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# EXPLORING ENTREPRENEURSHIP INTENTION AND ENTREPRENEURSHIP ENGAGEMENT OF TECHNOLOGY UNIVERSITY STUDENTS

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## **ABSTRACT**

Entrepreneurship contributes to the development of a country in terms of economic growth and job creation. Technology and innovation can be used to enhance entrepreneurship. Technology Universities provide technological knowledge enabling students to engage in innovation and entrepreneurship. Few researches have been conducted on entrepreneurship intention of technology universities. This study aims to explore the entrepreneurship intention, entrepreneurship engagement level and factors effecting entrepreneurship intention of technology university students. According to the research findings, entrepreneurship intention of technology university students during study period is 54.7% and entrepreneurship engagement during study period is 40.53%. Age category, attitude, entrepreneurship education, entrepreneurship orientation, failure tolerance of the society, improving quality of life, improving standard of life, influence of lecturers, level of finance, motivation factors, perceived abilities, personality factors, program type, status of work, technology literacy and work experience are the factors effecting on entrepreneurship intention of technology university students. Out of the factors the impact of failure tolerance of the society is negative on entrepreneurship intention of technology university students.

Key words: Entrepreneurship intention, Entrepreneurship engagement,

Technology universities, Factors effecting entrepreneurship intention

## **INTRODUCTION**

Entrepreneurship is considered as the driving force of an economy in a country. Both developing and developed countries focus on entrepreneurship development to gain economic sustainability. For developing countries entrepreneurship is vital that entrepreneurship can change the economic structures by converting primary based societies into high technology based societies to achieve high income status (Naudé, W. 2008). Developed countries such as United States of America focuses on entrepreneurship based development and hence the government extends the support to entrepreneurship development to achieve competitive advantage in global economy.

In recent years, the development of technology and innovation have made some contribution to up bring the status of entrepreneurship (Mosey, S., Guerrero, M. and Greenman, A. 2017). For new venture creation technology abilities, innovation and technological opportunities have given significant contribution (Parker, S.C., 2011).

Modern universities contribute significantly to develop entrepreneurship (Zhang, Y., Duysters, G. and Cloudt, M., 2014). Most of the universities nowadays focus on entrepreneurship development by providing entrepreneurship education, entrepreneurship activities and research

and development facilities (Kuratko, D.F., 2004). Universities play a key role in commercialization of knowledge and technology. Startups are highly backed up through the support given through universities (O'Shea, R et al., 2004).

Technology universities are different from traditional universities that they focus on providing academic knowledge with technology skills. Technology universities encourage innovation and technology advancement of a country. Technology universities deliver programs to address the needs in the industry and produce professional level graduates (Higher Education Authority, 2005). Role of technology universities is vital in the field of entrepreneurship that technology universities are capable of providing knowledge in technology, business model, strategies and executions (RIT, 2021).

University students have higher potential to engage with entrepreneur related activities that they have the required abilities and skills. Also they have the interest to build own business and provide career chances for others (McLarty, R., 2005). Many universities have studied their students 'entrepreneurship intention as entrepreneurship intention is the best predictor of starting a new business (Audet, J., 2004). But in technology universities less number of studies have been conducted on entrepreneurship intention of students, though students in technological universities own technology capabilities, knowledge and awareness in innovation which are vital to entrepreneurship. There is a gap in studies conducted regarding entrepreneurship intention of technology university students. Hence this study aims to explore the entrepreneurship intention of technology university students.

## **Research problem**

Many researches have been conducted on entrepreneurship and entrepreneurship intention related to university students (Wouter, D., 2004; Hannon, P.D., 2005; Fayolle, A. and Gailly, B., 2005). But less number of researches have been conducted on entrepreneurship and entrepreneurship intention of technology university students (Mancenido, M.V., 2008). Technology plays a critical role in entrepreneurship development. Technology universities provide the technology education required by the industries. But low number of researches conducted on entrepreneurship creates a huge gap on how technology universities influence entrepreneurship activities of students, entrepreneurship intention of students and what is the level of entrepreneurship engagement, entrepreneurship intention of technology students.

Even in available studies regarding entrepreneurship and entrepreneurship intention related to technology universities only one or few research areas are addressed from a single research. As examples researchers conducted by Zhang, Y., Duysters, G. and Cloudt, M. (2014), Berggren, E. (2011) and Jwara, N. and Hoque, M. (2018) address either entrepreneurship intention related matters or entrepreneurship engagement related matters individually. Hence there is a gap in studying entrepreneurship, entrepreneurship intention and factors effecting entrepreneurship intention related to technology universities from a single research.

Most of the researches conducted on entrepreneurship and entrepreneurship intention related to technology university are based on a single country. For examples researches conducted by Iwu, C.G. et.al (2016), Vuong, B.N. et al (2020), Jacob, M., Lundqvist, M. and Hellsmark, H. (2003) are based on single countries. Hence there is a gap in studying entrepreneurship and entrepreneurship

intention of technology universities across different countries from a single study.

