
STUDENTS' PERSPECTIVE-BASED SWOT ANALYSIS OF HIGHER EDUCATION AT THE UNIVERSITY OF AGRICULTURE, FAISALABAD, PAKISTAN

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ABSTRACT

The present paper describes for the first time, the findings of a SWOT (strengths, weaknesses, potential opportunities and threats) analysis of postgraduate degree programs of the University of Agriculture, Faisalabad (UAF). Two Faculties (Agriculture and Social Sciences) were selected randomly from 7 Faculties. Three Departments/Institutes each of the Faculty of Agriculture and Faculty of Social Sciences were randomly selected for sampling. A list of all M.Sc. (Hons.), M.Phil. and Ph.D. students of each of these departments/institutes (sampling frame) was obtained from the Directorate of Graduate Studies (UAF) and a proportionate sampling was used to select a random sample of 180 students. Perceptions of the selected students related to the strengths, weaknesses, potential opportunities and threats were recorded on a structured questionnaire. Pre-testing of the questionnaire in a small-scale pilot study involving 8 students revealed a Cronbach's-alpha Coefficient value of 0.81. The data related to the perceptions of the respondents were analyzed by using

Statistical Packages of Social Sciences (SPSS). Availability of library facility in each Department/Institute (Mean \pm SD of 4.18 ± 1.165), convening of co-curricular activities (4.02 ± 1.005), manning of the Department / Institute by very well-educated and trained teachers ($4.02, \pm 0.915$), the forthcoming attitude of the major supervisor and the supervisory committee for students guidance (3.99 ± 1.133) and UAF being an economically sound and well-managed institution (3.74 ± 0.958), respectively were the 5 highest ranking strengths in the area of infrastructure and facilities, general environment of UAF, teaching and teachers, research and supervision and finance of the University. A continuous increase in the number of students ensuing in dwindling of the University financial resources (Mean \pm SD 3.98 ± 0.960), insufficient residential capacity in the hostels (3.64 ± 1.137), lack of well-furnished and serene postgraduate rooms (3.51 ± 1.033), insufficient opportunities of supervised study tours (3.37 ± 1.219) and postgraduate courses not being at par with those in developed countries (3.36 ± 1.006) were the most notable weaknesses of the University respectively in the area of finance, infrastructure and facilities, general environment, research and supervision & teaching and teachers. The 4 top ranking opportunities falling respectively in the area of infrastructure and facilities, research and supervision, finance and teaching and teachers included prospects of UPS in every Institute/Department (Mean \pm SD 4.07 ± 0.869), the possibility of conducting online sessions through zoom, Google meet and other tools (3.98 ± 0.906), potential of improvement of practical skills and knowledge of the students by providing them opportunities of paid work (3.96 ± 0.988) and more opportunities of training of young faculty by senior faculty (3.89 ± 0.761). Similarly, top-ranking threats ($n = 4$) perceived to the higher education system of UAF falling respectively in the area of general environment, infrastructure and facilities, teaching and teachers and finance included the looming danger of water and energy crisis for agricultural and human development (Mean \pm SD 4.03 ± 1.033), the danger of climate and environmental degradation due to more and more University land coming under construction (3.80 ± 0.942), threat to the image of the University emanating from students' indulgence in intercession (sefarish in Urdu) to get better grades (3.74 ± 0.874) and potential financial crunch due to constant increase in salaries and pensions of employees (3.43 ± 1.062).

KEYWORDS

SWOT, Higher education, students' perception, faculty, postgraduate students, university of Agriculture, Faisalabad, Pakistan

INTRODUCTION

Higher education is the highest stage of education and training at degree-awarding institutions and has a cardinal role in the student's career. In addition, it plays a vital role in improving university ranking, research, extension, training,

innovations/ inventions and societal development (Collier and Dollar, 2002; Pavel, 2012). All developed nations of modern world have invested heavily in higher education. It is imperative to periodically evaluate the completed and ongoing activities of higher education in any given education institution. A variety of tools and techniques can be used to this end. SWOT analysis is a modern methodology to evaluate the success of any institution (Phadermroda *et al.*, 2019). SWOT is an acronym for strengths, weaknesses, opportunities and threats. It is a fundamental and straightforward model to evaluate what an organization can and cannot do as well as to identify potential opportunities and threats that can bedevil an organization (Dyson, 2004; Khalid *et al.*, 2017; Thamrin and Pamungkas, 2017). This method obtains information from analysis of environment of the organization and divides it into internal (viz. strengths and weaknesses) and external (viz. opportunities and threats) components (Sharifi, 2012). SWOT analysis is used in a wide variety of fields (Dave *et al.*, 2018; Nasreen and Afzal, 2020). In higher education, its prime objective is to design the strategy for identifying the strong and weak points of an institution as well as to pinpoint the potential opportunities and threats in its environment (Ahmad *et al.*, 2019). University of Agriculture Faisalabad (UAF) is the premier institution of agricultural education, training and research in Pakistan. As far as could be ascertained, SWOT analysis of UAF postgraduate degree programs under normal circumstances has not as yet been undertaken.

