

# SAILING INTO ENTREPRENEURSHIP: THE ROLE OF INSTITUTIONS AND PROGRAMS IN SHAPING FUTURE MARINE INNOVATORS

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## ABSTRACT

Entrepreneurship is becoming an advocated strategic solution to graduate employability issues in sector-specific higher education. This paper discusses the relationship between institutional context and programme orientation and entrepreneurial intention among fisheries and marine science students in Kerala through primary quantitative data. A questionnaire was conducted with students at specialized fisheries universities, general universities, and affiliated colleges in both undergraduate, postgraduate and vocational programmes. Descriptive statistics, a test of mean difference, and multiple regression analysis were used to evaluate the institution and programme based entrepreneurial intention differences and adjusting the psychological determinants based on the Theory of Planned Behaviour. The findings show that there are great differences in the entrepreneurial intention of various institutions and programmes, students of specialized fisheries institutions and fisheries orientated programmes portray a high entrepreneurial intention compared to their colleagues. The results of regression also show that the institutional and programme effects are not insignificant despite the consideration of attitude, subjective norms and perceived behavioural control. The research adds to the existing body of comparative empirical studies in the literature on higher-education entrepreneurship and provides policy-oriented outcomes to the need to align fisheries and marine science education with entrepreneurship-driven developmental and employment goals.

**Keywords:** *Entrepreneurial intention, fisheries education, institutional context, programme differences, Theory of Planned Behaviour, primary survey data*

## INTRODUCTION

### Background and Context

Graduate employability has become a prominent issue in applied and sector-specific higher education, especially regarding professional and science-based graduates where there has not been a corresponding growth in secure wage jobs in conjunction with the growth of higher education. The recent research on graduate labour markets underscores that the traditional public and organized private forms of employment are becoming constrained, leading to the long periods of schools to work and underemployment among the educated young people (Naudé, 2019; Urbano et al., 2020; Audretsch et al., 2020). In this regard, entrepreneurship is being actively encouraged as a viable career option that allows graduates to use domain-specific skills to self-employ, create jobs, and enhance local economic growth, particularly in industries that have large resource bases but low rates of formal job acquisition.

The state of Kerala offers a rather helpful empirical context to study these problems because of the economic and social significance of fisheries and marine activities in the state. Fisheries and related industries remain a source of livelihood, and a major contributor to export revenue, but the shift to production systems, mechanization, and a new market structure has limited the number of educated graduates who could be hired and utilized (Shinoj et al., 2021; Joseph and Salim, 2022). As a reaction, fisheries education in Kerala has undergone an increase and diversification with programmes being provided at both specialized institutions and general universities. Introduction of a specialized fisheries university and marine and fisheries programmes in general universities has resulted in a heterogeneous institutional environment, marked by variability in curriculum design, industry exposure, orientation towards extensions, and entrepreneurial ecosystems (Raju & Bhatta, 2020).

The impact of this institutional diversity on career orientations as well as entrepreneurial intentions of students is likely to be significant. Research in higher education entrepreneurship underlines that universities are not neutral spaces, but institutional context, pedagogical focus, and exposure to industry and policy networks influence the entrepreneurial mindset and intentions of students (Liñan et al., 2011; Nabi et al., 2017). Therefore, entrepreneurship has become more topical in fisheries and marine science programmes not merely as an alternative to paid work but also to connect technical expertise with new prospects in the sphere of aquaculture, post-harvest processing, value addition, and service-based activities.

### **Research Problem and Motivation**

Although policy interest in the value of entrepreneurship and diversification in fisheries and related fields has increased, the entrepreneurial performance of fisheries and marine science graduates in these fields is still disproportionate. The major weakness of current research in the area of entrepreneurship intention is that most study participants have mostly assumed the existence of homogenous groups of students, without sufficiently considering the disparities that may occur due to institutional environments and the design of programmes. According to recent evidence, the institutional environment, exposure to the curriculum, and support mechanisms at the university level contribute significantly to the entrepreneurial intention, as they shape attitudes, perceived feasibility, and trust to the entrepreneurial capabilities (Solesvik et al., 2012; Barba-Sánchez and Atienza-Sahuquillo, 2018; Bosnjak et al., 2020).