### **Research rationale**

In current decade there is an influence of using technology for every profession and daily lives of human. Technology is useful for developing and maintaining businesses. Technology is the base of many new businesses and technology enables new business opportunities. Many counties are establishing technologies with the intention of generating entrepreneurs to develop national economy. Reviewing existing studies on entrepreneurship and entrepreneurship intention of technology university students is significant for policy makers and administrators for future planning. Further the study discusses the factors influencing entrepreneurship intention of technology university students. The current level of entrepreneurship engagement is explored. Hence above facts are useful for governments and entrepreneurship development authorities for arranging further projects. Considering the context of Sri Lanka new trend in technology education is there as many government universities opened a faculty of technology parallel to the introduction of technology stream to advance level exam. The results of this study can be used to develop technology education streams and technology faculties of universities to increase the entrepreneurship in Sri Lanka.

### **Objectives of the study**

Objective 1: To identify the level of entrepreneurship intention in technology universities

Objective 2: To identify the entrepreneurship engagement level of technology university students.

Objective 3: To identify the factors effecting entrepreneurship intention of students in technology universities

## ***LITERATURE REVIEW***

### **Entrepreneurship in technology universities**

Entrepreneurship is becoming rapidly important in university curricula globally. Technology and science students are also offered entrepreneurship courses as educational programs (Kuratko, 2005). In the past two decades, the education industry witnessed a dramatic increase in investment for entrepreneurship in universities and public research organizations (Abdullah, Osman and Rahim, 2008.). Along with the flourishing capabilities of students for action-based and reflective learning courses offered for technology, students are contributive toward entrepreneur education for students (Fayolle, 2018). According to (Hussain, Hashmi and Gilani, 2018) Self-employment and entrepreneurship can be a determinant to generate new employment opportunities for technology university students. In developing countries, this opportunity will enhance students living in these countries. Technology universities today facilitate and stimulate entrepreneurship with excellence in engineering related education. Technology universities can spread entrepreneurial spirit in universities. This support to transform the passion of technology student ability toward delivering inspired innovation (Militaru, Pollifroni and Niculescu, 2015)

Technology-based education programs are recently been promoted in several developing countries. The study conducted in Taiwan states that technology university students who follow technology courses are also being offered entrepreneurship courses as elective courses as part of their educational programs. Technology Universities offer implementation of technology commercialization courses for technology students. This helps to foster entrepreneurship in technology

universities to reduce the capability gap by offering entrepreneurship-related courses. These courses encourage technology students to work entrepreneurially and it changes the culture of technology laboratories. The main purpose of universities is to give access to support and demand the entrepreneurial process. Along with offering entrepreneur-related courses, the university gives experience-sharing lectures by entrepreneurs (Shih

In order to achieve three main goals to make the student more passionate to become entrepreneurs, these students should have psychomotor and cognitive skills to create a better business plan and positive behavior on entrepreneurship. The education system is required to promote entrepreneurship culture among technology education students to achieve these goals (Hussain, Hashmi and Gilani, 2018). The inventions and discoveries done by universities are becoming the engine for technology and entrepreneurship improvement. This invention engine promotes establishing and starting up companies (Thursby, 2005). It can observe that technology students are progressively fascinated to

and Huang, 2017). The management information technology (MIT) was successful to establish technology entrepreneurship initiatives. MIT successfully prepares the student not only to come up with new technologies but also to circulate the innovative technologies with successful commercialization. This helps to maximize the social and economic benefits (Standish-Kuon and Rice, 2002).

build their own business but technology student do not have the traditional skill set to evaluate opportunities and to develop successful business (Weaver et al, 2003).

## ***METHODOLOGY***

To study the entrepreneurship intention of technology university students, 10 researches are selected through latest research publication. Out of 250 researches emerged under the search term “entrepreneurship intention technology university” and out of them only 10 researches have studied regarding entrepreneurship intention and related matters in technology universities as listed in Table 1.

Table 1: List of researches selected to conduct the study and their authors.

Title of the study	Author/authors
Entrepreneurial intentions of Tshwane University of Technology, Arts and Design students	Ebewo, P.E., Shambare, R. and Rugimbana, R. (2017)
The relationship among technological creativity, self-efficacy and entrepreneurial intentions of selected South African university of technology students	Ndofirepi, T.M., Rambe, P. and Dzansi, D.Y. (2018)
Exploring entrepreneurial orientation and intentions among technical university students role of contextual antecedents	Sahoo, S. and Panda, R.K. (2019)

Factors affecting entrepreneurial intention among graduate students of UniversitiTeknologi Malaysia	Rasli, A., Khan, S.U.R., Malekifar, S. and Jabeen, S. (2013)
Attitude towards Entrepreneurship: An Exploration of Technology Education Students	Hussain, T., Hashmi, A. and Gilani, M. (2018)
The entrepreneurial intention of university students: The case of a University of Technology in South Africa	Iwu, C.G., Ezeuduji, I.O., Eresia-Eke, C.E. and Tengeh, R. (2016)
Impact of entrepreneurship learning on entrepreneurial intention of undergraduate students in the Federal University of Technology, Akure, Nigeria	OKE, D. and AYEDUN, T. (2017)
Students' attitudes and intentions toward entrepreneurship at Tallinn University of Technology	Venesaar, U., Kolbre, E. and Piliste, T. (2006)
Entrepreneurial intentions among university students: a case study of Durban University of Technology	Jwara, N. and Hoque, M. (2018)
Students' attitude towards entrepreneurship at Princess Sumaya University for Technology	Abualbasal, A.M. and Badran, R.E., 2019.