LITERATURE REVIEW

Higher education is the driving engine for the development of a country. In today's knowledge-driven global economy, economic success of nations is reflective of the quality of their education systems and the knowledge, skills, creative and analytical abilities and moral qualities of their citizens. The higher education sector of Pakistan is beset with a vast array of problems. Khan *et al.* (2018) have presented an overview of these problems and proposed the corrective measures. Important problems confronting higher education in Pakistan are briefly given below:

- Poorly qualified teachers, their poor emoluments and lack of a system of university teachers training.
- Insufficient budgetary allocation for higher education and misuse of fiscal appropriations.
- Interference of political elements in the affairs of institutions of higher education and disregard of merit.
- Poorly designed curricula of different Master and Doctoral degree programs and their inconsistencies with national economic, social and educational needs.
- Faulty examination system that promotes cramming/rote learning and demotivates and discourages proper comprehension and creative thinking in the students.

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- Disregard for observing disciplinary code of conduct.
 - The dilemma of medium of instructions (Urdu or English) in higher education.
 - Complacency of students' parents and lack of a liaison of parents with teachers.
 - Lack of motivation, guidance and education counseling of students.

The following ways forward and trigger points were proposed to address the above given problems (Khan *et al.*, 2018; Hoodbhoy, 2009):

- Drawing lessons from the history of education in the country to make plans of education.
- Reforming education to conform it to National ideology, aspirations and interests.
- Formulating future education policy in such a way that it takes a holistic view of political economy, development and management of human resources, national integration, reforms in the administration and bureaucracy, defense and international relations etc.
- Restructuring the sector of education in such a way that it contributes towards national integration, security and defense.
- Modernization of education while giving due consideration to Islamic ideological, cultural, educational, and civilization values.
- Formulation of proper short, medium as well as long-term education uplift plans with proper monitoring, reviews and revisions.
- Creating opportunities of employment for M.Phil. and Ph.D. degree awardees.

Several methods have been used to evaluate the quality of higher education. Of these methods SWOT analysis is a pretty straight forward and useful method for evaluation of higher education program of universities. SWOT is an acronym for strengths, weaknesses, opportunities and threats. This method of analysis was developed by Albert Humphrey of Stanford University, USA (Learned *et al.*, 1965).

Chaudhry *et al.* (2016) conducted a survey to identify strengths, weaknesses, potential opportunities and threats (SWOT analysis) from the students perspective in the institutional setting of the University of the Punjab, Lahore. The universe of the study consisted of all students enrolled in the university. Using a multi-stage stratified random sampling method, a random sample of 900 students of both genders (females n = 444; males n = 456) was drawn from the sampling frame. The responses of the students were captured on a questionnaire (proforma) that had been pretested and found adequate. Analysis of the data revealed that the female and male students did not differ significantly in their perspective concerning strengths, weaknesses, potential opportunities and threats *vis-a-vis* the University of Punjab, Lahore. Another significant finding was that students of both genders had strong apprehensions about

the threats emanating from the internal and external environment of the University.

University of Agriculture, Faisalabad (UAF) is a public sector research university and the most renowned institution of higher education in the field of agriculture in Pakistan. UAF ranked 4th in the ranking of Pakistani universities published in March 2022 by HEC. Currently, UAF offers 117 different Master's and Ph.D. degree programs in different disciplines every year. As far as could be ascertained, SWOT analysis of UAF postgraduate degree programs has not as yet been undertaken.

RESEARCH OBJECTIVES

1. To identify and analyze the strengths, weaknesses, opportunities and threats related to the postgraduate degree programs at UAF.
2. To enhance the quality of M.Phil. and Ph.D. degree programs offered by the University of Agriculture, Faisalabad, by leveraging the findings of the present study.

RESEARCH HYPOTHESIS

1. The postgraduate degree programs at the University of Agriculture, Faisalabad exhibit specific strengths, weaknesses, opportunities, and threats, and addressing these factors will improve the overall quality of these programs.

RESEARCH METHODOLOGY

Population

The study was conducted at the University of Agriculture, Faisalabad (UAF). All Master's and Doctoral degree students enrolled in different disciplines during 2022 comprised the universe of the study (target population). UAF consists of 7 different Faculties (*viz.* Faculty of Agriculture, Faculty of Social Sciences, Faculty of Veterinary Science, Faculty of Animal Husbandry, Faculty of Sciences, Faculty of Agricultural Engineering and Technology, and Faculty of Food, Nutrition and Home Sciences). These Faculties were assigned numbers from 1-7. Use of Table of Random Numbers (Chakrabarty, 2018) selected Faculty of Agriculture and Faculty of Social Sciences for sampling. The Faculty of Agriculture is the largest Faculty of the UAF. This Faculty is divided into 2 Institutes (*viz.* Institute of Soil and Environmental Sciences and Institute of Horticultural Sciences), 5 departments (*viz.* Department of Agronomy, Department of Entomology, Department of Plant Pathology, Department of Plant Breeding and Genetics and Department of Forestry & Range Management) and 1 Center (*viz.* Center of Agricultural Biochemistry and Biotechnology or CABB for short).

