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RESEARCH ARTICLE

Attitude of distance learners towards the bachelor of farm technology degree programme and its impact on agricultural knowledge and practices

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Abstract

This study assesses the attitudes of graduates of the Bachelor of Farm Technology (B.F. Tech) distance education program offered by Tamil Nadu Agricultural University (TNAU). It examines the programs' effectiveness in enhancing agricultural knowledge and practices. The research surveyed 350 graduates of the B.F. Tech graduates at the TNAU Directorate of Open and Distance Learning (DODL) who completed the course between 2010 and 2018. Participants were selected from three centres—DODL Coimbatore, KVK Tindivanam, and AC&RI Madurai—using proportionate random sampling to ensure representative coverage. Data on learners' attitudes were collected using a Likert-type scale specifically developed and validated by the researchers for measuring attitudes towards Open Distance Learning (ODL). Statistical analysis, including percentage and factor analysis, was applied to interpret the data accurately. The findings revealed that 70 % of participants expressed a positive attitude toward the program, citing its flexibility, accessibility, and relevance to their professional agricultural roles. However, several challenges were identified, such as limited opportunities for face-to-face interaction, technological constraints, and concerns regarding the degree's recognition within the agricultural industry. The study recommended expanding virtual and in-person practical sessions to address these issues, strengthen hands-on skills, and improve learning outcomes. Further, improving technological infrastructure, including developing advanced online platforms and supporting students with limited internet access, could significantly enhance the learning experience. Also, fostering industry partnerships and advocating for broader degree recognition would improve its value and credibility in the agricultural sector. In conclusion, while the B.F. Tech program effectively addresses its students' educational needs; implementing these targeted improvements could significantly elevate its impact and effectiveness in advancing agricultural knowledge and practices.

Keywords

agricultural practices; attitude; distance education; practical skill development; technological infrastructure; degree recognition

Introduction

In today's technologically advanced and ever-changing world, all aspects of life must evolve and adapt to current circumstances. Education, a crucial part of society, is influenced by social, economic, political, and cultural factors. The growing demand for personal development, population growth, technological advancements, and the recognition of education as a vital component in national and international competition have necessitated new approaches to enhance efficiency and effectiveness (1). In this context, distance education has emerged as a modern, efficient, and effective learning method, offering broader accessibility and flexibility in a constructivist framework (2). Distance education fundamentally involves a teaching process in which the teacher and student are physically separated, eliminating the necessity of studying at a specific time and place. This approach enables students to interact with and comprehend information, communicate with teachers and peers, explore personal and social relationships, engage in collaborative learning, and connect with geographically distant resources (3). The primary objective of distance learning is to overcome the constraints of time and space in education (4).

The advent of online learning systems (OLS) has revolutionized access to education, offering significant advantages by enabling individuals who might not otherwise have had the opportunity to pursue their educational goals. By democratizing higher education, OLS ensures equitable access to learning for diverse populations. The COVID-19 pandemic further accelerated the adoption of online learning, underscoring its potential to make education accessible irrespective of geographical location, age, or prior educational background. Online learning systems have thus contributed to a more inclusive and competitive global education landscape, empowering individuals and fostering broader participation in higher education. Despite its numerous advantages, distance education has not entirely alleviated students' concerns regarding the quality of education, academic standards, and overall conditions compared to traditional institutions. These concerns are frequently discussed informally among students in formal and distance education programs and those unfamiliar with advancements in open learning systems (OLS). While institutions often disseminate information to address these apprehensions, students' perceptions and behaviours toward OLS remain a critical issue that requires further investigation.

Successful distance learning programs, such as MIT OpenCourseWare, the University of London International Programmes, Arizona State University Online, and the Open University (UK), have set high benchmarks by employing accredited materials, offering degrees identical to those awarded to on-campus students, and providing robust support systems, including academic advisors, career services, and tutor-marked assignments. Strategies to address perceived quality gaps include obtaining accreditation (e.g., Quality Matters certification), implementing hybrid learning models that integrate virtual labs with practical experiences, and regularly updating curricula based on student feedback and industry requirements. These measures can significantly enhance the B.F. Tech program by ensuring high educational standards and increasing credibility.