This problem takes on special significance in the context of fisheries and marine science education in Kerala. Students who are in the special fisheries universities might be more exposed to sector specific extension activities, applied training and policy related programmes whereas those in the general Universities and the affiliated colleges might face different academic orientations and career expectations. Likewise, programme level variations like undergraduate or postgraduate training or fisheries or marine biology streams can lead to dissimilar levels of entrepreneurial preparedness and intent. Nevertheless, the literature in fisheries education has mainly concentrated on employment and sectoral limitations and policy analysis, and primary quantitative evidence comparing the entrepreneurial intentions between institutions and programmes has been limited (Raju and Bhatta, 2020; Shinoj et al., 2021).

This gap has inspired the current research to take a quantitative and primary data-driven research design to investigate whether and to what extent there are differences in entrepreneurial intentions among the institutions and programmes of fisheries and marine science in Kerala. The study aims to create empirical evidence, by explicitly including

institution-level and programme-level comparisons, which can help to advance the research on higher-education entrepreneurship and influence policy debates on curricular design and institutional support in sector-specific education settings.

## **REVIEW OF LITERATURE**

### **Entrepreneurial Intention in Higher Education**

Entrepreneurial intention is now a cornerstone of entrepreneurship research in higher education, in that it describes how individuals think in advance of actually creating a venture. Entrepreneurial intention has been commonly defined to be a future based, purposeful behavioural result that demonstrates a personal determination to initiate a new business in future (Bird, 1988; Krueger and Carsrud, 1993). This view is in line with the behavioural theories that say that intentionality is the nearest antecedent of action, especially in high risk and complex activities like entrepreneurship (Ajzen, 1991; Krueger et al., 2000). As a result, models founded on intention have become highly popular as analytically sound to study entrepreneurial potential among students.

An impressive amount of empirical data shows that the concept of student entrepreneurship cannot be sufficiently accounted by demographic or background factors. Rather, psychological and perceptual variables, including attitude towards entrepreneurship, perceived feasibility, and self-confidence are decisive factors in the formation of entrepreneurial intention (Liñan and Fayolle, 2015; Schlaegel and Koenig, 2014). The intentions of students are always influenced by their cognitive assessment of entrepreneurship as a career choice and not by the availability of the resources at the moment of study, as reported in studies of professional and applied disciplines, such as engineering, management, agriculture and science programmes (Souitaris et al., 2007; Solesvik et al., 2012).

Entrepreneurial intention studies are especially relevant in sectors with a constraint on employment opportunities where the traditional wage employment opportunities are scarce or unpredictable. Intentions-based studies in these settings give early indications of the tendency of graduates to take up self-employment or entrepreneurial options in reaction to the labour-market constraint (Naudé, 2019; Urbano et al., 2020). In the case of sector-specific disciplines, entrepreneurial intention also indicates how successful the educational systems were in terms of matching the technical knowledge to other livelihood pathways. Consequently, entrepreneurial intention has emerged as a major outcome variable in the higher-education research to comprehend graduate employability, career diversification, and economic resilience in resource-dependent and applied sectors.

### **Institutional Context and Entrepreneurship**

Universities have a vital role in the formation of entrepreneurial intentions, as they can not only impart academic knowledge but also create a kind of institutional environment that can shape the perceptions and aspirations of students and their confidence. The existing body of literature on entrepreneurship highlights those institutions are an entrepreneurial ecosystem, in which the curriculum design, pedagogical practices, extracurricular activity, and industry connections come together to collectively influence the entrepreneurial orientation of students (Liñan et al., 2011; Nabi et al., 2017). Universities which proactively incorporate entrepreneurship education, experiential learning and exposure to entrepreneurial models are known to promote entrepreneurial intentions among students.

The difference between specialist and general universities can be of great significance here. Specialized institutions, particularly those concerned with sector-specific training, professional training are more inclined towards applied training, extension, and having a

greater involvement with industry and policy stakeholders. These environments have the capacity to increase awareness of students of sector opportunities and minimize perceived obstacles to entrepreneurship (Barba-Sánchez and Atienza-Sahuquillo, 2018). Conversely, general universities can be more focused on academic or research results that can have an indirect effect on student career expectations and risk preference.

Mechanisms of institutional support, such as incubation facilities, mentoring programmes, access to networks, and institutional encouragement, have been found to have a strong impact on the entrepreneurial intention through their effects on perceived behavioural control and perceived feasibility (Solesvik et al., 2012; Bosnjak et al., 2020). Research also points out that the entrepreneurial climate of an institution as measured by peer influence, faculty attitudes and institutional norms is a significant factor in legitimizing entrepreneurship as a good career choice. Nonetheless, such support mechanisms are far more available and effective in some institutions than others resulting in dissimilar entrepreneurial results among students.