Aspects mentioned in every individual study regarding entrepreneurship intention of technology university students are taken into consideration. All aspects found in each study are reviewed to make general perception as the objective is to explore

entrepreneurship intention of technology university students. As depicted in Table 2, they are categorized into country, university and the faculty.

### ***ANALYSIS AND DISCUSSION***

Table 2: Countries, universities and faculties/degrees studied in selected researches

Title	Country	Based University	Faculty/Degree
Entrepreneurial intentions of Tshwane University of Technology, Arts and Design students	South Africa	Tshwane University of Technology.	Bachelor of Technology degree (Faculty of Art)

The relationship among technological creativity, self-efficacy and entrepreneurial intentions of selected South African university of technology students	South Africa	South African university of technology	Business, Applied Sciences, Humanities and Engineering degrees
Exploring entrepreneurial orientation and intentions among technical university students Role of contextual antecedents	India	National Institute of Technology Rourkela and Indian Institute of Technology Kharagpur	Engineering degrees
Factors Affecting Entrepreneurial Intention Among Graduate Students of UniversitiTeknologi Malaysia	Malaysia	UniversitiTeknologi Malaysia	Engineering, Education, Management and of Social Science faculties
Attitude towards Entrepreneurship: An Exploration of Technology Education Students	Pakistan	University of the Punjab, Lahore	Technology degree(Department of Technology Education at Institute of Education and Research)
The Entrepreneurial Intention of University Students: The Case of a University of Technology in South Africa	South Africa	University is not defined but one of technology universities in South Africa	Not mentioned
Impact of Entrepreneurship Learning on Entrepreneurial Intention of Undergraduate Students in the Federal University of Technology, Akure, Nigeria	Nigeria	Federal University of Technology	School of Management Technology

Students' Attitudes and Intentions toward Entrepreneurship at Tallinn University of Technology	Estonia	Tallinn University of Technology	Economics, Logistics and Technical (Technical-Mechanics, Power Engineering, Information Technology, Chemistry) degrees
Entrepreneurial Intentions Among University Students: A Case Study of Durban University of Technology	South Africa	Durban University of Technology	Applied Science, Health Science and Management Science faculties
Students' Attitude towards Entrepreneurship at Princess Sumaya University for Technology	Jordan	Princess Sumaya University for Technology	Business Administration, E-marketing, Management Information Systems, Accounting, Electronics, Engineering, Communication Engineering, Computer Engineering, Power and Energy Engineering, Computer Science, Animation, Business Entrepreneurship, Electrical Engineering, Information Technology Security & Digital Criminology, Software Engineering degrees



According to the table 2, out of selected studies, majority are from South Africa. 40% of the studies fall in to studies conducted in South African conditions and circumstances. One study was conducted in Nigeria which is a West African country. Considering the 4 researches conducted in Africa and one article conducted in West African country Nigeria, 50% the studies are conducted in African region. India and Pakistan have one research each and South Asia represents 20% in the selected list. Out of the 10 researches, Malaysia and Jordan provides two researches. All together 40% of the researches represent Asian context. Estonia has produced a research regarding entrepreneurship intention in technology

universities. Estonia represents Northern European context. 8 out of 10 the researches are from developing countries and the percentage is 80%. Estonian and Malaysian researches in the list represent the point of view of developed countries. The reason for the higher interest of researching entrepreneurship intention in technology universities from developing countries is because of the important aspects of entrepreneurship toward economy (Acs, Z.J. and Virgill, N., 2010). Developing countries focuses to gain the economic development by using entrepreneurship and roles of technology universities. Hence there are many researches from developing countries on the given context than other countries.