Considering the above, it is evident that insufficient research has been conducted in this domain. Therefore, examining the behaviours and attitudes of B.F. Tech degree students are both necessary and timely. The Bachelor of Farm Technology (B.F. Tech) program, introduced by the Directorate of Open and Distance Learning in 2010, seeks to make education accessible to previously unreached individuals. The program embraces the principles of learning anytime, anywhere, and any age, offering a high degree of flexibility. As a pioneering initiative, it represents the first program in global agricultural education. The B.F. Tech degree empowers farmers by allowing them to earn a formal degree and become proficient in agricultural technologies. This enhances their self-confidence and enables them to gain recognition within society.

This study aimed to examine the profile characteristics and analyze the attitudes of B.F. Tech degree holders and explore the relationship between the profile attributes of B.F. Tech students and their attitudes toward the program.

Materials and Methods

This study investigates the impact of the Bachelor of Farm Technology (B.F. Tech) degree program on the techno-socio-economic status of its graduates, focusing on distance learning. The study involved 350 B.F. Tech graduates from Tamil Nadu Agricultural University (TNAU), Directorate of Open and Distance Learning, who studied between 2010 and 2018. The sample of 350 participants was selected from 3 centres, such as DODL Coimbatore, KVK Tindivanam, and AC&RI Madurai, using the Proportionate random sampling technique. The researcher developed A Likert-type scale to assess students' attitudes towards open distance learning, following the appropriate procedures of attitude testing. The psychometric properties of the scale were evaluated following standard procedures. Summated rating or Likert scale, respondents were asked to express their agreement or disagreement on a five- or seven-point continuum for each statement (5). Initially, 50 statements were drafted based on an extensive review of the existing literature and expert input to ensure comprehensive coverage of various dimensions influencing the attitudes of B.F. Tech graduates toward distance learning. These dimensions included academic, technological, and social factors. The informal criteria for editing proposed by Edwards 1957 (6) were employed to ensure relevance, clarity, and validity. Expert reviews refined the statements, resulting in 45 items that accurately captured key factors influencing students' perceptions while eliminating redundancy or ambiguity.

Respondents were asked to rate their level of agreement using a five-point scale: strongly agree, agree, undecided,

disagree, and strongly disagree, scored as 5, 4, 3, 2, and 1, respectively, for favourable statements. The scoring pattern was reversed for unfavourable statements. The reliability of the attitude scale was indicated by a correlation coefficient (*r*) of 0.852, which is significant at the 1 % level. This high correlation coefficient demonstrates a strong internal consistency among the items on the scale, confirming that the statements reliably measure the graduates' attitudes toward their learning experience. The data were analyzed using frequency, percentage, mean, standard deviation, and factor analysis. Statistical analysis was conducted using SPSS software.

Results and Discussion

The results are presented and discussed in alignment with the objectives. The profile characteristics of B.F. Tech degree holders are listed in Table 1, and the results are given in subheadings.

Age

The data reveals that nearly two-thirds of B.F. Tech degree holders were middle-aged (64.00 %), followed by one-fifth who were young-aged (20.29 %), and the remaining 15.71 percent were old-aged. While most people complete their bachelor's degree by the age of 22 to 23 years, those unable to do so due to time or financial constraints often opt for distance education because of its flexibility and accessibility—consequently, the majority of B.F. Tech degree holders fall into the middle-to-young age categories. Additionally, many middle-aged individuals who could not pursue a degree during their youth due to financial limitations enrolled in the B.F. Tech program later in life. Similar findings were reported (7, 8).

Educational status

Nearly half of the B.F. Tech degree holders had completed a postgraduate level of education (48.29 %), followed by more than two-fifths of the B.F. Tech degree holders had completed an undergraduate level of education (44.29 %). The remaining 7.43 per cent of B.F. Tech degree holders had completed a doctorate level of education.

Gender

The majority of B.F. Tech degree holders were male (83.14 %), while a considerable proportion were female (16.86 %).