Although there has been an increase in appreciation of the role of the institutional context, empirical research in the area of sector-specific education has been limited to fisheries and marine sciences. The available literature is mainly in business or engineering schools, which creates a knowledge gap in evaluating the role of institutional differences in entrepreneurial intention in applied science and resource-based fields.

### **Programme-Level Differences in Entrepreneurial Orientation**

Another dimension that is significant in shaping entrepreneurial intention in students is programme-level characteristics. The differences in maturity, exposure, and clarity of career often emerge in the form of differences in entrepreneurial intention reported in a number of empirical studies between undergraduate and postgraduate students. The career choices and feasibility evaluations of postgraduate students tend to be more sophisticated, potentially reinforcing or damping entrepreneurial intention based on the perceived costs of opportunities and labour-market opportunities (Kolvereid and Isaksen, 2006; Trivedi, 2017). Undergraduate students, in their turn, might be more entrepreneurial-oriented and less perceived competency because of lack of experience.

Entrepreneurial orientation is also influenced by the differences between a professional and science-based programme. Professional programmes, with their focus on applied skills, industry engagement, and problem solving, are typically linked to an increased entrepreneurial intention, as opposed to science-focused programmes that focus on theoretical understanding and research opportunities (Souitaris et al., 2007; Barba-Sánchez and Atienza-Sahuquillo, 2018). This difference, however, is not absolute, with science-based programmes that have high application potential (agriculture, fisheries and aquaculture) also being able to contribute to entrepreneurship in the case of curriculum alignment with sectoral opportunities.

The agriculture, fisheries, and other related sectors provide evidence that the relevance of programmes to the local economic activities is a key factor in the development of entrepreneurial intentions. Research in agricultural education shows that students who have been exposed to agribusiness, value-chain development, and extension-oriented training have a greater entrepreneurial inclination (Pihie & Bagheri, 2013; Raju & Bhatta, 2020). Empirical studies are however limited in fisheries education and are mostly descriptive in nature, which emphasizes employment issues and sector constraints more than programme variation of entrepreneurial intention (Shinoj et al., 2021). The scarcity of programme-level comparative studies limits the knowledge of the effect of certain curricular designs and academic

orientations on entrepreneurial results. This disparity is especially profound in interdisciplinary areas like fisheries and marine sciences, where programmes vary greatly in content, orientation, and career trajectories.

### **Research Gap**

The significant progress of entrepreneurship intention research in the field of higher education, there are still significant gaps in its applicability in the context of sector-specific and applied science disciplines. To begin with, the literature on the subject is mainly focused on psychological factors at the individual level that determine entrepreneurial intention, without much attention to the interaction between these factors and institutional environments and programme design. Second, there is very little empirical research that compares entrepreneurial intentions in institutions of a specific type (i.e. specialized sectoral universities and general universities) especially in the context of a developing economy.

Third, comparative studies of programmes within the same sector are relatively uncommon, therefore, leaving limited evidence on the effect of undergraduate or postgraduate training or profession versus science-based curricula on entrepreneurial intention. This gap is further aggravated in the area of fisheries and marine science education, where policy-oriented and descriptive research predominates and fails to use rigorous quantitative research methodology that relies on primary data. This results in absence of systematic, institution-wise and programme-wise, empirical evidence, which can guide curriculum design and institutional policy. To fill these gaps, a comparative, primary data-intensive, quantitative methodology is necessary that explicitly analyses institutional and programme difference in entrepreneurial intention. Through this, studies will no longer be limited to general explanations but offer context-relevant information that can be useful in the formulation of higher-education policy and development of the sector.

## **DATA AND METHODS**

### **Research Design and Data Source**

To investigate the differences in the entrepreneurial intention of fisheries and marine science students in Kerala, institution- and programme-wise, the study employs quantitative, cross-sectional research design. The quantitative approach is especially suitable since the aim of the study is to examine the differences in means and provide estimates of the size of institutional and programme effects based on the statistically testable models. The application of cross-sectional designs has been widely used in entrepreneurship intention studies because it enables researchers to capture the perceptions of students and their career intentions at a very crucial moment of educational and career decision-making.