Table 3: Analysis for the research “Entrepreneurial intentions of Tshwane University of Technology, Arts and Design students”

Title of the book	Level of entrepreneurship intention	Factors effect on entrepreneurship intention	Factors do not effect on entrepreneurship intention	Entrepreneurship engagement
Entrepreneurial intentions of Tshwane University of Technology, Arts and Design students	58%-intention level within 12 months, 75%-within 1 to 5 years, 57%-within 5-10 years	attitudes, perceived abilities	subjective norms (with inter mediate variables attitudes, perceived abilities effects on entrepreneurship intention)	not mentioned

Entrepreneurial intentions of Tshwane University of Technology, Arts and Design students (Ebewo, P.E., Shambare, R. and Rugimbana., R. 2017) discusses the what drives students of Tshwane University of Technology to engage in entrepreneurship. Authors use theory of plan behavior to conduct the research. 61.3% of the respondents believe that entrepreneurship is a career option. Hence majority of the students have the

perception that entrepreneurship is one of the careers that people can make living such as other professions. 70.7% of the respondents believe that engaging in entrepreneurship brings self-satisfaction. Regarding the time frame of engaging with entrepreneurship, 58% of the respondents have the intention to become entrepreneurs within upcoming 12 months. This is a good feature regarding instant psychological status of engaging

with entrepreneurship. 75% of the students have rated that they can become entrepreneurs within upcoming 5 years. The percentage of students believing to launch a venture between 5-10 years is 57%. Hence the students are having high possibility in becoming entrepreneurs within 0-5 years and first 12 months is critical as they have a clear intention to become entrepreneurs. But further analysis shows that though the entrepreneurship intention has cultivated

among students, serious entrepreneur percentage is 49.3%. Further the finding according to the theory of planned behavior proves that attitudes and perceived abilities allow students to gain entrepreneurship intention. Subjective norms don't have a direct relationship with entrepreneurship intention. But attitude and perceived abilities act as intermediate factors in between subjective norms and entrepreneurship intention.

Table 4: Analysis for the research “The relationship among technological creativity, self-efficacy and entrepreneurial intentions of selected South African university of technology students”

Title of the book	Level of entrepreneurship intention	Factors effect on entrepreneurship intention	Factors do not effect on entrepreneurship intention	Entrepreneurship engagement
The relationship among technological creativity, self-efficacy and entrepreneurial intentions of selected South African university of technology students	not mentioned	self-efficacy, work experience	technological creativity (with intermediate variable self-efficacy relates with entrepreneurship intention)	prior experience with entrepreneurship -45.38%, linked with entrepreneurship -63.85%

The relationship among technological creativity, self-efficacy and entrepreneurial intentions of selected South African university of technology students (Ndofirepi, T.M. et.al., 2018) focuses on finding the link between technology creativity and self-efficacy and entrepreneurial intentions of .Out of the

responses university students have prior experience to entrepreneurship approximately with 45.38%. And 63.85% of the university students have linked with entrepreneurship. Based on the facts university students in South African University of Technology have a sound entrepreneurship background. Level of

entrepreneurship intention has not been mentioned by the authors. There is no effect from technological creativity on entrepreneurial intention. But self-efficacy relates positively with both entrepreneurial creativity and entrepreneurship intention. Self-efficacy, technological creativity and entrepreneurship intention have positive

correlation one to another. And self-efficacy acts as an intermediate factor creating the link between technological creativity and entrepreneurship intention. Further there is a relationship among entrepreneurship intention of students and prior experience in entrepreneurship has been mentioned.

Table 5: Analysis for the research “Exploring entrepreneurial orientation and intentions among technical university students role of contextual antecedents”

Title of the book	Level of entrepreneurship intention	Factors effect on entrepreneurship intention	Factors do not effect on entrepreneurship intention	Entrepreneurship engagement
Exploring entrepreneurial orientation and intentions among technical university students role of contextual antecedents	4.023 (lickertscalar)	entrepreneurship orientation	not mentioned	not mentioned

Sahoo, S. and Panda, R.K. (2019) conducted the research “Exploring entrepreneurial orientation and intentions among technical university students role of contextual antecedents” to find the impact of contextual antecedents on individual entrepreneurial orientation and entrepreneurship intention of university students. The research mainly focuses on finding whether access to financing, access to business information, social networks and university support have relationships with individual entrepreneurial orientation. And also it is intended to find out whether individual entrepreneurial orientation impacts on

entrepreneurship intention. According to the findings antecedent factors namely access to financing, access to business information, social networks and university support have positive relationships with individual entrepreneurial orientation. Individual entrepreneurial orientation also has a positive impact on entrepreneurship intention. The level of entrepreneurship intention of university students has been measured and the mean value for entrepreneurship intention is 4.023 according to the lickert scalar. Level of entrepreneurship intention is into positive side. Entrepreneurship orientation has a

mean value 3.993 and more close to the value 4. Based on the lickertscalar

individual entrepreneurial orientation is rated to be in a positive level.