Occupational status

More than two-fifths of the B.F. Tech degree holders were self-employed (44.00 %), followed by 17.14 per cent engaged in Agriculture. An equal proportion of B.F. Tech degree holders were employed in government (15.71 %) and Private sectors (15.71 %). Whereas the remaining 7.43 per cent of the B.F. Tech degree holders were still unemployed. Similar findings were reported (9).

Annual income

More than two-fifths of the B.F. Tech degree holders earn a medium annual income (44.00 %), followed by 30.57 per cent earning a low annual income, and nearly one-fourth earning a high yearly income. These findings are in line with (10).

Farming experience

Regarding farming experience, it was found that more than half of the B.F. Tech degree holders have less than 10 years of farming experience (52.71 %), followed by one-third with 11-24 years of farming experience. The remaining few have more than 24 years of farming experience (8.00 %). Farms managed by individuals with agricultural education tend to have higher productivity levels than those with only practical experience. Though increased farming experience enables the farmers to make independent production decisions, distance education programmes help them improve farming efficiency by reducing the need for water and chemicals, increasing profits, and reducing environmental harm by incorporating eco-friendly technologies. These findings are in line with (11).

Farm size

More than three-fourths of the B.F. Tech degree holders own up to 2.5 acres of farmland (78.00 %), followed by over one-tenth who own between 2.51 to 5.00 acres (14.57 %), and the remaining 7.43 per cent own between 5.01 to 10.00 acres. Most degree holders possess up to 2.50 acres of farmland due to land fragmentation among family members. Few respondents have sold a few acres of land during the financial crisis. In the meantime, respondents who earn more have bought additional agricultural land for rent and lease. The findings are in line with (12).

Information seeking behaviour

More than three-fourths of the B.F. Tech degree holders exhibit a medium level of information-seeking behaviour (77.14 %), followed by 13.14 % who displayed a low level and 9.72 % who show a high level of information-seeking behaviour, respectively.

Information sharing behaviour

Nearly four-fifths of the B.F. Tech degree holders exhibit a medium level of information-sharing behaviour (79.14 %), followed by 13.72 % who display a high level of information-sharing behaviour, and the remaining 7.14 % demonstrated a low level of information-sharing behaviour. The findings are in line with (13).

Social Participation

Regarding social participation, nearly two-fifths of the B.F. Tech degree holders do not participate in any social organization. More than one-fourth of the B.F. Tech degree holders are members of one organization (26.57 %), followed by one-fifth who serve as office bearers in one organization (20.00 %). The remaining 11.71 % are members of more than one organization. The findings are in line with (14).

Job aspiration

Nearly two-fifths of the B.F. Tech degree holders aspire to entrepreneurship or agripreneurship (38.29 %), followed by private employment (23.43 %), farming (21.71 %), business (10.00 %), and NGO (6.57 %). These findings are in line with (15).

Geographical distance

Table 1. Profile characteristics of B.F. Tech degree holders (n=350)

S.No	Variables	Category	Number	Per cent
1	Age	Young (Less than 25 years)	71	20.29
		Middle (25-38 years)	224	64.00
		Old (More than 38 years)	55	15.71
2	Educational status	Primary education	0	0.00
		Middle-level education	0	0.00
		Secondary level education	0	0.00
		Higher secondary level of education	0	0.00
		Undergraduate level of education	155	44.29
		Postgraduate level of education	169	48.29
		Doctorate level of education	26	7.43
3	Gender	Male	291	83.14
		Female	59	16.86
4	Occupational status	Agriculture	60	17.14
		Self-employed	154	44.00
		Private	55	15.71
		Co-operative	0	0.00
		Government	55	15.71
		Unemployed	26	7.43
5	Annual-income	Low (Below Rs.1,52,000)	107	30.57
		Medium (Rs.1,52,001-6,21,999)	154	44.00
		High (Above Rs.6,22,000)	89	25.43
6	Farming experience	Less than 10 years	202	52.71
		11-24 years	120	34.29
		More than 24 years	28	8.00
7	Farm size	Upto 2.5 acres	273	78.00
		From 2.51 to 5.00 acres	51	14.57
		From 5.01 to 10.00 acres	26	7.43
		Above 10.00 acres	0	0.00
8	Information seeking behaviour	Low	46	13.14
		Medium	270	77.14
		High	34	9.72
9	Information sharing behaviour	Low	25	7.14
		Medium	277	79.14
		High	48	13.72
10	Social participation	No participation in any organization	146	41.71
		Member of one organization	93	26.57
		Member in more than one organization	41	11.71
		Office bearer in one organization	70	20.00
11	Job aspiration	Farming	76	21.71
		Entrepreneurship / Agripreneurship	134	38.29
		Private employment	82	23.43
		Business	35	10.00
		NGO	23	6.57
12	Geographical distance	1-50 km	81	23.14
		51-100 km	86	24.57
		101-200 km	58	16.57
		201- 300 km	23	6.57
		1-50 km	77	22.00
		51-100 km	12	3.43
		Over 500 km	13	3.71
13	Progressiveness	Low	158	45.14
		Medium	0	0.00
		High	192	54.86
14	Rural-urban background	Rural background	139	39.71
		Urban background	211	60.29
15	Computer utilization	Utilized	105	30.00
		Not utilized	245	70.00
16	Motivational factor	Low	70	20.00
		Medium	228	65.14
		High	52	14.86