The analysis is founded on purely primary data, which has been gathered using a structured survey to the students participating in fisheries and marine science programmes. Primary data collection was necessary as the institutional exposure, programme orientation and psychological constructs like entrepreneurial intention are not well represented by secondary data. The survey instrument was constructed to produce similar quantitative data in institutions and programmes to facilitate the systematic comparison of empirical data.

The differences in fisheries and marine science education in Kerala warrant the focus on the institutional-programme comparison. The institutional mandates, curriculum organization, pedagogical orientation and exposure to both industry and policy ecosystems are likely to influence entrepreneurial intentions among students differently. A cross-sectional survey, therefore, is an appropriate empirical foundation to determine the significance of such differences as both statistically significant and substantively meaningful.

## **Population, Sampling and Data Structure**

The study population will be comprised of students taking fisheries and marine science courses in the major higher institutions of learning in Kerala. They consist of a fisheries university, university-based general universities providing marine and fisheries-related studies, and adjacency colleges providing undergraduate, postgraduate and vocational training. The institutional coverage was aimed to address the range of fisheries and marine science training in the state, between sector-specific training in professional education and more general science-based academic programmes.

Population-wise, the students of BFSC, MFSC, MSc Marine Biology, MSc Aquaculture, BVoc and others allied fisheries and marine science programmes are also included. These programmes vary in level of study, curricular focus as well as career orientation and thus are analytically relevant in comparative evaluation of entrepreneurial intention. The study used a stratified sampling strategy so as to achieve representativeness, the strata were based on institution and programme type. This strategy provided a balanced representation of the ultimate sample, with the students of both institutions and programmes.

Accessibility and willingness to participate were used to select respondents within each stratum, although there was a need to ensure there was enough representation. The resulting sample size was large enough to conduct a comparative statistical analysis, including mean comparison tests, and multivariate regression models. Sample adequacy was measured relative to the number of groups compared as well as the requirements of inferential statistics to ensure that the statistic power was adequate to identify meaningful institution-wise and programme-wise differences in entrepreneurial intention.

## **Variable Measurement**

The dependent variable of the research will be entrepreneurial intention, which will be the level of intention of a student to start an entrepreneurship as a career in the future. Entrepreneurial intention was measured through several Likert-scale items, which included willingness, commitment, and seriousness of entrepreneurial plans. These measures were modified versions of existing measures of entrepreneurship intentions applied in higher education studies. The major independent variables will be the core constructs of Theory of Planned Behaviour: attitude towards entrepreneurship; subjective norms; and perceived behavioural control. Attitude had the measure in items of the perceived desirability and attractiveness of entrepreneurship. Subjective norms reflected perceived social approval of family, peers and academic environment and perceived behavioural control reflected the confidence of the students to initiate and manage entrepreneurial activity.

Besides psychological variables, exposure to institutions and programme type was included as grouping and explanatory variables. Institution type (specialized university, general university, affiliated college) and programme level (undergraduate, postgraduate, vocational) were coded using categorical variables. Measures of all constructs were on Likert type scales, and the reliability was determined using Cronbachs alpha to determine internal consistency prior to performing comparative and multivariate analysis.

## **Statistical tools and Analytical strategy**

The analytical approach is a mix of descriptive and inferential statistic methods to analyse institution-level and programme-level differences in entrepreneurial intention. To answer the aims of the study, two main statistical tools were used.

## Independent Samples T-test and One-Way ANOVA

The first level of analysis was the use of mean comparison techniques which sought to determine the presence of statistically significant differences in entrepreneurial intention between institutions and programmes. One-way ANOVA was used when there were over two groups to be compared in terms of entrepreneurial intention e.g. among the different institutions or categories of programmes. Independent samples t-tests were employed in situations where there are two groups being compared. Post-hoc tests were applied where ANOVA results showed that there were significant differences to determine which group-level changes. This will offer first-hand evidence about the systematic variation of entrepreneurial intention between institutional and programme settings.

## Multiple Regression

To surpass the mean differences, a multiple regression analysis technique was used to approximate the net effect of institution type and programme type on entrepreneurial intention, and to adjust the effect of the psychological TPB variables. Institutional and programme types were created as dummy variables, and they could be compared between groups in relation to a reference group. Control variables were attitude, subjective norms and perceived behavioural control to isolate institutional effects and programme effects. This multivariate design allows a stricter evaluation of the persistence of institutional and programme differences after consideration of individual-level psychological determinants, thus making the study more effective in comparative terms.