Table 6: Analysis for the research “Factors affecting entrepreneurial intention among graduate students of Universiti Teknologi Malaysia”

Title of the book	Level of entrepreneurship intention	Factors effect on entrepreneurship intention	Factors do not effect on entrepreneurship intention	Entrepreneurship engagement
Factors affecting entrepreneurial intention among graduate students of Universiti Teknologi Malaysia	60.71%.	Gender, work experience	race, field of study and parents' occupation	not mentioned

“Factors affecting entrepreneurial intention among graduate students of UniversitiTeknologi Malaysia”by Rasli, A. et.al. (2013) focuses on exploring the relationship among antecedents among university students of UniversitiTeknologi Malaysia and entrepreneurship intention. Entrepreneurship intention among the students is 60.71%. Further entrepreneurship intention is compared within different groups in population. Entrepreneurship intention is not depending on the type of race, field of study and parents' occupation. But Gender and work experience individually impacts on entrepreneurship intention. Among male students entrepreneurship intention is 62.35% and among female students it is

59.75%. Male students have higher potential to become entrepreneurs. Students who do not have any prior work experience have entrepreneurship intention percentage of 59.12% and students with some work experience have entrepreneurship intention percentage of 62.50%. Entrepreneurship intention among students with prior work experience is significantly higher than who do not have any prior experience. Entrepreneurial conviction of students has a relationship with entrepreneurship intention and also education environment has a relationship with entrepreneurship intention. Considering entrepreneurial conviction and education environment a relationship can be identified.

Table 7: Analysis for the research “Attitude towards Entrepreneurship: An Exploration of Technology Education Students”

Title of the book	Level of entrepreneurship intention	Factors effect on entrepreneurship intention	Factors do not effect on entrepreneurship intention	Entrepreneurship engagement
Attitude towards Entrepreneurship: An Exploration of Technology Education Students	3.69 (lickert scalar)	program type	gender, class sessions	not mentioned

Hussain, T., Hashmi, A. and Gilani, M. (2018) aim to find out the association between technology education and entrepreneurship intention through the study “Attitude towards Entrepreneurship: An Exploration of Technology Education Students”. Theory of planned behavior is used to study the entrepreneurship intention among students who receive technology education. Entrepreneurship intention has a mean value of 3.69 according to the lickert scalar and it is rated to be in positive range. Attitude towards the behavior has a mean value of 3.85 and rated to be in positive status. Perceived behavioral control owns a mean value 3.72 and categorized to be in positive status. Personality traits have a mean value 3.70 and it is in positive status

too. Overall result is all the components of theory of planned behavior including entrepreneurship intention are in positive statuses. Rather than finding the association between theory of planned behavior variables and entrepreneurship intention, they are compared with in groups such as gender, class session and program type. For gender and class sessions theory of planned behavior independents variables and entrepreneurship intention variables do not differ within the group. But program type has a deviation that self-supporting program has a better influence than morning program considering perceived behavioral control, personality traits and entrepreneurial intention. But for attitude towards the behavior there is no difference among morning and self-supporting types.

Table 8: Analysis for the research “The entrepreneurial intention of university students: The case of a University of Technology in South Africa”

Title of the book	Level of entrepreneurship intention	Factors effect on entrepreneurship intention	Factors do not effect on entrepreneurship intention	Entrepreneurship engagement

The entrepreneurial intention of university students: The case of a University of Technology in South Africa	62.7%- study period, 53.1%- after graduation, 55.4%- after long time of the graduation	failure tolerance of the society-negative, influence of lecturers, work experience	not mentioned	39.8% -during study period
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Iwu, C.G et al(2016)discusses the entrepreneurship intention of students from the study “The entrepreneurial intention of university students: The case of a University of Technology in South Africa”. Out of the students considered in the sample, 50.4% are taking or have taken entrepreneurship related course works through the university. Social influence on them to become entrepreneurs is rated as high or very high by 47.4% of the respondents. Their perception on failure tolerance of the society is into lower side that there is a huge negative effect from the society if entrepreneurs fail to success. Entrepreneurship intention of the students during the study period is 62.7% and just after the graduation it is 53.1%. Though the entrepreneurship intention during the

study period is very high it drops down soon after the graduation. After a long time of the graduation the entrepreneurship intention level slightly increases up to 55.4%. 39.8% of the students own ventures during the study period and it is a positive sign of entrepreneurship development. Out of the factors influencing entrepreneurship intention, education system (delivered course units, workshops, etc.) is the most influencing factor. Economic condition in the country and influence set by other entrepreneurs encourage the entrepreneurship intention. Considering the educational system, influence set by lecturers and work experience provided through the university are most significant to entrepreneurship intention.

Table 9: Analysis for the research “Impact of entrepreneurship learning on entrepreneurial intention of undergraduate students in the Federal University of Technology, Akure, Nigeria”

Title of the book	Level of entrepreneurship intention	Factors effect on entrepreneurship intention	Factors do not effect on entrepreneurship intention	Entrepreneurship engagement