One-fifth of the B.F. Tech degree holders live at a geographical distance of 51-100 kms (24.57 %) followed by those living at a distance of 1-50 kms (23.14 %), 301-400 kms (22.00 %), 101-200 kms (16.57 %), 201-300 kms (6.57 %), 401-500 kms (3.43 %). The remaining 3.71 % live at a distance of over 500 km. The findings are in line with (16).

Progressiveness

More than half of the B.F. Tech degree holders exhibited high progressiveness (54.86 %), while the remaining 45.14 % demonstrated low progressiveness. Notably, none of the B.F. Tech degree holders displayed a medium level of progressiveness. These findings are in line with (17).

Rural-urban background

Three-fifths of the B.F. Tech degree holders had an urban background (60.29 %), while the remaining two-fifths had a rural background (39.71 %). These findings emphasize that most of the B.F. Tech degree holders had urban backgrounds since most cities were urbanized. Further, most of them had migrated to cities because of their professional opportunities and proximity to their workplace. The findings are in line with (18). Furthermore, more than two-thirds of the B.F. Tech degree holders did not utilize computers (70.00 %), while the remaining 30.00 per cent used computers.

Computer utilization

Though everything is digitalized nowadays, many B.F. Tech degree holders lack knowledge and experience in computer utilization since they lack practical exposure to educational institutions and learn through distance education (19).

Motivational factor

Nearly two-thirds (65.14) of the B.F. Tech degree holders exhibited a medium level of motivation, followed by 20 % (one-fifth) who demonstrated a low level of motivation, and the remaining 14.86 per cent who displayed a high level of motivation. While extrinsic motivation played a significant role in driving respondents, intrinsic motivation emerged as the factor that had more influence than extrinsic motivation. Many B.F. Tech degree holders pursued the program with aspirations to achieve tremendous success in life, secure employment, and increase their income, indicating the importance of intrinsic motivators. In contrast, low motivation levels were attributed to poor work-life balance, lack of efforts towards improved performance, dissatisfaction with work,

lack of motivation to complete tasks and limited growth opportunities. Addressing and improving these challenges can significantly enhance motivation among degree holders, thereby fostering greater engagement and performance.

Attitude of B.F. Tech degree holders towards TNAU ODL -B.F. Tech course

Since a positive attitude towards learning improves the learner's problem solving abilities and enhance their level of goal setting, attitude of B.F. Tech degree holders towards TNAU ODL - B.F. Tech course was studied and presented in Table. 2 and Table 3.

From Table. 2, it was revealed that most of the B. F. Tech degree holders strongly disagree that they felt distance learning reduces face to face interactions which affects the effectiveness of learning (39.71 %) followed by strongly disagree that synchronous nature of distance learning situation between learner and instructor leads to ineffective teaching (39.43 %), and strongly disagree that they couldn't observe any significant difference between the formal education and distance education in terms of interactivity (35.14 %), traditional learning system is effective than the online distance learning (35.14 %) and distance learning enables the instructor to focus on each and individual learner (35.14 %). While, more than one-third of the B.F. Tech degree holders strongly disagree that conventional university programme are more rigorous than distance learning programme (34.86 %) but online distance learning is economic in terms of time for students and teachers (34.86 %).

