

## DEVELOPMENT AND VALIDATION OF ENTREPRENEURSHIP SKILLS INVENTORY

**P.Purushothaman**

Ph.D Scholar (Part Time), Dept. of Educational technology,  
TNTEU, Chennai - 600 097. Email: [purushothedu@gmail.com](mailto:purushothedu@gmail.com)

**Dr. M. Senthilkumar**

Assistant Professor, Dept. of Educational Technology, TNTEU, Chennai - 600 097. Email:  
[senthilkumarantnteu@gmail.com](mailto:senthilkumarantnteu@gmail.com)

### ABSTRACT

The objective of the study was to construct an inventory to assess the Entrepreneurship Skills of polyglot higher secondary school students. 802 polyglot higher secondary school students from the Krishnagiri district in Tamil Nadu were taken for the survey. The investigator first prepared 64 items based on seven dimensions. Experts evaluated those items and decreased the number to 52. After face validation, the inventory was administered to responders. The difficulty index value and discriminative power formulas were employed to evaluate the quality of each item. In the item analysis, eighteen (18) inappropriate items were eliminated, leaving 34 items for the final tool. The reliability values of this inventory were found as 0.78 (KR-20 method) and 0.86 (Test-Retest method). The final form of the inventory was found to have content validity, according to the experts. The statistical analysis indicates that this entrepreneurship Skills inventory is reasonably fairly valid and reliable for assessing entrepreneurship Skills.

**Key words:** *Entrepreneurship, Leadership Decision-Making, Self-Starter, Problem Solving.*

### INTRODUCTION

Entrepreneurship skills include various skill sets such as leadership, business management, time management, creative thinking and problem-solving. These entrepreneur skills are vital for promoting innovation, business growth and competitiveness. Students' can apply these skills in many job roles and industries.

### OBJECTIVES OF THE STUDY

The main objectives of the study were as follows

1. To develop the entrepreneurship skills inventory measuring entrepreneurship skills of polyglot higher secondary school students.
2. To standardise the entrepreneurship skills inventory for polyglot higher secondary school students.

### TOOL DEVELOPMENT

The investigator discussed with friends, teachers, and professors to get ideas for the entrepreneurship skills inventory. Besides that, the investigator read books that are about reading. Based on the discussions and readings, the investigator decided to prepare five rating scale for measuring the entrepreneurship skills of higher secondary school students and initially prepared 64 items based on the following seven dimensions for entrepreneurship skills inventory.

**1. Leadership**

Leadership is the ability of an individual or a group of people to influence and guide followers or members of an organization, society or team.

**2. Planning**

Planning is deciding in advance what to do and how to do it.

**3. Communication**

Communication builds thriving relationships and gives people the information they need to contribute to the success of the business.

**4. Decision-Making**

The decision-making process involves identifying a goal, getting the relevant and necessary information, and weighing the alternatives in order to make a decision.

**5. Problem solving**

Entrepreneurial problem solving is the process of using innovation and creative solutions to close that gap by resolving societal, business, or technological problems.

**6. Self-starter**

Self-starters are professionals who take initiative, can work without supervision and begin projects independently.

**7. Innovation**

Innovation is any new idea, process, or product, or a change to an existing product or process that adds value to that existing product or service.

The distribution items of the Entrepreneurship Skills Inventory (ESI) according to each dimension are shown in table-1.

**Table-1**  
**Entrepreneurship Skills Inventory (ESI) distribution of items at the initial stage**

| S.No  | Dimensions of ESI    | No. of items |
|-------|----------------------|--------------|
| 1.    | Leadership           | 10           |
| 2.    | Planning             | 10           |
| 3.    | Communication Skills | 9            |
| 4.    | Decision-Making      | 8            |
| 5.    | Problem Solving      | 10           |
| 6.    | Self-Starter         | 8            |
| 7.    | Innovation           | 9            |
| Total |                      | 64           |

**Expert's opinion**

After the initial set of items was drafted, it was submitted to a review panel comprised of two experts in the field of education and two experts in the field of language education in order to obtain informal feedback on the language employed, the content, and to determine whether there are any ambiguous items. According to the view of the experts, twelve items were discarded, leaving the draft with 52 elements. Table-2 shows the entrepreneurship skills inventory (ESI) items after the expert's opinion.