Impact of entrepreneurship learning on entrepreneurial intention of undergraduate students in the Federal University of Technology, Akure, Nigeria	3.88- (lickert scalar)	entrepreneurship education	not mentioned	not mentioned
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Impact of entrepreneurship learning on entrepreneurial intention of undergraduate students in the Federal University of Technology, Kure, Nigeria by OKE, D. and AYEDUN, T. (2017) explores the difference in entrepreneurship intention among students who receive entrepreneurship education and who do not receive. To explore the entrepreneurship intention theory of planned behavior is used by the authors. Attitude towards entrepreneurship of students has mean value 4.20 according to the lickert scalar and it is into positive status. Perceived Behavioral Control owns a mean value of 3.90 based on the lickert scalar and it is into positive status. Social norms factors has a mean value 3.96 and the status is close to positive side. Entrepreneurial Intention has a mean value 3.88 and the status is more close to

positive. Entrepreneurship Education mean value is 4.14 and in a positive status. Attitude towards entrepreneurship, perceived behavioral control, social norms and entrepreneurial intention are compared with respect to whether the students are following entrepreneurship courses or not. There is no significant difference among entrepreneurship education receiving students and non-receiving students considering attitude towards entrepreneurship, social norms and entrepreneurial intention. Only perceived behavioral control has a difference between entrepreneurship education receiving and non-receiving student types. Perceived behavioral control is significantly higher in entrepreneurship education receiving students. Farther more there is a positive impact of entrepreneurship education on entrepreneurship intention of the students.

Table 10: Analysis for the research “Students’ attitudes and intentions toward entrepreneurship at Tallinn University of Technology”

Title of the book	Level of entrepreneurship intention	Factors effect on entrepreneurship intention	Factors do not effect on entrepreneurship intention	Entrepreneurship engagement

Students' attitudes and intentions toward entrepreneurship at Tallinn University of Technology	56.9%- technical specialties, 59.5%- economics, 68.7%- logistics(average-61.7)	not mentioned	not mentioned	9.7%- technical specialties during study period, 14.3%- economics stream during study period, 15.3%- logistics stream during study period(average-13.1)
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Venesaar, U., Kolbre, E. and Piliste, T. (2006) in their study “Students’ attitudes and intentions toward entrepreneurship at Tallinn University of Technology” aim to find the intention and attitude of students regarding entrepreneurship. Entrepreneurship intention percentage among technical specialties, economics and logistics students are 56.9%, 59.5% and 68.7% respectively. Percentage of already involving entrepreneurship are 9.7%, 14.3% and 15.3% respectively. Out of three disciplines logistics has the highest rate of entrepreneurship engagement and intention rate. Bachelor degree students have higher rate of entrepreneurship than master level students that rates are respectively 64.3% and 57.1%. Engagement in entrepreneurship already is higher with mater level students that bachelor level students has the rate of 12.4% and master

level students have 14.1%. Men have higher entrepreneurship intention than women and engagement with entrepreneurship. 64.9% is the entrepreneurship intention level of men and 20.9% is the entrepreneurship engagement of men. In other hand women have 58.7% of entrepreneurship intention and 7.1% of entrepreneurship engagement. Entrepreneurship intention among age groups 20 to 25, 26 to 30 and above 30 are 63.9%, 53.7% and 47.1%. 20 to 25 age group has the highest entrepreneurship intention. Entrepreneurship engagement among age groups 20 to 25, 26 to 30 and above 30 are 11.5%, 13% and 29.4%. Based on the facts 20 to 25 age group has the highest entrepreneurship intention but lowest entrepreneurship engagement. Age group above 30 has the lowest entrepreneurship intention but highest entrepreneurship engagement.

Table 11: Analysis for the research “Entrepreneurial intentions among university students: a case study of Durban University of Technology”

Title of the book	Level of entrepreneurship intention	Factors effect on entrepreneurship intention	Factors do not effect on entrepreneurship intention	Entrepreneurship engagement
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Entrepreneurial intentions among university students: a case study of Durban University of Technology	33.60%	Motivation related factors and personality factors	gender, faculty type, Contextual related factors	not mentioned
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Entrepreneurial intentions among university students: a case study of Durban University of Technology by Jwara, N. and Hoque, M. (2018) discusses entrepreneurship intention related aspects of students. According to the findings some racial types have let students to have entrepreneurial experience from decent that White and Indian racial groups have more entrepreneurial prior experience than others. The study explores personality factors, motivational related factors and contextual related factors regarding entrepreneurship intention. Under personality factors independency provided by entrepreneurship is the most significant sub factors with 61% and self-achievement is the second with 59.3%. Considering motivation related factors lack of job opportunities is the major

reason with 71.3%. Money and social status sub factor and job creation for others are rated with 67.5% and 65.3% respectively. Motivation related factors and personality factors effect on entrepreneurial intention. Contextual related factors are not relevant with entrepreneurship intention that cultural influence and network influence are less than 50%. Only government support just exceeds 50%. Entrepreneurship intention of students is not significantly affected by the faculty type that all the facilities carries approximately similar entrepreneurship intention percentages. Even gender has no effect to the intention of students regarding entrepreneurship. Overall intention of students considered in the study towards entrepreneurship is in a status that it is 33.6%.