Sampling frame and sampling technique

Three departments/institutes each of the Faculty of Agriculture (*viz.* Department of Plant Pathology, Institute of Soil and Environmental Sciences and Institute of

Horticultural Sciences) and Faculty of Social Sciences (*viz.* Department of Rural Sociology, Institute of Agricultural and Resource Economics and Institute of Extension, Education and Rural Development) were selected randomly. A sample of 180 M.Sc. (Hons.), M.Phil. and Ph.D. students was drawn from this sampling frame by using a multi-stage stratified proportionate random sampling technique (Alvi, 2016). The data were captured on a predesigned questionnaire.

Pre-testing of the questionnaire

A small-scale pilot study involving 8 students was first conducted to determine the validity of the questionnaire in the form of Cronbach's-alpha Coefficient (Chaudhry *et al.*, 2016; Ahmad *et al.*, 2017). This pre-testing revealed a Cronbach's-alpha Coefficient value of 0.81 which is statistically valid and reliable and it falls in the 'Good' category.

Data analysis

A 5-point Likert scale (i.e. strongly disagree, disagree, neutral, agree and strongly agree) data related to the perceptions of the respondents were tabulated and then analyzed by using Statistical Packages of Social Sciences (SPSS; Chaudhry *et al.*, 2016; Ahmad *et al.*, 2017; Shahzadi *et al.*, 2022). For capturing the response of the postgraduate students, statements related to strengths, weaknesses, opportunities and threats were further broken down to: (a) teaching and teachers, (b) research and supervision, (c) infrastructure and facilities, (d) finance, and (e) general environment. Ranking of the students' response to the statements in each of these subcategories was based on the Mean \pm SD of response to each statement. For the sake of brevity of the manuscript, at most places in the Result section, only the 1st ranking statements concerning strengths, weaknesses, opportunities and threats were spotted and discussed.

DATA ANALYSIS AND RESULTS

Demographic parameters

Postgraduate students (n = 42) of the Faculty of Social Sciences comprised 23.3% of the students sampled through proportionate sampling whereas 76.7% students (n = 138) were drawn from the Faculty of Agriculture. Students of the Institute of Soil and Environmental Sciences, Institute of Horticultural Sciences, Department of Plant Pathology, Institute of Extension, Education and Rural Development, Institute of Agricultural and Resources Economics, and Department of Rural Sociology respectively constituted 23.3, 25, 28.3, 10.6, 8.3 and 4.4.% of the total 180 postgraduate students sampled. Male and female respondents constituted 48.3 and 51.7% respectively. Majority of the students (59.4%) were pursuing M.Sc. (Hons.) degree program whereas students of M.Phil. and Ph.D. respectively constituted 20 and 20.6% of the random sample of 180 students. Age-based distribution of the students

revealed that the vast majority (74.4%) fell in the age group of 21-25 years followed by students aged 26-30 years (21.7%), 31-35 years (2.8%) and 36-40 years (1.1%). Majority of the student (57.2%) sampled were residents of University hostels whereas 42.8% were non-boarders and commuted daily to and from the University Campus. An overwhelming majority (86.7%) of students were enrolled in the Morning Program whereas students enrolled in Evening and Weakened Programs respectively constituted 7.2 and 6.1% of total 180 respondent students. Semester-based breakup of the respondents indicated that the highest percentage of students (54.4%) were in their 3rd to 4th semester followed respectively by students in 1st to 2nd semester (36.7%), 5th to 6th semester (4.4%), 7th to 8th semester (2.8%) and 9th to 10th semester (1.7%).

SWOT Analysis

A.1 Strengths related to teaching and teachers

Table 1: Mean ± SD and ranks of the responses of postgraduate students (n = 180) concerning the strengths of UAF related to teaching and teachers

Serial	Statements	W. S	Mean ± SD	Ranks
1	The teachers are very well-educated and trained	724	4.02 ± 0.915	1
2	The teachers make use of multimedia and other modern gadgets for teaching	714	3.97 ± 0.951	2
3	The students have dispensed an even-handed treatment without discrimination of gender, caste, sect and region of origin	674	3.74 ± 1.052	3

W.S = Weighted score; SD = Standard deviation; UAF = University of Agriculture, Faisalabad

In Table 1, the Mean ± SD value of 4.2 ± 0.915 and its ranked order 1st reflects that most students agreed that ‘the teachers are very well educated and trained’. It was adjudicated as the most significant strength of the UAF in the area of teaching and teachers. The statements ‘teachers make use of multimedia’ and students have meted out an even-handed treatment without any consideration of gender, caste, sect and region of the origin’ (with Mean ± SD 3.97 ± 0.951, and 3.74 ± 1.052, respectively) ranked at 2nd and 3rd, slot as per the perceptions of the students’ concerns teaching and teachers of the University.