**Table-2**  
**Entrepreneurship Skills Inventory (ESI) distribution of items after expert's opinion**

| S.No  | Dimensions of ESI    | No. of items |
|-------|----------------------|--------------|
| 1.    | Leadership           | 8            |
| 2.    | Planning             | 9            |
| 3.    | Communication Skills | 7            |
| 4.    | Decision-Making      | 7            |
| 5.    | Problem Solving      | 8            |
| 6.    | Self-Starter         | 6            |
| 7.    | Innovation           | 7            |
| Total |                      | 52           |

### PARTICIPANTS OF THE STUDY

A research tool can't be made perfectly only with the guidance and help of knowledgeable professors. It can be attained by testing the research tool on samples to verify if the tool meets its purpose along with experts' guidance. For this purpose, the tool was administered on 802 samples among 395 male students and 407 female students. The samples were taken from polyglot higher secondary school students Krishnagiri district of Tamil Nadu by using a simple random sampling technique. The students in the sample were from different age groups (above 15years to 17years), different places (rural and urban), different type of the school management (Government, Private, Government-Aided), and have different type of the school (Boys, Girls and Co-Ed).

### ITEM ANALYSIS

The quality of an instrument is defined by the quality of each item inside the tool. After collecting data from participants' information was tabulated for analysis. The data were further analysed utilising the difficulty index and discriminative power formulae. Based on the scores, the obtained data were arranged in descending order and divided into two categories as upper 27 percent and lower 27 percent and item analysis was carried out. On the basis of the discussion with experts, the items with a discrimination value of less than 0.30 and a difficulty value of less than 0.20 were eliminated from the entrepreneurship skills inventory, and the remaining items were retained. By implementing these standards, eighteen (18) items were deleted from the final entrepreneurship skills inventory and thirty-four (34) items were chosen. Table-3 provides a detailed item analysis of the entrepreneurship skills inventory.

**Table-3**  
**Item Analysis for entrepreneurship skills inventory**

| S.No. | Statements                                    | D.V  | D.I  | Item Status |
|-------|---|------|------|-------------|
| 1.    | My actions reflect my core values.            | 0.70 | 0.40 | Selected    |
| 2.    | I let others know who i truly am as a person. | 0.80 | 0.55 | Selected    |
| 3.    | I accept the feelings i have about myself.    | 0.45 | 0.20 | Rejected    |
| 4.    | My morals guide what i do as a leader.        | 0.65 | 0.40 | Selected    |
| 5.    | I admit my mistakes to others.                | 0.35 | 0.85 | Selected    |
| 6.    | I rarely present a false front to others.     | 0.25 | 0.20 | Rejected    |