Table 12: Analysis for the research “Students' attitude towards entrepreneurship at Princess Sumaya University for Technology”

Title of the book	Level of entrepreneurship intention	Factors effect on entrepreneurship intention	Factors do not effect on entrepreneurship intention	Entrepreneurship engagement
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Students' attitude towards entrepreneurship at Princess Sumaya University for Technology	not mentioned	Gender, Age category, level of finance, status of work, degree type, parents' occupation, improving quality of life, improving standard of life, technology literacy	not mentioned	not mentioned
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Abualbasal, A.M. and Badran, R.E.(2019) in their study “Students' attitude towards entrepreneurship at Princess Sumaya University for Technology”, discuss about factors affecting entrepreneurship intention of students. Awareness among students regarding entrepreneurship and status of entrepreneur have been explored that students have a better perception on both entrepreneurship and status of entrepreneur. Awareness rate for above is over 50% among the students towards positive side.Improving quality of life,

improving standard of life and technology literacy encourage an individual to become an entrepreneur positively. The percentages are respectively 73.7%, 70.1% and 73.3%.Few demographical factors have impact on entrepreneurship intention of an individual. Gender, Age category, level of finance, status of work, degree type, parents' occupation are the demographical factors which make impact of individual intention towards entrepreneurship. Entrepreneurship intention level is not mentioned in the study.

### Summary of finding of entrepreneurship intention of technology university students

Table 13: Analysis for entrepreneurship intention of technology university students

Description	During study period	Soon After graduation	Mid time after graduation 1-5 years	Long time after graduation
Calculation	$(60.71\%+62.7\%+61.7\%+33.6\%)/4$ Percentage $(4.023 + 3.69 + 3.88)/3$ Lickert scale	$(58\%+53.1\%)/2$	75%	$(57\%+55.4\%)/2$
Average	54.67% percentage Lickert scale 3.86	55.55%	75%	56.70%

Considering the overall entrepreneurship intention of all the given researches there are major four aspects. Entrepreneurship intention during study

period, Soon after graduation (0-12 months), Mid time after graduation (1-5 years) and long time after graduation (more than 5 years). During the study

period entrepreneurship intention is rated to be 54.7%. Soon after graduation entrepreneurship intention is 55.55%. Entrepreneurship intention midterm after graduation is 75%. Long time after graduation entrepreneurship intention is 56.76%. Highest intention to become entrepreneurs among technology

graduates is recorded during 1 to 5 year after graduation. During other three major aspects entrepreneurship intention is between 54% and 57%. Hence over all entrepreneurship intention of technology graduates is over 50% and it is a considerably high.

**Summary of finding of entrepreneurship engagement of technology university students**

Table 14: Analysis for entrepreneurship engagement of technology university students

Description	Entrepreneurship engagement
Calculation	45.38+63.85%+39.8%+13.1%
Average	40.53%

Considering all the researches entrepreneurship engagement of technology students during the study period is 40.53. While conducting the education reasonable percentage of technology stream students conduct

businesses. It's a good factor considering students engage in businesses. With the technology knowledge many will convert into entrepreneurs and increase the entrepreneurship engagement percentage after graduation.

**Summary of finding of factors effecting entrepreneurship intention of technology university students**

Table 15: Analysis for factors effecting entrepreneurship intention of technology university students

Factor	Associating entrepreneurship intention	Not associating entrepreneurship intention
Age category	Yes	
Attitude	Yes	
Degree type	Yes	Yes (Field of study)
Entrepreneurship education	Yes	
Entrepreneurship orientation	Yes	
Failure tolerance of the society-negative	Yes	
Gender	Yes	Yes
Improving quality of life	Yes	
Improving standard of life	Yes	
Influence of lecturers	Yes	

Level of finance	Yes	
Motivation factors	Yes	
Parents' occupation	Yes	Yes
Perceived abilities	Yes	
Personality factors	Yes	
Program type	Yes	
Self-efficacy	Yes	Yes
Status of work	Yes	
Technology literacy	Yes	
Work experience	Yes	
Contextual related factors		Yes
Faculty type		Yes
Class sessions		Yes
Subjective norms		Yes
Technological creativity		Yes
Race		Yes

Few factors are identified from the researches and two categories can be observed. Factors which affect entrepreneurship intention of technology graduates and factors which don't affect on entrepreneurship intention of technology graduates are the two categories. Some factors belong to only one category, either affect or not affect to entrepreneurship intention. And the other factors belong to both affecting and not affecting on entrepreneurship categories.

Age category, attitude, entrepreneurship education, entrepreneurship orientation, failure tolerance of the society (negative), improving quality of life, improving standard of life, influence of lecturers, level of finance, motivation factors, perceived abilities, personality factors, program type, status of work, technology literacy and work experience are the factors affect entrepreneurship intention of technology students. Out of the factors that affect entrepreneurship intention only failure tolerance of the society negatively

impacts on entrepreneurship intention of technology students.

Contextual related factors, faculty type, class sessions, subjective norms, technological creativity and race are reported to be not affecting on entrepreneurship intention of technology stream graduates. Degree type, gender, parents' occupation and self-efficacy are considered by few researches to be affecting entrepreneurship intention of technology graduates and some other consider them as not affecting on entrepreneurship intention of technology graduates. Based on the facts above facts seems to be conditionally affect entrepreneurship intention.