## Results and Analysis

The section will display the empirical results of the research using primary quantitative data gathering of fisheries and marine science students in institutions and programmes in Kerala. The analysis incorporates the use of descriptive profiling, tests of mean comparison and multivariate regression to determine whether there is a significant difference between entrepreneurial intentions based on programme type and institutional context, and whether the difference holds after adjusting psychological determinants based on the Theory of Planned Behaviour.

## Institution and Programme Descriptive Profile

The descriptive profile of participants shows that there is great institutional and programme-level diversity which serves as a good foundation of comparative analysis. Represented students were of special fisheries universities, general universities, and associated colleges, and included undergraduate, postgraduate, and vocational courses in fisheries and marine sciences.

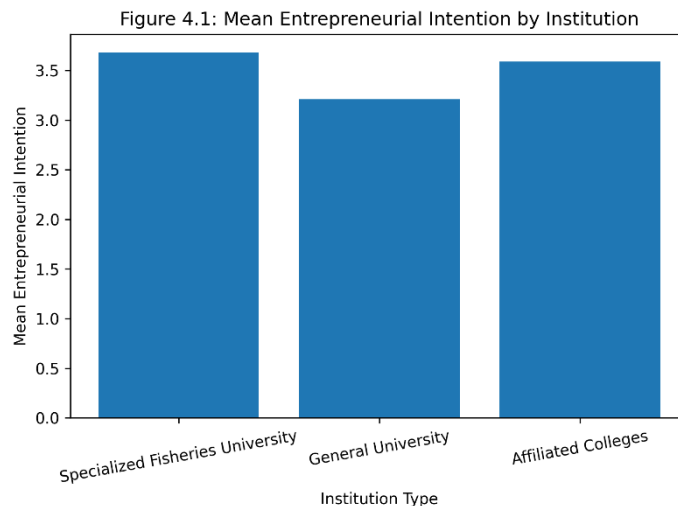
**Table 4.1 Institution-wise and Programme-wise Sample Distribution**

Institution	Programme	Sample Size
Specialized Fisheries University	BFSC	112
Specialized Fisheries University	MFSC	60
General University	MSc Marine Biology	46
General University / Affiliated Colleges	MSc Aquaculture	55
Affiliated Colleges	BVoc / Allied Programmes	53
<b>Total</b>	—	<b>326</b>

The distribution shows that undergraduate and postgraduate fisheries programmes are the largest group of respondents with marine biology and vocational programmes making smaller

yet analytically significant groups. This composition contains the real organization of fisheries and marine science education in Kerala and can be compared as meaningful programme-wise.

**Figure 4.1 Bar Chart of Mean Entrepreneurial Intention by Institution**



The bar chart of the means of entrepreneurial intention in institutions reveals apparent variation. The mean entrepreneurial intention is highest in the students of the specialized fisheries university, then the affiliated colleges, with the students in general universities having comparatively lower mean scores. This tentative trend indicates that institutional context can determine the entrepreneurial orientation of students, and that this subject should be further analyzed in an inferential manner. The descriptive findings suggest that although entrepreneurship is viewed as a potential career pathway in institutions, its perceived attractiveness and feasibility are systematically different between institutional contexts and programme design.

### Programme-Wise Differences in Entrepreneurial Intention

To test the hypothesis that there is a significant difference in entrepreneurial intention between academic programmes, the mean comparison test was used to determine the significant difference between the entrepreneurial intention of the two academic programmes through one-way ANOVA and the independent samples t-tests.

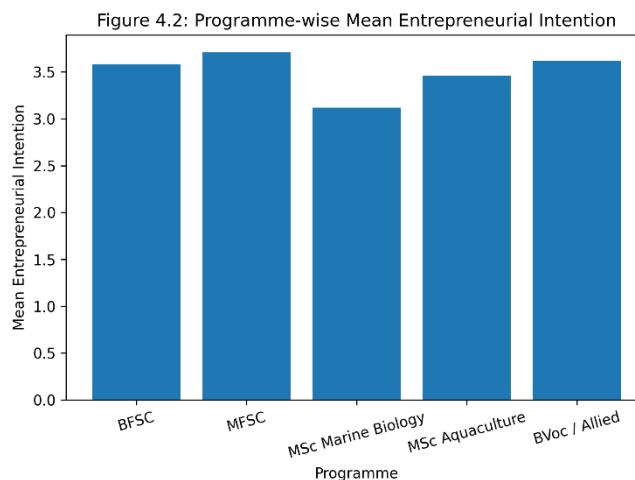
**Table 4.2 Mean Entrepreneurial Intention Scores programmes wise**