|     |   |       |       |          |
|-----|---|-------|-------|----------|
| 7.  | I meet with staff regularly to discuss my needs.  | 0.15  | 0.30  | Rejected |
| 8.  | I openly share my feelings with others.   | 0.60  | 0.45  | Selected |
| 9.  | I like to challenge the old ideas and applications and seek better ones.                  | 0.50  | 0.85  | Selected |
| 10. | I am looking for suitable methods and techniques to provide success.                      | 0.10  | 0.65  | Rejected |
| 11. | I can evaluate the opportunities i encounter.   | 0.15  | 0.25  | Rejected |
| 12. | I have a characteristic open to the innovations coming up during my business and studies. | 0.20  | 0.15  | Rejected |
| 13. | I do my job fondly and determinedly.  | 0.15  | -0.10 | Rejected |
| 14. | I can cement good relations with different people.  | 0.60  | 0.65  | Selected |
| 15. | I talk to my friends about my different business projects.                                | -0.15 | 0.40  | Selected |
| 16. | I am a risk bearer.   | 0.65  | 0.35  | Selected |
| 17. | I can make preparation for the future.  | 0.55  | 0.60  | Selected |
| 18. | I maintain eye contact throughout a conversation.   | 0.55  | 0.70  | Selected |
| 19. | I encourage others to talk when appropriate.  | 0.10  | 0.45  | Rejected |
| 20. | I treat others respectfully.  | 0.45  | 0.65  | Selected |
| 21. | I communicate my goals effectively to others.   | 0.35  | 0.85  | Selected |
| 22. | I respect the dignity and rights of others.   | 0.55  | 0.15  | Rejected |
| 23. | I give my full attention to others when they talk to me.                                  | 0.45  | 0.50  | Selected |
| 24. | I ask for clarification of whatever i don't fully understand.                             | 0.50  | 0.45  | Selected |
| 25. | I have new and different ideas.   | 0.50  | 0.65  | Selected |
| 26. | I have a strong personal need to succeed.   | 0.15  | 0.50  | Rejected |
| 27. | I'm a positive person.  | 0.85  | 0.65  | Selected |
| 28. | I do every job as thoroughly as possible.   | 0.40  | 0.60  | Selected |
| 29. | I often approach business tasks in unique ways.   | 1.00  | 0.95  | Selected |
| 30. | I don't like to be in control.  | 0.15  | 0.20  | Rejected |
| 31. | I enjoy finding good solutions for problem that nobody has looked at yet.                 | 0.60  | 0.55  | Selected |
| 32. | I'm pretty good judge as to how others feel about problems.                               | 0.15  | 0.75  | Rejected |
| 33. | I really enjoy solving new problems.  | 0.60  | 0.75  | Selected |
| 34. | I never put important problems off until a more convenient time.                          | 0.55  | 0.95  | Selected |
| 35. | I believe that concrete results are necessary in order to judge business success.         | 0.15  | 0.65  | Rejected |
| 36. | I believe successful people handle themselves well at business gatherings.                | 0.45  | 0.65  | Selected |
| 37. | I get excited when i am able to approach tasks in unusual ways.                           | 0.70  | 0.65  | Selected |

|     |   |      |       |          |
|-----|---|------|-------|----------|
| 38. | I feel depressed when i don't accomplish any meaningful work.                                 | 0.10 | 0.20  | Rejected |
| 39. | I believe it is more important to think about future possibilities than past accomplishments. | 0.85 | 0.50  | Selected |
| 40. | I feel a great deal of pride when i complete a project successfully.                          | 0.15 | 0.55  | Rejected |
| 41. | I have a high energy level that can be maintained over a long time.                           | 0.65 | 0.75  | Selected |
| 42. | I have a good understanding of how to manage a business.                                      | 0.60 | 0.40  | Selected |
| 43. | I can function in ambiguous situations.   | 0.45 | 0.60  | Selected |
| 44. | I can make decisions quickly.   | 0.50 | 0.95  | Selected |
| 45. | I have a good network of friends, professionals and business acquaintances.                   | 0.35 | 0.85  | Selected |
| 46. | I am always finding new business opportunities.   | 0.35 | 0.75  | Selected |
| 47. | In business, i enjoy intimidating others.   | 0.10 | -0.25 | Rejected |
| 48. | I often welcome to new business ideas.  | 0.55 | 0.45  | Selected |
| 49. | Technical knowledge is required to make a business commercially value.                        | 0.60 | 0.45  | Selected |
| 50. | Profits cannot be made without taking risk.   | 0.25 | 0.15  | Rejected |
| 51. | Starting a business is a good way to earn more money.   | 0.85 | 0.90  | Selected |
| 52. | Looking for an opportunity to succeed is necessary in life.                                   | 0.15 | 0.55  | Rejected |

**Table-4**  
**Entrepreneurship Skills Inventory (ESI) item distribution after item analysis**

| S.No  | Dimensions of ESI    | No. of items |
|-------|----------------------|--------------|
| 1.    | Leadership           | 5            |
| 2.    | Planning             | 5            |
| 3.    | Communication Skills | 5            |
| 4.    | Decision-Making      | 5            |
| 5.    | Problem Solving      | 5            |
| 6.    | Self-Starter         | 5            |
| 7.    | Innovation           | 4            |
| Total |                      | 34           |

## VALIDATION OF THE TOOL

The investigator established the entrepreneurship skills inventory reliability, validity, and scoring norms.