## **CONCLUSION**

To study the entrepreneurship intention of technology university students 10 researches were selected. Researches belong to 7 different countries and 80% of the researches are from developing countries. Reason for paying attention towards entrepreneurship intention of

technology universities is developing countries aim to gain economic development through entrepreneurship.

Entrepreneurship intention of technology graduates is defined in major 4 aspects. Entrepreneurship intention during study period, entrepreneurship intention soon after graduation, entrepreneurship intention mid time after graduation and entrepreneurship intention long time after graduation. Highest entrepreneurship intention is reported for midterm after graduation with 75%. Second highest entrepreneurship intention is recorded with long time after graduation with 56.7%. Soon after the graduation it is 55.55%. During the study period entrepreneurship intention is 54.7% and it is the lowest. According to the objective one the entrepreneurship of technology undergraduates is observed and overall entrepreneurship intention is above 54% despite the different levels of entrepreneurship with respect to time period.

Entrepreneurship engagement of the technology university students during the study period is studied as the second objective is to stud the level of entrepreneurship engagement. Overall percentage of students engaging entrepreneurship is 40.53%. Nearly 40 students out of 100 students in technology universities conduct own businesses. Considering the overall reasonable amount of students from technology universities engage with entrepreneurship during study time.

Factors affecting entrepreneurship intention of technology students is studied according to the third objective. Out of the factors raised in the considered researches; age category, attitude, entrepreneurship education, entrepreneurship orientation, improving quality of life, improving standard of life, influence of lecturers, level of finance, motivation factors, perceived abilities, personality factors , program type, status of work, technology

literacy and work experience are affecting on entrepreneurship intention of technology university students. Failure tolerance of the society is the only factor negatively affecting on entrepreneurship intention. Contextual related factors, faculty type, class sessions, subjective norms, technological creativity and race are not effecting on entrepreneurship intention of technology university students. Degree type, gender, parents' occupation and self-efficacy are found to be effecting with respect to few researches and also some other researchers have found they are not. Hence the above factors are conditional factors effecting on entrepreneurship intention of technology university students.

Entrepreneurship intention of students from technology universities is in a good level and entrepreneurship engagement during the study period is also in a good level. Based on the findings the countries who willing to improve future development through entrepreneurship can adapt technology university concept. Investors can invest on business projects of technology university students as they have better entrepreneurship orientation. And policy makers and administrators can develop entrepreneurship intention of technology universities through stimulating factors effecting entrepreneurship intention identified in the research.

### **Limitations of the study**

This research uses previous studies conducted on entrepreneurship and entrepreneurship intention related to technology universities for the analysis. The accuracy of the findings depends on the secondary data sources. It is better if primary data can be collected from different technology universities across the world. But due to time, cost and access issues it is hard to conduct primary research.

Limited number of researches are available to select for the study which conducted on entrepreneurship and entrepreneurship intention regarding technology universities. To increase the accuracy of the research is better to find out many researches as possible. And lack of researches available conducted on entrepreneurship and entrepreneurship intention regarding technology universities is identified as a limitation.

## **RECOMMENDATIONS**

Highest entrepreneurship intention of technology university undergraduates is reported during 1-5 years. To convert the intention of technology undergraduates into successful ventures most suitable time period is between 1 to 5 years after graduation. Government and non-governmental entrepreneurship development authorities can launch consultation sessions targeting technology university passed out students during 1 to 5 years to convert them into venture holders. Banks can launch financial loan systems targeting passed out technology university students in between 1 to 5 years as they have high potential to start own business.

During study time period entrepreneurship intention of technology undergraduates is over 50% and engagement with entrepreneurship is over 40%. During the study time they own high awareness, enthusiasm and engagement with entrepreneurship. Universities can develop research facilities, incubator facilities and laboratory facilities to increase the conversion of students into venture owners while conducting education. Technology universities can arrange investor network from potential investors who are willing to invest in venture ideas of students. Business centers in which students can sell their products and services can be established in

universities which enables to win new markets for students engaged with entrepreneurship.

The study finds factors which influence the entrepreneurship intention of technology universities. Out of the found factors some areas can be addressed through technology education that universities can adapt them into learning system. Attitude and motivation plays a key role influencing entrepreneurship intention and universities can conduct sessions to motivational sessions to encourage students to in cultivate intentions related to venture creation and engage with it. Influence of lecturers can be sued to increase the students' intention to become entrepreneurs. University should allocate lectures to mentor students individually to influence them by sharing experiences and knowledge. Technology universities should provide more industrial projects, assessments, training sessions and exposure to students as it increases the entrepreneurship intention. Personality building and skill development sessions can be adopted to learning cycle that with proper personality and set of skills students can gain the mind set related to venture creation. Technology literacy is a significant aspect which can convert the students to venture creation hence technology universities can adapt emerging technologies into syllabus as it allows students to gain technology literacy with changing technological domains.

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