to navigate and lead in a dynamic global economy.

Educational Implications

This study advocates for a reimagined approach to entrepreneurship education at the secondary school level, emphasizing the development of entrepreneurial attitudes rather than just imparting theoretical knowledge. The significant improvements observed in areas like self-efficacy, risk-taking, and creative confidence underscore the importance of fostering entrepreneurial skills as dynamic traits through behavioral learning. To achieve this, curriculum development should integrate digital modules that simulate real-world entrepreneurial challenges, enabling students to engage with decision-making, failure management, and opportunity evaluation within their socio-economic contexts. Teacher training programs need to shift towards equipping educators with the skills to facilitate entrepreneurial mindsets, focusing on emotional support, reflective questioning, and adaptive mentoring, rather than traditional teaching methods. Policy frameworks should recognize entrepreneurial attitude as a long-term developmental goal, ensuring that entrepreneurship competencies are embedded across various disciplines, connecting creativity, critical thinking, financial literacy, and ethical leadership. Technology-enhanced learning, through interactive and experiential e-modules, offers personalized pathways to foster entrepreneurial readiness and address motivational gaps in conventional educational settings. Additionally, establishing institutional partnerships with startups, incubators, and local enterprises can provide students with authentic entrepreneurial exposure, developing their autonomy and risk management capabilities. These strategies aim to transform entrepreneurship education, shifting it from a purely informational approach to one that prepares students to navigate an uncertain world with the skills and mindset needed to succeed socially, ethically, and economically.

Conclusion

Entrepreneurship education is crucial for equipping students with the skills necessary to navigate an increasingly unpredictable economy. While frameworks like NEP 2020 provide support, tangible steps are essential for effective implementation in schools. This study underscores the value of entrepreneurial attitude development programs, particularly through e-modules, which significantly enhanced students' self-efficacy, risk-taking, and creativity. Technology-enabled learning has proven to be an effective tool in making entrepreneurship education engaging and applicable. By blending theoretical knowledge with real-world application, these initiatives not only prepare students for the workforce but also encourage them to think entrepreneurially, fostering innovation and resilience. Strengthening such educational practices is vital for empowering future generations to drive economic and social change.

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