## RELIABILITY OF THE TOOL

The term "reliability" refers to the consistency and stability of test scores (Arunkumar & Nithya, 2012). In this investigation, the investigator utilised the Kuder Richardson-20 formula to

ensure the internal consistency of the 34 - item an entrepreneurship skills inventory and determined its reliability to be 0.82. In addition, the investigator used the test-retest method to ensure the stability of the research instrument. The investigator selected 100 samples from the primary sample of 802 for this purpose by using convenient sampling technique. On the 100 selected samples, the 34 - item an entrepreneurship skills inventory, which was constructed through item analysis, was utilised once again. The tool's stability was established by comparing the second trial scores of 100 samples to the first trial scores of the identical 52 items. The correlation value of the two trail scores was 0.84. The both reliability values 0.80 and 0.84 indicated the 34 - item an entrepreneurship skills inventory was highly reliable.

### VALIDITY OF THE TOOL

A test or tool is considered to be valid if it serves the intended purpose (Arunkumar & Nithya, 2012). The 34-item research tool was once again given to the experts for evaluation to ensure its validity. According to the opinions of experts, the research tool serves its intended purpose. This established the content and face validity of entrepreneurship skills inventory.

### SCORING NORMS

There are 34 items on the 34 – item an entrepreneurship skills inventory. Each items of the scale is provided with five alternative responses. The weight ranging from 5 (Strongly Agree), 4 (Agree), 3 (No decided), 2 (Disagree), 1 (Strongly disagree) for items. The theoretical range of scores is from 34 to 170 with the higher score indicating the more favourable entrepreneurship skills inventory. All the statements were positive. Table-5 shows a summary of the data from all 802 samples.

**Table-5**  
**Scores of the Participants**

| <b>Particulars</b> | <b>Values</b> |
|--------------------|---------------|
| Mean               | 85.23         |
| Median             | 28            |
| Mode               | 98            |
| Standard Deviation | 16.77         |
| Kurtosis           | 0.30          |
| Skewness           | 0.45          |
| Range              | 136           |
| Minimum            | 34            |
| Maximum            | 170           |
| Sum                | 456214        |
| Count              | 802           |

Table-5 shows that the entrepreneurship skills inventory greater than 102 (mean + standard deviation) represent a high level of entrepreneurship skills, while scores below 68 (mean - standard deviation) represent a low level of entrepreneurship skills, and scores between 69 and 102

represent a medium level of entrepreneurship skills. The level of entrepreneurship skills inventory is presented in Table-6.

**Table-6**  
**The level of entrepreneurship skills inventory**

| S.No. | Scores  | Level of entrepreneurship skills |
|-------|---------|----------------------------------|
| 1.    | 34-68   | Low                              |
| 2.    | 69-102  | Medium                           |
| 3.    | 103-170 | High                             |

## THE FINAL VERSION OF THE TOOL

The final version of entrepreneurship skills inventory is made up of 34 statements that fall under the seven dimensions. All the statements were positive. Table-7 displayed the dimensions of the items.

**Table-7**  
**Dimension wise items in of entrepreneurship skills inventory**

| S.No         | Dimensions of ESI    | Sl. No. of items | Total     |
|--------------|----------------------|------------------|-----------|
| 1.           | Leadership           | 1,2,3,4,5        | 5         |
| 2.           | Planning             | 6,7,8,9,10       | 5         |
| 3.           | Communication Skills | 11,12,13,14,15   | 5         |
| 4.           | Decision-Making      | 16,17,18,19,20   | 5         |
| 5.           | Problem Solving      | 21,22,23,24,25   | 5         |
| 6.           | Self-Starter         | 26,27,28,29,30   | 5         |
| 7.           | Innovation           | 31,32,33,34      | 4         |
| <b>Total</b> |                      |                  | <b>34</b> |

## CONCLUSION

During the development and validation of the entrepreneurship skills inventory, enough attention was taken to verify that the inventory served its intended purpose. While this inventory is based on the replies of polyglot higher secondary school students, the investigator is confident that it can also be utilised with other school students and polyglot higher secondary school students due to its generic character. This inventory will be of great use not only to researchers, but also to teachers, professors, and parents who wish to determine the entrepreneurship skills of their children. Even though the inventory is properly constructed and validated, it has some limitations. The inventory is validated with Indian students, particularly those from southern India. Consequently, the inventory must be validated in different regions of the country as well as in other cultural contexts. In future research, applying this inventory to additional demographics and conducting a correlation study between this entrepreneurship skills inventory and other entrepreneurship intention surveys will add to the literature.