Whereas, higher percentage of the B.F. Tech degree holders disagrees that the reading materials in distance learning were already prepared and could not be updated (65.14 %), it was easier to obtain a degree through distance learning than by regular university programme (49.71 %) and the personal development of a learner is hindered in distance learning by reducing the communication between the learner with this peers and instructor (44.86 %). While, B. F. Tech degree holders disagree that distance education affects the social behaviour of students by promoting social isolation (44.86 %) and facilitates the students to be independent, self-organized and responsible (44.57%). The findings are in line with (20).

In the meantime, B.F. Tech degree holders disagrees that slow computer and poor internet connectivity discourage the students to use online distance education programme (39.43 %), the relationship between the learner and instructor is weak and it reduces the effectiveness of the learning situation (39.71 %) and won't recommend distance learning programme to anyone who wants to pursue a degree (39.71 %). Whereas, distance learning promotes learning without attendance which helps anyone to do a degree (39.71 %). But, it lacks the opportunity to ask a question (34.57 %). Distance learning is much more comfortable (30.57 %) but had constant disciplinary issues in distance education (30.29 %). In distance education, students can freely express themselves irrespective of gender discrimination (25.43 %) which is useful to gain knowledge but not food for employment (25.43 %).

Exactly two-fifths of the B.F. Tech degree holders felt neutral attitude as it takes very long time to cover every topic without appropriate guidance (40.00 %) and less than one-thirds of them felt neutral attitude as very little or no effort to obtain a degree via distance learning (30.29 %). Less than half of the B.F. Tech degree holders strongly agrees that distance learning helps the students to pursue education because of their geographical conditions (45.43 %), increase the rate of enrollment of students in college education (40.00 %) and learners of distance education lacks practical skills and technical knowledge (34.86 %). The findings are in line with (21).

Relationship between profile and attitude of B. F. Tech degree holders

The association between the profile characteristics and the attitude of B. F. Tech degree holders was analyzed using correlation coefficients, with the findings presented in Table 3. The analysis revealed that variables such as gender and job aspirations had a positive and significant association with attitudes at the 5 percent significance level. Additionally, the degree holders' geographic distance, rural-urban background, computer utilization, and motivational factors had positive and significant associations with their attitude at the one percent significance level. Other variables, such as age, educational status, occupational status, annual income, farming experience, farm size, information-seeking behaviour, information-sharing behaviour, social participation, and progressiveness, showed no significant association with attitude.

Since ages, gender roles have significantly influenced education attainment. Because of the household chores and responsibilities, women were confined to their households, while men focused on income-generating activities. This implies that the gender factor was significantly associated with the learners' attitudes. As an essential outcome of the B. F. Tech degree programme, the job aspiration of the degree holders had a substantial influence over their attitude, as the B.F. Tech degree holders gain expertise in their profession through the course. The geographic distance between enterprise and home and the preference of degree holders to reside in rural areas enables them to explore the environment and geographical factors that enhance learning outcomes. Additionally, computer utilization could improve employee efficiency, workflow, and overall experience within the workplace. Motivational factors, intrinsic and extrinsic, were also significant in shaping attitudes, as education improves the learners' knowledge level through behaviour change. The functional relationship between the profile and attitude of B. F. Tech degree holders was further analyzed using multiple regression analysis, with the findings shown in Table. 4 and Fig 1.