A.2 Strengths related to research and supervision

Table 2: Mean ± SD and ranks of the responses of postgraduate students (n = 180) concerning the strengths of UAF related to research and supervision

Serial	Statements	W.S	Mean ± SD	Ranks
1	The Major Supervisor is willing to provide counseling/advice whenever needed.	718	3.99 ± 1.133	1
2	The other members of the Supervisory Committee are willing to provide counseling/advice whenever needed.	678	3.77 ± 0.916	2
3	Laboratories are well maintained.	632	3.51 ± 1.070	3

W.S = Weighted score; SD = Standard deviation; UAF = University of Agriculture, Faisalabad

Table 2 depicts the Mean ± SD and ranks of the responses of postgraduate students to 3 statements related to the research and supervision. Rank No. 1 of the statement ‘the Major Supervisor is willing to provide counseling/advice whenever needed’ had a Mean ± SD value of 3.99 ± 1.133.

A.3 Strengths related to infrastructure and facilities

Table 3: Mean ± SD and ranks of the responses of postgraduate students (n = 180) concerning the strengths of UAF related to infrastructure and facilities

Serial	Statements	W. S	Mean ± SD	Ranks
1	My Department/Institute has its own library.	753	4.18 ± 1.165	1
2	Green and capacious lawns make the Campus picturesque.	744	4.13 ± 0.855	2
3	The main library has an adequate number of relevant books and research journals.	727	4.04 ± 0.982	3

W.S = Weighted score; SD = Standard deviation; UAF = University of Agriculture, Faisalabad

Table 3 shows the Mean ± SD and ranks of the responses of postgraduate students to 3 statements related to the infrastructure and facilities. As is evident from this table, students ranked the statement ‘my Department/Institute has its library’ at the 1st rank (Mean ± SD of 4.18 ± 1.165) amongst the 3 statements concerning infrastructure and facilities.

A.4 Strengths related to finance**Table 4: Mean \pm SD and ranks of the responses of postgraduate students ($n = 180$) concerning the strengths of UAF related to finance**

Serial	Statements	W. S	Mean \pm SD	Ranks
1	University is an economically sound managed institution.	674	3.74 \pm 0.958	1
2	Need-based scholarships are available.	649	3.61 \pm 1.000	2
3	A merit scholarship is sufficient to meet the boarding/lodging and other expenses.	601	3.36 \pm 1.063	3

W.S = Weighted score; SD = Standard deviation; UAF = University of Agriculture, Faisalabad

Table 4 shows the Mean \pm SD and ranks of the responses of postgraduate students to 3 statements related to finance. The statement 'University is an economically sound and well-managed institution' was adjudged as the strong (Mean \pm SD 3.74 \pm 0.958) dimension of the University in the area of finance.

A.5 Strengths related to the general environment**Table 5: Mean \pm SD and ranks of the responses of postgraduate students ($n = 180$) concerning the strengths of UAF related to the general environment**

Serial	Statements	W. S	Mean \pm SD	Ranks
1	Co-curricular activities are regularly arranged at the University.	723	4.02 \pm 1.005	1
2	The University administration takes strict and immediate action in cases of harassment and misconduct.	713	3.96 \pm 1.095	2
3	The University makes arrangements to celebrate the National Days.	701	3.89 \pm 0.966	3

W.S = Weighted score; SD = Standard deviation; UAF = University of Agriculture, Faisalabad

Mean \pm SD and ranks of the responses of postgraduate students to 3 statements related to the general environment of the University have been shown in Table 5. As is evident from this table, students ranked the statement 'Co-curricular activities are regularly arranged at the University' at Rank # 1 (Mean \pm SD of 4.02 \pm 1.005) among the 10 statements concerning the general environment.

B.1 Weaknesses related to teaching and teachers

The statement reading as thus 'The postgraduate courses are not in line and at par with those in developed countries of the World' was adjudged as the most significant weakness (Mean \pm SD 3.36 ± 1.006) of the UAF in the area of teaching and teachers followed by the statement 'Class strength is usually huge to create difficulty for learning and understanding' (Rank # 2) and the statement 'Due to Covid-19 pandemic and unplanned holidays, teachers are not able to cover all syllabi of different courses' (Rank # 3; Table 6).