Programme	Mean EI	Std. Deviation
BFSC	3.58	0.64
MFSC	3.71	0.60
MSc Marine Biology	3.12	0.69
MSc Aquaculture	3.46	0.66
BVoc / Allied Programmes	3.62	0.63

The outcome of the ANOVA shows that the differences between the entrepreneurial intentions between programmes exist at the conventional levels, which are statistically significant. Post-hoc comparisons show the postgraduate fisheries students (MFSC) have

much higher levels of entrepreneurial intention than the marine biology students and moderate to high levels of entrepreneurial intention exists among vocational and undergraduate fisheries students.

**Figure 4.2 Comparison of Entrepreneurial Intention Programme-Wise**



These findings are reinforced visually by the plot of the programme-wise comparison that indicates a separation between fisheries-oriented programmes and marine science-oriented programmes. Stronger entrepreneurial orientation is indicated in fisheries programmes, especially, those that have applied and extension-based curricula. These findings indicate that the content and orientation in programmes are crucial factors in entrepreneurial intention. The applied skills, sectoral exposure, and livelihood-based training programmes seem to generate greater entrepreneurial intent as compared to programmes that are more academic or research-based.

### **Institution-Specific differences in entrepreneurial intention**

The comparison on an institution-level further explains the role of an educational context in entrepreneurial intention.

**Table 4.3 Constructs Comparison by Institution**

Institution Type	Attitude	PBC	Entrepreneurial Intention
Specialized Fisheries University	3.81	3.62	3.68
General University	3.45	3.12	3.21
Affiliated Colleges	3.70	3.48	3.59

The mean scores of attitudes, perceived behavioural control, and entrepreneurial intention are highest among students at the specialized fisheries university. Conversely, the perceived behavioural control and entrepreneurial intention among students at general universities is lower, which indicates a less strong belief in the feasibility of entrepreneurship.

Such disparities can be explained by institutional mandate, curriculum bias, and having exposure to industry-specific entrepreneurial ecosystems. The extension activities, exposure to the field, and policy-related programmes are frequently incorporated into specialized institutions, and they can give students confidence and entrepreneurial preparedness.

Although they excel in academic preparation, general universities might provide little practical exposure to the establishment of enterprises in the fisheries industry.

### Regression Results that include Institutional and Programme Effects

To evaluate the presence of institutional and programme effects that remain after the removal of psychological determinants, multiple regression analysis that incorporates the use of dummy variables was used.

**Table 4.4 Regression Results including Institutional and Programme Dummies**

Predictor	Standardized $\beta$	Significance
Attitude	0.29	***
Subjective Norms	0.08	*
Perceived Behavioural Control	0.41	***
Specialized University (Dummy)	0.18	**
Fisheries Programme (Dummy)	0.21	**
R <sup>2</sup>	0.63	

(\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ )

The outcomes of the regression analysis show that the perceived behavioural control is the most potent predictor of entrepreneurial intention. Notably, institutional type and programme orientation still have a strong positive impact despite adjusting the TPB variables. Learners pursuing their studies in fisheries focused universities and fisheries-based programmes have a greater entrepreneurial intention than their peers.

These results support the idea that institutional and programme contexts have extra explanatory strength in comparison with individual psychological variables, and the benefits of structures that are related to specialized, applied, and sector-specific education. The findings reveal the significance of institutional and programme relevance in the development of entrepreneurship amongst fisheries and marine science students.

## DISCUSSION

The interpretation of institutional and programme differences relies on factors such as organisational or institutional and programme differences. The findings have made it clear that the entrepreneurial intention differs systematically across institutions and programmes and that the context of education matters a lot in the formation of student career orientations.

The intention of students in specialized fisheries universities to become entrepreneurs is higher than that of students in the general universities. The reason behind this difference can be explained by the institutional requirement and ecosystem of specialized universities that is usually focused on applied training, sectoral problem-solving, and extension activities.

These institutions usually incorporate field exposure, stakeholder contact and programmes relating to policies in their academic set up, thus boosting the confidence of students in applying their technical knowledge into entrepreneurial activities.