Table 2. Statement-wise distribution of B.F. Tech degree holders based on their attitude (n=350)

S.No.	Statements	Response				
		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	I feel that distance learning reduces face-to-face interactions, which affects the effectiveness of learning	106 (30.29)	87 (24.86)	18 (5.14)	0 (0.00)	139 (39.71)
2	I noticed that slow computers and poor internet connectivity discourage the students from using online distance education programme	106 (30.29)	18 (5.14)	52 (14.86)	138 (39.43)	36 (10.29)
3	I think disciplinary issues are found constant in distance education	70	69	87	106	18
4	In my opinion, online distance learning is economical in terms of time for students and teachers	88 (25.14)	104 (29.71)	18 (5.14)	18 (5.14)	122 (34.86)
5	I felt that distance education affects the social behaviour of students by promoting social isolation	88 (25.14)	35 (10.00)	34 (9.71)	157 (44.86)	36 (10.29)
6	I observed that students of distance learning can freely express themselves irrespective of gender discrimination	69 (19.71)	35 (10.00)	88 (25.14)	89 (25.43)	69 (19.71)
7	I know that the traditional learning system is more effective than online distance learning	105	53	18	51	123
8	I experienced that distance learning promotes learning without attendance, which means anyone who has a degree	70 (20.00)	35 (10.00)	35 (10.00)	139 (39.71)	71 (20.29)
9	I am aware that the asynchronous nature of distance learning situations between learner and instructor leads to ineffective teaching	105 (30.00)	36 (10.29)	17 (4.86)	54 (15.43)	138 (39.43)
10	I know that the learner-instructor relationship is weak, which reduces the effectiveness of the learning situation	52 (14.86)	53 (15.14)	53 (15.14)	139 (39.71)	71 (20.29)
11	I couldn't observe any significant difference between formal education and distance education in terms of interactivity	105 (30.00)	70 (20.00)	18 (5.14)	34 (9.71)	123 (35.14)
12	I realized that distance education helps students to pursue education because of their geographical conditions.	159 (45.43)	35 (10.00)	34 (9.71)	122 (34.86)	0 (0.00)
13	I heard that learners of distance learning lack practical skills and technical knowledge	122	70	53	18	87
14	I will not recommend a distance learning programme to anyone who wants a degree	70	35	52	139	54
15	I felt that distance learning is much more comfortable	69	53	35	107	86
16	I think the learners lack the opportunity to ask questions in distance education programme	34	71	18	121	106
17	I noticed that in distance learning, the reading materials were already prepared and could not be updated	53 (15.14)	35 (10.00)	17 (4.86)	228 (65.14)	17 (4.86)
18	I observe that very little or no effort is required to obtain a degree via distance learning	51	53	106	54	86
19	I suffered in distance learning, as it takes very long time to cover every topic without appropriate guidance	89 (25.43)	53 (15.14)	35 (40.00)	34 (9.71)	139 (39.71)
20	I noticed that distance learning increases the rate of enrollment of students in college education	140 (40.00)	35 (10.00)	18 (5.14)	87 (24.86)	70 (20.00)
21	I felt that distance learning hinders the personal development of a learner by reducing his communication skills with his peers and instructor	53 (15.14)	35 (10.00)	87 (24.86)	157 (44.86)	18 (5.14)
22	I believe that conventional university programme are more rigorous than distance learning programme	105 (30.00)	70 (20.00)	35 (10.00)	18 (5.14)	122 (34.86)
23	I feel easier to obtain a degree through distance learning than through a regular university programme	88 (25.14)	35 (10.00)	17 (4.86)	174 (49.71)	36 (10.29)
24	I perceived that distance learning degrees are helpful to gain knowledge but not suitable for employment	69 (19.71)	52 (14.86)	88 (25.14)	89 (25.43)	52 (14.86)
25	I know that distance learning enables the instructor to focus on each individual learner	88	70	18	51	123
26	I experienced that distance learning facilitates the students to be independent, self-organized and responsible	53 (15.14)	35 (10.00)	35 (10.00)	156 (44.57)	71 (20.29)

Component 1 vs attitude of B. F. Tech degree holders

Component 1, which includes age, educational status,

Table 3. Association between profile and attitude of B. F. Tech degree holders

S. No.	Variables	Attitude of B. F. Tech degree holders	
		'r' value	t_{cal}
X_1	Age	-0.059	-1.116
X_2	Educational status	-0.026	-0.199
X_3	Gender	0.122	2.304*
X_4	Occupational status	-0.04	-0.790
X_5	Annual income	0.013	0.255
X_6	Farming experience	0.029	0.557
X_7	Farm size	0.100	1.875
X_8	Information seeking behaviour	0.018	0.347
X_9	Information sharing behaviour	-0.019	-0.369
X_{10}	Social participation	-0.151	-2.866
X_{11}	Job aspiration	0.132	2.489*
X_{12}	Geographic distance	0.233	4.481**
X_{13}	Progressiveness	-0.201	-3.831
X_{14}	Rural-urban background	0.141	2.658**
X_{15}	Computer utilization	0.167	3.154**
X_{16}	Motivational factors	0.495	10.636**