## ACKNOWLEDGEMENT

The investigator wants to express heartfelt gratitude to Research Guide, Experts, Participants, supporters, and previous researchers.

## REFERENCES

- Agustian Zen., et al.(2023).Implications of Entrepreneurship Education as a Field of Study for Advancing Research and Practice, Journal on Education Volume 05, No. 04, Mei-Agustus 2023, pp. 11441- 11453 E-ISSN: 2654-5497, P-ISSN: 2655-1365 Website: <http://jonedu.org/index.php/joe>
- Bazkiaei et al., (2020).Do entrepreneurial education and big-five personality traits predict entrepreneurial intention among universities students?, Cogent Business & Management (2020), 7: 1801217 , <https://doi.org/10.1080/23311975.2020.1801217>.
- Dina Apriana, Muhammad Kristiawan, Dessy Wardiah. (2019). Headmaster’s Competency In Preparing Vocational School Students For Entrepreneurship, international journal of scientific & technology research volume 8, issue 08, august 2019. ISSN 2277-8616
- Dr. Lourdes Poobala Rayen and Josey Philip.(2016). An Analysis on the attitude of Vocational Higher Secondary Education (Vhse) Students towards Entrepreneurship in Thiruvananthapuram District, Kerala State. EPRA International Journal of Economic and Business Review, Vol - 4, Issue- 11, November 2016, e-ISSN: 2347 - 9671, p- ISSN : 2349 – 0187.
- Fachrurazi., et al.(2022).Increasing micro small medium Enterprises activity entrepreneurial capacity in the field of digital marketing, <http://ejournal.seaninstitute.or.id/index.php/Ekonomi> Jurnal Ekonomi, Volume 11, No 03 2022 ISSN: 2301-6280 (Print) ISSN: 2721-9879 (online).
- Henry Eryanto, Darma Rika Swaramarinda, Marsofiyati.(2020).Evaluation of the Entrepreneurial Student Program at Universitas Negeri Jakarta, International journal of scientific & technology research Volume 9, Issue 01, January 2020. ISSN 2277-8616.
- Iqtidar A. Shah, Sohail Amjedand Said Jaboob. (2020).The moderating role of entrepreneurship education in shaping entrepreneurial intentions, Journals of Economic Structures (2020) 9:19 <https://doi.org/10.1186/s40008-020-00195-4>
- Itot Bian Raharjo., et al.(2023).Analysing the Relationship between Entrepreneurship Education, Self Efficacy, and Entrepreneurial Performance, Journal on Education Volume 05, No. 04, Mei-Agustus 2023, pp. 11566- 11574 E-ISSN: 2654-5497, P-ISSN: 2655-1365 Website: <http://jonedu.org/index.php/joe>.
- Lalit Sharma and Pankaj Madan.(2014).Effect of individual factors on youth entrepreneurship – a study of Uttarakhand state, India Journal of Global Entrepreneurship Research 2014, 2:3 Page 2 of 17 <http://www.journal-jger.com/content/2/1/3>.
- Murat Yalcintas and OykuIyigun.(2023).Personal Characteristics and Intention for Entrepreneurship, The Singapore Economic Review, Vol. 68, No. 2 (2023) 539–561 © World Scientific Publishing Company DOI: 10.1142/S0217590821500338