This process is decisively determined by curriculum structure. Fisheries-based programmes focus on applied skills, livelihood skills and sector-based opportunities like aquaculture, value addition, and fisheries services. This perceived orientation minimizes uncertainty and enhances the strength of feasibility perceptions which are paramount in entrepreneurial intention. Conversely, the programmes provided by general universities, especially the marine science streams, would be more inclined towards academic and research routes which implicitly might promote wage work or post-secondary education over entrepreneurship.

This interpretation is further upheld by programme-level differences. The entrepreneurial intention of postgraduate fisheries students is greater than that of undergraduate and marine biology students, indicating that greater exposure, maturity and clarity about sectoral opportunities lead to a greater entrepreneurial readiness. The entrepreneurial intention is also rather strong in vocational and allied programmes, which are skill-based and employment-based. On the whole, these results indicate that the institutional ecosystem, curriculum relevance, and exposure to real-life applications have a combined effect on entrepreneurial intention, in addition to individual psychological predispositions.

### **Comparison to the Existing Literature and Policy Context**

The results of this research are generally in line with the current higher-education entrepreneurship literature, which highlights the importance of the institutional environment and programme orientation in the formation of the entrepreneurial intention. The previous literature shows that universities that have robust entrepreneurship ecosystems, i.e., experiential learning, mentorship, and institutional support, are more inclined to develop entrepreneurial intention in students (Liñan et al., 2011; Nabi et al., 2017). The increased entrepreneurial intention of the students of the specialized fisheries institutions, which was observed, corroborates this evidence and generalizes it to the sector-specific applied science education.

Also, programme-wise variations detected in this study echo previous studies where professional and applied programmes are also found to be more entrepreneurially oriented than purely academic or science-oriented programmes (Souitaris et al., 2007; Barba-Sanchez and Atienza-Sahuquillo, 2018). Nonetheless, this research adds to the existing empirical literature by showing that this disparity remains even within one sector and that curriculum design and institutional context are important factors, not only discipline.

Policy wise, the results have significant policy implications in fisheries and marine science education. Fisheries policy discussions currently focus on diversification, entrepreneurship, and value-chain development, but educational approaches tend to be the same across the institutions. The findings imply that policies ought to promote institution-specific and programme-sensitive interventions, including integrating entrepreneurship courses in marine science education and enhancing the incubation and extension connections within general universities. The study offers comparative evidence based on primary data, which is rigorous and offers comprehensive evidence regarding sectoral and institutional entrepreneurship studies and can be used practically in the alignment of fisheries education with employment and development goals.

### **Policy Implications**

This study has several policy implications to the fisheries and marine science education in Kerala. First, the institutional variations in the entrepreneurial intention have been observed, which means that the policies of one size cannot be applied to stimulate entrepreneurship in all institutions of higher education. Fisheries universities with specialized units have better entrepreneurial performance because of applied orientation and industry connections. The policymakers are thus encouraged to promote institution specific entrepreneurship policies, which will allow general universities and affiliated colleges to implement effective practices like field-based training, extension coursework and enterprise-based coursework.

Second, the variation in programme-level in entrepreneurial intention indicates the necessity to reform curricula, especially marine science, and academically oriented programmes, to incorporate explicit entrepreneurship elements. The introduction of modules on enterprise

development, fisheries business management and regulatory compliance can enhance awareness and perceived viability among the students. Mechanisms of experiential learning (e.g. internships with fisheries enterprises, incubation support and practitioner mentoring) should be formalized in programmes.

Third, the importance of the perceived behavioural control highlights the importance of capability-building policies instead of solely motivational efforts. One of the areas that government agencies and educational institutions should target is enhancing access to training, start-up finance and institutional support systems that can mitigate perceived risk. Increased flow of information on fisheries-specific schemes, subsidies and credit facilities will also build confidence of students in becoming entrepreneurs.

Lastly, there is need to have a stronger collaboration between universities, fisheries departments, and development agencies. Enhancing these networks has the potential to produce enabling entrepreneurial environments that assure education meets sector development objectives, which contributes to improving graduate employability and building sustainable fisheries entrepreneurship.

## CONCLUSION

The present study offers empirical data regarding the importance of institutional and programme settings in the development of entrepreneurial intention among fisheries and marine science undergraduates in Kerala. Based on primary quantitative data and comparative analytical methods, the paper proves that entrepreneurial intention differs a lot among institutions and programmes despite the presence of psychological determinants, which are based on the Theory of Planned Behaviour. Students at specialized fisheries institutes and applied, fisheries-oriented programmes have a greater entrepreneurial intention than those in general universities and academically oriented programmes.