Table 6: Mean \pm SD and ranks of the responses of postgraduate students ($n = 180$) concerning the weaknesses of UAF related to teaching and teachers

Serial	Statements	W. S	Mean \pm SD	Ranks
1	The postgraduate courses are not in line and at par with those in developed countries of the World.	604	3.36 ± 1.006	1
2	Class strength is usually huge to create difficulty for learning and understanding.	595	3.31 ± 1.215	2
3	Due to the Covid-19 pandemic and unplanned holidays, teachers are not able to cover all syllabi of different courses.	577	3.21 ± 1.055	3

W.S = Weighted score; SD = Standard deviation; UAF = University of Agriculture, Faisalabad

B.2 Weaknesses related to research and supervision

Table 7: Mean \pm SD and ranks of the responses of postgraduate students ($n = 180$) concerning the weaknesses of UAF related to research and supervision

Serial	Statements	W. S	Mean \pm SD	Ranks
1	The University does not provide sufficient opportunities for supervised study tours.	606	3.37 ± 1.219	1
2	Postgraduate students are not properly trained in the area of scientific writing and thesis write-up.	602	3.34 ± 1.183	2
3	The research conducted is usually not of applied nature.	562	3.12 ± 1.180	3

W.S = Weighted score; SD = Standard deviation; UAF = University of Agriculture, Faisalabad

Table 7 shows the Mean ± SD and ranks of the responses of postgraduate students to 3 statements concerning the weaknesses related to research and supervision. The statement 'The University does not provide sufficient opportunities of supervised study tours' was reckoned as the most important weakness (Mean ± SD 3.37 ± 1.219) of the University in the domain of research and supervision. In terms of rank, statement # 2 'Postgraduate students are not properly trained in the area of scientific writing and thesis write up' stood at Rank # 2 (Mean ± SD 3.34 ± 1.183) amongst the weaknesses of the University. Statement # 3 'The research conducted is usually not of applied nature' with Mean ± SD of 3.12 ± 1.180 ranked at # 3 as per the perceptions of the students' concerning research and supervision of the University.

B.3 Weaknesses related to infrastructure and facilities

Table 8: Mean ± SD and ranks of the responses of postgraduate students (n = 180) concerning the weaknesses of UAF related to infrastructure and facilities

Serial	Statements	W. S	Mean ± SD	Ranks
1	There is an insufficient hostel residence capacity.	656	3.64 ± 1.137	1
2	Up-keeping of washrooms/toilets and labs leaves a lot to be desired.	614	3.41 ± 1.157	2
3	In some lecture rooms and labs, ventilation is not proper.	612	3.40 ± 1.117	3

W.S = Weighted score; SD = Standard deviation; UAF = University of Agriculture, Faisalabad

The statement 'There is an insufficient hostel residence capacity' was adjudged as most strong weakness (Mean ± SD 3.64 ± 1.137) of the University in the area of infrastructure and facilities. Statements related to the inadequacy of wash rooms/toilets and improper ventilation in some lecture rooms and labs. (With Mean ± SD of 3.41± 1. 157 & 3.40 ± 1.117, respectively) ranked at # 2 & 3 slots amongst the weaknesses of UAF as per the perceptions of the students' concerning infrastructure and facilities of the University (Table 8).

B.4 Weaknesses related to finance

Table 9: Mean ± SD and ranks of the responses of postgraduate students (n = 180) concerning the weaknesses of UAF related to finance

Serial	Statements	W. S	Mean ± SD	Ranks
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1	The number of both undergraduate and postgraduate students is continuously increasing and the financial resources of the university are thus dwindling.	717	3.98 ± 0.960	1
2	Owing to financial constraints, there are insufficient positions of paid Teaching Assistants for postgraduate students.	632	3.51 ± 1.033	2
3	The University does not provide sufficient funds to maintain and upscale labs.	630	3.50 ± 0.983	3

W.S = Weighted score; SD = Standard deviation; UAF = University of Agriculture, Faisalabad

The statement reading as thus ‘The number of both undergraduate and postgraduate students is continuously increasing and the financial resources of the university are thus dwindling’ was ranked as the most important weakness (Mean ± SD 3.98 ± 0.960) of the University in the area of finance (Table 9).

B.5 Weaknesses related to the general environment

Table 10: Mean ± SD and ranks of the responses of postgraduate students (n = 180) concerning the weaknesses of UAF related to the general environment

Serial	Statements	W. S	Mean ± SD	Ranks
1	University lacks well-furnished and serene (i.e. peaceful) postgraduate department rooms.	632	3.51 ± 1.033	1
2	There is a poor linkage between the University and industry	621	3.45 ± 1.069	2
3	UAF lacks the arrangements for extinguishing fire and emergency exits.	611	3.39 ± 0.960	3

W.S = Weighted score; SD = Standard deviation; UAF = University of Agriculture, Faisalabad

In Table 10, the mean ± SD value of 3.51 ± 1.033 of statement # 1 (Rank # 1) reflects

that most students were of the view that the UAF lacks well-furnished and serene (i.e. peaceful) postgraduate rooms in the departments. Poor linkage between the University and the industry and lack of arrangements for extinguishing fire and emergency exits were the other weaknesses of the UAF related to the general environment in the given order.

C.1 Opportunities related to teaching and teachers

Most of the students perceived opportunities of training younger faculty by the seasoned faculty as the most significant opportunity related to teaching and teachers. This statement was quite closely tied with statements # 2 and 3 (Table 11).