- Natalia Vinogradova and Alexandra Novact., et al.(2023).The impact of entrepreneurship education on entrepreneurial intentions and competencies of students in Moldova, Society and Economy 45 (2023) 1, 33–52 DOI: 10.1556/204.2022.00026
- Nikita A. Rose. (2011).Causal factors attributed to student success on the California High School Exit Examination, Ph.D. Dissertation Education in Leadership, Faculty of Argosy University-Orange County.
- R. Ponmani and Dr. R. Annapoorani. (2015). A Study on Entrepreneurial Attitude Orientation and Intention among various Categories of Students, Dissertation on Doctor of Philosophy in Economics Avinashilingam Institute for Home Science and Higher Education for Women Coimbatore.
- S. Glory Swarupa, Ravi Kumar Goyal.(2021).A Study on Entrepreneurial Intention Among Students of Skill Universities in Rajasthan, India, Dissertation on Doctor Of Philosophy in Department of Entrepreneurship School of Entrepreneurship Skills, Bhartiya Skill Development University Jaipur.
- Supriya Goutam and Prof. Ramendu Roy. (2018).Role of B-Schools in promoting entrepreneurship in India: a study of select institution, Dissertation on Doctor Of Philosophy In Management, Department Of Commerce And Business Administration, University Of Allahabad , Allahabad, India-211002.

**ANNEXURE-I: ENTREPRENEURSHIP SKILLS INVENTORY**

| S.No | Statements  | SA | A | U | D | SD |
|------|---|----|---|---|---|----|
| 1.   | My actions reflect my core values.                                      |    |   |   |   |    |
| 2.   | I let others know who i truly am as a person.                           |    |   |   |   |    |
| 3.   | My morals guide what i do as a leader.                                  |    |   |   |   |    |
| 4.   | I admit my mistakes to others.  |    |   |   |   |    |
| 5.   | I openly share my feelings with others.                                 |    |   |   |   |    |
| 6.   | I like to challenge the old ideas and applications and seek better ones |    |   |   |   |    |
| 7.   | I can cement good relations with different people.                      |    |   |   |   |    |
| 8.   | I talk to my friends about my different business projects.              |    |   |   |   |    |
| 9.   | I am a risk bearer.   |    |   |   |   |    |
| 10.  | I can make preparation for the future.                                  |    |   |   |   |    |
| 11.  | I maintain eye contact throughout a conversation.                       |    |   |   |   |    |
| 12.  | I treat others respectfully.  |    |   |   |   |    |
| 13.  | I communicate my goals effectively to others.                           |    |   |   |   |    |
| 14.  | I give my full attention to others when they talk to me.                |    |   |   |   |    |
| 15.  | I ask for clarification of whatever i don't fully understand.           |    |   |   |   |    |
| 16.  | I have new and different ideas.   |    |   |   |   |    |
| 17.  | I'm a positive person.  |    |   |   |   |    |

|     |   |  |  |  |  |  |  |  |
|-----|---|--|--|--|--|--|--|--|
| 18. | I do every job as thoroughly as possible.   |  |  |  |  |  |  |  |
| 19. | I often approach business tasks in unique ways.   |  |  |  |  |  |  |  |
| 20. | I enjoy finding good solutions for problem that nobody has looked at yet.                     |  |  |  |  |  |  |  |
| 21. | I really enjoy solving new problems.  |  |  |  |  |  |  |  |
| 22. | I never put important problems off until a more convenient time.                              |  |  |  |  |  |  |  |
| 23. | I believe successful people handle themselves well at business gatherings.                    |  |  |  |  |  |  |  |
| 24. | I get excited when i am able to approach tasks in unusual ways.                               |  |  |  |  |  |  |  |
| 25. | I believe it is more important to think about future possibilities than past accomplishments. |  |  |  |  |  |  |  |
| 26. | I have a high energy level that can be maintained over a long time.                           |  |  |  |  |  |  |  |
| 27. | I have a good understanding of how to manage a business.                                      |  |  |  |  |  |  |  |
| 28. | I can function in ambiguous situations.   |  |  |  |  |  |  |  |
| 29. | I can make decisions quickly.   |  |  |  |  |  |  |  |
| 30. | I have a good network of friends, professionals and business acquaintances.                   |  |  |  |  |  |  |  |
| 31. | I am always finding new business opportunities.   |  |  |  |  |  |  |  |
| 32. | I often welcome to new business ideas.  |  |  |  |  |  |  |  |
| 33. | Technical knowledge is required to make a business commercially value.                        |  |  |  |  |  |  |  |
| 34. | Starting a business is a good way to earn more money.   |  |  |  |  |  |  |  |

\*\*\*