Findings highlight the fact that the entrepreneurial intention is not entirely an individual phenomenon, but it is greatly impacted by the structure of education, relevance of the curriculum, and institutional ecosystems. The research contributes to the knowledge about entrepreneurship in sector-specific higher education by emphasizing the interplay of the psychological factors and the institutional context.

In spite of its contributions, this study is restricted by the cross-sectional character and the use of self-reported data. This can be furthered in future studies by longitudinal and cross-regional and cross-disciplinary studies. On the whole, the research can be useful to policy-makers and educators who aim to make fisheries and marine science education relevant to the goals of the development and employment that are fuelled by entrepreneurship.

## REFERENCES

1. Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211.
2. Audretsch, D. B., Belitski, M., & Desai, S. (2020). Entrepreneurship and economic development in cities. *The Annals of Regional Science*, 65(1), 1–24.
3. Barba-Sánchez, V., & Atienza-Sahuquillo, C. (2018). Entrepreneurial intention among engineering students: The role of entrepreneurship education. *European Research on Management and Business Economics*, 24(1), 53–61.
4. Bird, B. (1988). Implementing entrepreneurial ideas: The case for intention. *Academy of Management Review*, 13(3), 442–453.

5. Bosnjak, M., Ajzen, I., & Schmidt, P. (2020). The theory of planned behavior: Selected recent advances and applications. *Europe's Journal of Psychology*, 16(3), 352–356.
6. Joseph, A., & Salim, S. S. (2022). Employment challenges among fisheries graduates in Kerala. *Indian Journal of Fisheries*, 69(2), 145–152.
7. Kolvereid, L., & Isaksen, E. (2006). New business start-up and subsequent entry into self-employment. *Journal of Business Venturing*, 21(6), 866–885.
8. Krueger, N. F., & Carsrud, A. L. (1993). Entrepreneurial intentions: Applying the theory of planned behaviour. *Entrepreneurship & Regional Development*, 5(4), 315–330.
9. Krueger, N. F., Reilly, M. D., & Carsrud, A. L. (2000). Competing models of entrepreneurial intentions. *Journal of Business Venturing*, 15(5–6), 411–432.
10. Liñán, F., & Fayolle, A. (2015). A systematic literature review on entrepreneurial intentions. *International Entrepreneurship and Management Journal*, 11(4), 907–933.
11. Liñán, F., Urbano, D., & Guerrero, M. (2011). Regional variations in entrepreneurial cognitions. *Entrepreneurship & Regional Development*, 23(3–4), 187–215.
12. Nabi, G., Liñán, F., Fayolle, A., Krueger, N., & Walmsley, A. (2017). The impact of entrepreneurship education in higher education. *Academy of Management Learning & Education*, 16(2), 277–299.
13. Naudé, W. (2019). Entrepreneurship and economic development. *Journal of Economic Surveys*, 33(2), 383–403.
14. Pihie, Z. A. L., & Bagheri, A. (2013). Self-efficacy and entrepreneurial intention. *Journal of Educational Sciences and Psychology*, 3(1), 20–29.
15. Raju, K. V., & Bhatta, R. (2020). Fisheries education and employment challenges in India. *Journal of Rural Development*, 39(3), 387–404.
16. Schlaegel, C., & Koenig, M. (2014). Determinants of entrepreneurial intent: A meta-analytic test. *Journal of Business Venturing*, 29(2), 291–307.
17. Shinoj, P., Ramasubramanian, V., & Ananthan, P. S. (2021). Fisheries diversification and value-chain development in India. *Marine Policy*, 132, 104664.
18. Solesvik, M. Z., Westhead, P., Kolvereid, L., & Matlay, H. (2012). Student intentions to become self-employed. *International Small Business Journal*, 30(8), 835–856.
19. Souitaris, V., Zerbinati, S., & Al-Laham, A. (2007). Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? *Journal of Business Venturing*, 22(4), 566–591.
20. Trivedi, R. (2017). Entrepreneurial intentions of university students in India. *Journal of Entrepreneurship in Emerging Economies*, 9(2), 147–173.
21. Urbano, D., Audretsch, D., Aparicio, S., & Noguera, M. (2020). Does entrepreneurial activity matter for economic growth? *Small Business Economics*, 55(2), 313–331.