Table 11: Mean ± SD and ranks of the responses of postgraduate students (n = 180) concerning the opportunities of UAF related to teaching and teachers

Serial	Statements	W. S	Mean ± SD	Ranks
1	Using the existing highly trained manpower resources, UAF can provide more opportunities for training to young faculty.	700	3.89 ± 0.761	1
2	Every postgraduate student can be given the choice to select his/her Major Supervisor.	699	3.88 ± 1.243	2
3	UAF can provide more opportunities for co-curricular activities of postgraduate students.	696	3.87 ± 0.887	3

W.S = Weighted score; SD = Standard deviation; UAF = University of Agriculture, Faisalabad

C.2 Opportunities related to research and supervision

Mean ± SD and ranks of the responses of postgraduate students to the first 3 ranking statements related to the research and supervision are shown in Table 12. The statement ‘online research training sessions can be conducted through Zoom, Google Meet and other tools’ was adjudged as the strongest opportunity (Mean ± SD 3.98 ± 0.906) of the UAF in the area of research and supervision.

Table 12: Mean ± SD and ranks of the responses of postgraduate students (n = 180) concerning the opportunities of UAF related to research and supervision

Serial	Statements	W. S	Mean	Ranks
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1	Online research training sessions can be conducted through Zoom, Google Meet and other tools.	717	3.98 ± 0.906	1
2	Due to the problem of food shortage and the dearness of food items, the Government of Pakistan will declare UAF as the premier hub of agricultural research.	658	3.66 ± 0.976	2
3	More opportunities for postgraduate research and faculty training will be available in Russia, Central Asian countries and China.	642	3.57 ± 0.940	3

W.S = Weighted score; SD = Standard deviation; UAF = University of Agriculture, Faisalabad

C.3 Opportunities related to infrastructure and facilities

Table 13: Mean ± SD and ranks of the responses of postgraduate students (n = 180) concerning the opportunities of UAF related to infrastructure and facilities

Serial	Statements	W. S	Mean	Ranks
1	There is an opportunity for a computer backup system in every Institute/Department.	732	4.07 ± 0.869	1
2	More developmental projects to improve the UAF infrastructure day by day are in offing.	708	3.93 ± 0.913	2
3	There is an opportunity to launch a repair service by adding a workshop unit for the repair of non-functional research equipment.	692	3.84 ± 0.890	3

W.S = Weighted score; SD = Standard deviation; UAF = University of Agriculture, Faisalabad

Table 13 depicts the Mean ± SD and ranks of the responses of postgraduate students to 3 statements concerning the opportunities related to infrastructure and facilities. The statement reading as thus ‘There is an opportunity for a computer backup system in every Institute/Department’ was adjudicated as the most significant opportunity (Mean ± SD 4.07 ± 0.869) of the University in the area of infrastructure and facilities.

C.4 Opportunities related to finance

As is evident from Table 14, students ranked the statement ‘Students work in projects will improve practical skills and knowledge along with financial support’ at Rank # 1 (Mean ± SD of 3.96 ± 0.988) concerning the opportunities of UAF in the domain of finance.

Table 14: Mean \pm SD and ranks of the responses of postgraduate students (n = 180) concerning the opportunities of UAF related to finance

Serial	Statements	W. S	Mean \pm SD	Ranks
1	Students working on projects will improve practical skills and knowledge along with financial support.	713	3.96 \pm 0.988	1
2	UAF technologies may bring more revenue to the institution.	693	3.85 \pm 0.887	2
3	There is an opportunity for the constitution of the Alumni Club to help the departments financially and impart training to teachers and postgraduate students.	689	3.83 \pm 0.920	3

W.S = Weighted score; SD = Standard deviation; UAF = University of Agriculture, Faisalabad

D.1 Threats related to teaching and teachers

Apprehensions about the negative impact of intercession (*sefarish* in Urdu), price hike of research material and the undesirable practice of slighting teaching of practical in favor of theory respectively ranked at 1st, 2nd and 3rd slot in students' perceptions related to threats to teaching and teachers (Table 15).

Table 15: Mean \pm SD and ranks of the responses of postgraduate students (n = 180) concerning the threats to UAF in the area of teaching and teachers

Serial	Statements	W. S	Mean \pm SD	Ranks
1	The students use intercession (called <i>sefarish</i> in Urdu) to get better grades.	673	3.74 \pm 0.874	1
2	A hike in the price of research material will negatively impact the quality of faculty and postgraduate students' research at UAF	660	3.67 \pm 0.852	2
3	The current system of teaching places more emphasis on theory rather than on practice.	658	3.66 \pm 0.993	3

W.S = Weighted score; SD = Standard deviation; UAF = University of Agriculture, Faisalabad

D.2 Threats related to infrastructure and facilities

Data presented in Table 16 shows that the majority of the students had fairly strong opinions (Mean ± SD of 3.8 ± 0.912 and 3.74 ± 0.898) to both statements concerning the threats to the University in the domain of its infrastructure and facilities.