(* - Significant at 5% level ** - Significant at 1% level)

Table 4. Relationship between profile and attitude of B. F. Tech degree holders

S. No.	Variables	Regression co-efficient	t-value	Significant
X_1	Component 1	-0.086	-1.807	0.072
X_2	Component 2	0.167	3.507	0.001**
X_3	Component 3	-0.019	-0.405	0.686
X_4	Component 4	-0.371	-7.773	0.000**
X_5	Component 5	0.169	3.548	0.000**
X_6	Component 6	-0.133	-2.794	0.006**
R^2=0.220 ; F=16.090				

(* - Significant at 5% level ** - Significant at 1% level)

gender, and annual income, did not show a significant relationship with the attitude of B.F. Tech degree holders. This is not to say that these factors have no influence, but it suggests that their impact on attitudes is less pronounced in the context of distance learning.

For instance, age may not significantly affect attitudes because distance education attracts learners from diverse age groups, offering the flexibility to accommodate younger and older individuals. Similarly, educational status and annual income may exert minimal influence due to the accessible structure of the B.F. Tech program, designed to cater to individuals from varied socioeconomic backgrounds, removes significant financial or academic barriers to participation. Gender, too, appears to have a limited impact in this context, as the program is structured to be inclusive, providing equal opportunities regardless of gender. Therefore, while these profile factors might shape individual experiences, they do not substantially alter attitudes toward the B.F. Tech program.

Component 2 vs attitude of B. F. Tech degree holders

Component 2 had a positive and significant relationship with the attitude of B. F. Tech degree holders at the 1 percent significance level. Component 2, composed of gender and farming experience, had a positive and significant relationship with the attitude of B. F. Tech degree holders. However, gender discrimination affects the female to a greater extent by restricting access to travel and limiting their participation in social activities. B.F. Tech course promotes gender equality through its theoretical and practical exposure. The importance of gender-related farming activities and increased farming

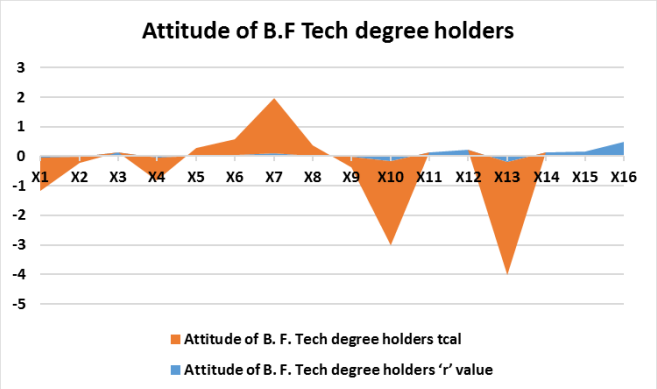

Fig 1. Relationship between profile and attitude of B. F. Tech degree holders

experience emphasizes its significant influence on their attitude.

Component 3 vs attitude of B. F. Tech degree holders

Component 3 (rural-urban background) showed no significant relationship with the attitude of B. F. Tech degree holders. While the rural-urban background of learners traditionally plays a vital role in shaping economic competition, environmental factors, accessibility, and the availability of educational facilities that either promote or hinder education, widespread internet connectivity appears to have mitigated these influences.

The availability of internet access in rural areas has bridged the gap in educational opportunities, ensuring that learners in rural settings have similar access to resources as their urban counterparts. Additionally, the preference of degree holders to stay in their village due to their increased land holdings implies that there was no significant influence on the attitude of degree holders towards the rural-urban background. Although the rural-urban background of the learner plays a vital role in influencing economic competition and environmental factors that promote or suppress education, accessibility, and availability of educational facilities, the presence of internet connectivity in rural areas implies that the rural-urban background did not significantly influence students' attitudes toward the program.