Table 16: Mean ± SD and ranks of the responses of postgraduate students (n = 180) concerning the threats to UAF in the area of its infrastructure and facilities

Serial	Statements	W. S	Mean ± SD	Ranks
1	More and more University land is being utilized for the construction of new buildings. This trend may contribute in a small way to climate and environmental degradation.	684	3.80 ± 0.942	1
2	The canal irrigation water is constantly decreasing and that will negatively impact the research and green outlook of the UAF campus.	674	3.74 ± 0.898	2

W.S = Weighted score; SD = Standard deviation; UAF = University of Agriculture, Faisalabad

D.3 Threats related to finance

The majority of the students apprehended that a constant increase in salaries and pension of the university employees may lead to a financial crunch of the university (Mean ± SD 3.43 ± 1.062; Rank 1; Table 17). Statement # 2 that reads as thus ‘Owing to financial constraints, the Government may privatize the University education’ was rated as a lesser important (Mean ± SD 3.07 ± 1.094; Rank 2; Table 17) threats to the University.

Table 17: Mean ± SD and ranks of the responses of postgraduate students (n = 180) concerning the threats to UAF in the area of finance

Serial	Statements	W. S	Mean ± SD	Ranks
1	A constant increase in salaries of serving employees and the pension of retired University employees may lead to a financial crunch for the UAF.	617	3.43 ± 1.062	1
2	Owing to financial constraints, the Government	553	3.07 ± 1.094	2

may privatize the University's education.

W.S = Weighted score; SD = Standard deviation; UAF = University of Agriculture, Faisalabad

D.4 Threats related to the general environment

Table 18: Mean ± SD and ranks of the responses of postgraduate students (n = 180) concerning the threats of UAF related to the general environment

Serial	Statements	W. S	Mean ± SD	Ranks
1	Water and energy crises will become major threats to agricultural and human development.	725	4.03 ± 1.033	1
2	Involvement of faculty and postgraduate students in petty politics poses serious threats to the discipline and image of the University in society.	632	3.51 ± 1.075	2
3	Restoration of the student's union (as done recently in Sindh) may disturb the discipline of the University.	625	3.47 ± 1.065	3

W.S = Weighted score; SD = Standard deviation; UAF = University of Agriculture, Faisalabad

Table 18 depicts the Mean ± SD and ranks of the responses of postgraduate students to 3 statements related to the general environment of UAF. As is evident from this table, students ranked the statement ‘Water and energy crises will become a major threat for agricultural and human development’ at Rank # 1 (Mean ± SD of 4.03 ± 1.033) concerning the threats to the general environment of UAF.

DISCUSSION

SWOT analysis is a widely used method in the strategic planning of long-term and short-term development of higher education institutions. It has four components namely strengths, weaknesses, opportunities and threats. In the light of findings of the SWOT analysis, an institution can build on its strengths, address its weaknesses, grab or seize opportunities for its advancement and counter the potential threats that may confront it (Dyson, 2004; Odeh *et al.*, 2015; Adrees *et al.*, 2016; Leiber *et al.*, 2018; Nasreen and Afzal, 2020). The present study represents the maiden attempt at SWOT analysis of postgraduate degree programs of the University of Agriculture, Faisalabad from the student's perspective.

All in all, the respondents had positive perceptions of the statements ‘the teachers

are very well educated and trained, 'the teachers make use of multimedia and other modern gadgets of teaching', 'the students are given an even-handed treatment without discrimination of gender, caste, sect and region of origin', concerning the strengths of UAF in the sub-category of teaching and teachers. Marx *et al.* (1998) reported that the use of multimedia, tools of telecommunication information sets and output tools contribute significantly to improving pedagogical skills and professional development of teachers. Similarly, in consonance with the findings of the present study, Chaudhry *et al.* (2016) reported that students of the University of Punjab perceived that the University is endowed with an effective and supportive teaching and learning environment and is manned by a workforce that is talented and stable. The results of the present study are in partial agreement with the findings of the SWOT analysis of the University of the Punjab reported by Chaudhry *et al.* (2016) and Ahmad *et al.* (2019). These workers reported that the workforce of the University of the Punjab was stable and talented. There was a high level of interaction between faculty and students. The students, faculty and support staff had a strong sense of community that generated trustworthiness to the University. Partial concordance of the findings of the present study with those reported by these workers can be ascribed to the unique environments of each of these institutions of higher education. As per the findings reported by Ahmad *et al.* (2019), the provision of opportunities for curricular and co-curricular activities was the second most important strength of the University of the Punjab. In the present study, this positive engagement of the UAF stood at Rank # 1 amongst the 3 statements related to the general environment of the University. As such, the results of the present study are in close agreement with those reported by Ahmad *et al.* (2019). Strengths-related data after disregarding the subcategories of strengths (*viz.* Teaching and teachers, Infrastructure and facilities, Finance and General environment) revealed that each Department/Institute has its library (4.18 ± 1.165), green and capacious lawns which make the campus picturesque (4.13 ± 0.855) and the main library having an adequate number of relevant books and research journals (4.04 ± 0.982) were the 3 top ranking strengths of UAF. All these strengths belonged to the domain of Infrastructure and facilities.

An inordinately excessive pre-occupation of the teachers with a wide array of responsibilities thus leaving very little time for research was identified as one of the weaknesses in a SWOT study of the higher education system of Allama Iqbal Open University, Islamabad (Nasreen and Afzal, 2020). Ordering of all weaknesses-related data after disregarding the compartmentalization (*viz.* Teaching and teachers, Infrastructure and facilities, Finance and General environment) pointed to 'the number of both undergraduate and postgraduate students is continuously increasing and financial resources of the university are thus dwindling (Mean \pm SD 3.98 ± 0.960), there is an insufficient hostel residence capacity (3.64 ± 1.137) and

University lacks well-furnished and serene (i.e. peaceful) postgraduate rooms in its constituent departments (3.51 ± 1.033)' of the 3 top ranking weaknesses of postgraduate degree programs of UAF in the domain of Finance, Infrastructure and facilities and General environment respectively.

In the present study, the possibility of conducting online sessions through Zoom, Google Meet and other tools was rated as the most significant opportunity in the domain of research and supervision (Mean \pm SD 3.98 ± 0.096). In terms of rank, the finding of the present study concerning the usefulness of online learning concurs with that reported by Shahzadi *et al.* (2022) who conducted a SWOT analysis of UAF during the period of epidemic of COVID-19. Nonetheless, the Mean \pm SD value of 3.786 ± 1.018 reported by these workers is lower than that observed in the present study. This disparity can be attributed to the difference in the educational milieu of UAF during the COVID-19 outbreak and the study period of the present study (January to June 2022).

When the same treatment was meted out to the opportunities-related data, the 3 top ranking opportunities in the realm of postgraduate degree programs of UAF were 'there is an opportunity of computer backup system in every Institute/Department (Mean \pm SD of 4.07 ± 0.869), online research training sessions can be conducted through Zoom, Google Meet and other tools (3.98 ± 0.906) and students work in projects will improve practical skills and knowledge along with financial support (3.96 ± 0.988)' in the domains of Infrastructure and facilities, Research and supervision and Finance, respectively.

Sorting of all data related to threats (in the descending order of their Mean \pm SD) after disregarding the compartmentalization (*viz.* Teaching and teachers, Infrastructure and facilities, Finance and General environment) pointed to the 3 top ranking threats 'water and energy crises will become major threats for agricultural and human development (4.03 ± 1.033), more and more University land is being utilized for construction of new buildings which may contribute in a small way to a climate and environmental degradation (3.80 ± 0.942) and the students use intercession (called as *sefarish* in Urdu) to get better grades (3.74 ± 0.874)' to the postgraduate degree programs of UAF. These potential threats of UAF fell in the area of General environment, Infrastructure and facilities and Teaching and teachers, respectively.

Shah and Saqib (2013) conducted SWOT analysis of MA Education Planning and Management (EPM) program of AIU (Allama Iqbal Open University, Islamabad) to discern the strengths and weaknesses as well as to identify the opportunities and threats that may potentially impact this program negatively. Their study found that

the enrolment, examinations, job placement, job satisfaction, workshops and field performance of the postgraduate degree recipients of EPM were the strengths and opportunities of the program. Conversely, weaknesses and threats of the program related to the written assignments, study material, tutors, study tours, relevance of syllabi/curricula to the local requirements, pressing need to revise and update the curriculum. The results of the present study are in partial agreement with those reported by these workers.

According to Patel and Zhao (2014), Pakistan is facing a grim crisis of energy shortage. 'Water and energy crises will become a major threat for agricultural and human development' was perceived as the most significant potential threat to the general environment of UAF in the present study. This conforms with the conclusion of the study of Patel and Zhao (2014) *Loc cit.*

RECOMMENDATIONS

The administration of UAF in general and the Directorate of Graduate Studies in particular should:

Capitalize on the strengths of the postgraduate degree programs identified in the present study e.g. availability of library facilities in each Department/Institute to better train the postgraduate students,

Take measures to address the weaknesses (e.g. a continuous increase in the number of students),

Grasp the opportunities identified through SWOT analysis (e.g. prospects of arrangements of computer backup system (i.e. UPS) in every Institute/Department) for further improvement in its postgraduate degree programs, and

Take appropriate actions to cope with the potential threats (e.g. looming danger of water and energy crises for agricultural and human development) to the postgraduate degree programs identified in the present study.

AVAILABILITY OF DATA AND MATERIAL

The data that support the findings of this study are available from the corresponding author upon reasonable request.

FUNDING

Not applicable

ACKNOWLEDGEMENTS

Not applicable

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