Component 4 vs attitude of B. F. Tech degree holders

Component 4 (progressiveness) had a negative and significant relationship with the attitude of B. F. Tech degree holders at a 1 percent significance level. The progressive nature of these degree holders reflects their enhanced knowledge and broader exposure to accessing diverse resource materials to expand their understanding. However, their attitude toward distance learning tends to decline as progressiveness increases. This can be attributed to their access and capability to attend regular colleges. Additionally, the credibility of the information gathered remains questionable.

Component 5 vs attitude of B. F. Tech degree holders

Component 5, which includes information-sharing behaviour, information-seeking behaviour, and social participation, demonstrated a positive and significant relationship with the attitudes of B.F. Tech degree holders. This finding indicates that these behaviours enhance students' attitudes toward distance learning. Information sharing fosters a collaborative learning environment by allowing students to exchange knowledge, resources, and experiences, improving their learning outcomes and attitudes toward the program. Similarly, information-seeking behaviour reflects a proactive learning approach, where students actively search for new information to deepen their understanding, positively influencing their attitudes toward the course.

Social participation is crucial in fostering community and connection, even online. Engagement in online forums, study groups, or social organizations enhances their social network, supports their emotional well-being, and fosters deeper involvement with the course content. This improved engagement leads to more favourable attitudes toward the distance learning experience. Collectively, these behaviours contribute to a more interactive and supportive learning environment, significantly enriching students' overall experiences and perceptions of the B.F. Tech program.

Component 6 vs attitude of B. F. Tech degree holders

Component 6 (information-seeking behaviour) had a negative and significant association with the attitude of B. F. Tech degree holders at the 1 percent significance level. Information-seeking behaviour reflects a learners' readiness for education; however, the availability of numerous sources to gather information with a single tap can influence their attitude. The credibility and relevance of such readily available information remain questionable.

Conclusion

The study on Bachelor of Farm Technology (B.F. Tech) degree holders in Tamil Nadu provides valuable insights into the demographic characteristics and attitudes of students enrolled in this distance learning program. The findings reveal that 64 % of the graduates fall within the middle-aged bracket (25-38 years), with a notable predominance of male participants, comprising 83.14 % of the sample. Regarding educational qualifications, 48.29 % of the graduates hold postgraduate degrees, while only 7.43 % have obtained a doctoral-level education.

The study also highlights the occupational status of the graduates, revealing that 44 % are self-employed and 17.14 % are directly engaged in agriculture, underscoring the program's relevance to professionals in the agricultural sector. Additionally, over half of the respondents (52.71 %) have less than a decade of farming experience, while 78 % own up to 2.5 acres of farmland, indicating the small-scale nature of their agricultural activities. These findings highlight the programs' role in addressing the educational needs of individuals with limited experience and smaller land holdings. Despite challenges such as limited practical exposure and technological barriers, 70 % of respondents expressed a positive attitude toward the B.F. Tech program. This suggests that the program is well-received and addresses the educational needs of its target demographic. However, enhancements are needed, including improving practical training, upgrading technological infrastructure, and increasing computer literacy among graduates. These improvements would make the program more effective and better aligned with the evolving demands of the agricultural sector.

In conclusion, while the B.F. Tech program has made substantial progress in meeting the educational needs of its target audience, addressing the identified challenges, and strengthening its infrastructure, which will be crucial for enhancing its overall effectiveness. Moreover, increasing the program's recognition and value within the broader job market will likely boost its appeal and further

solidify its long-term impact on the agricultural sector.

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Authors' contributions

NCK performed research concept, primary data collection, data analysis and binding of findings and discussion; SN guided the research by formulating the research concept, helped in securing research funds and approved the final manuscript; BP did the Research concept and formal editing; NDM did formal revising of the manuscript; Prahadeeswaran M helped in summarizing and revising the manuscript; PSG helped in editing and summarizing the manuscript.

Compliance with ethical standards

Conflict of interest: Authors do not have any conflict of interest to declare.

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