Evaluating Quality Standards in Fashion Technology Courses: An Indian Perspective

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Abstract

Overall structure and functioning of economies around the globe have been drastically altered as a direct result of globalisation. In order to generate new information, ideas and innovations, the globalised market depend on the manpower with a high degree of expertise. To maintain a competitive advantage in the globalised market, several nations have made it their top goal to increase their investments in manpower that are capable of generating innovations, inventions, and creative ideas. Because of the increased demand for higher education in today's globalised society, the necessity of implementing quality control measures in educational institutions of higher learning has intensified.

Higher education institutions have been given the mammoth job of ensuring quality education to students' community throughout the entire learning process. In order for these institutions to be able to provide high-quality services to the important stakeholders, it is imperative that they instil and maintain an effective quality assurance system. The demand for Indian fashion technology courses has skyrocketed in the recent years because of the boom in the industry. However, in order to keep pace with the changes in the industry, it is necessary the fashion technology education in India has to sustain significant transformations in the dynamic market conditions. The expectations of different stakeholders in fashion technology education have dramatically increased, and the education leaders are entrusted with herculean task of guaranteeing utmost value in course offerings to guarantee that the educational opportunities are of high quality and relevance.

This paper aims to evaluate the significance of various factors in the design of quality assurance framework in fashion technology courses. From a comprehensive literature review of quality assurance parameters in higher education, six factors were identified. The study hypotheses that these factors significantly impact the overall quality in fashion technology courses. The proposed quality assurance framework considers the factors namely Resources, Facilities and Infrastructure, Leadership and Management, Instructional Design and Delivery, Assessment & Evaluation, and Learning Outcome. Data were collected from 600 respondents including fashion design and technology industry professionals and teaching professionals and subjected to different statistical analysis using SPSS 25.0 software. The findings of the empirical analysis reiterate the importance of the factors like Learning Outcome, Facilities and Infrastructure and Assessment & Evaluation in in the quality assurance framework in fashion technology courses. The study also provides several suggestions and recommendations for promoting quality assurance in fashion technology courses.

1. Introduction

In the last two decades, there has been a widespread interest in quality assurance in higher education. This interest is premised on the belief that quality assurance has the potential to both guarantee and fulfil the stakeholders' expectation of quality (Ansah, 2015).

Higher education institutions in India are under an incredible quantum of pressure to provide high-quality results across the verticals, in terms of both content and presentation. Universities have come to the realization that the quality of the services they provide has an effect on their long-term survival, and that quality is what differentiates one institution from another (Suresh, & Arul Kumaravelu, 2022). According to Prakash (2020), students attending higher education institutions now have far greater expectations compared to the schools themselves. On the other hand, according to Azmi et al. (2018), the expectations of the industry in terms of the skills and competencies that graduates of higher education should possess have been steadily growing.

As a consequence of this, higher education institutions are being obliged to adhere to particular quality requirements and implement market oriented methods in order to separate themselves from their rivals by offering services of a high quality that have long-lasting consequences on the institutions and students that they serve (Thomas, 2011). According to Aithal and Aithal (2020), the government of India is making efforts to promote certification and periodic quality assessment as the most practical means of guaranteeing adequate standards in quality in higher education. According to Poole et al. (2000), institutions that are confronted with high levels of competition often resort to strategies that address the quality of services supplied and associated characteristics as a method of obtaining competitive advantage in an environment that is becoming more difficult.

2. Background

Sakthivel et al. (2007) have identified that "Campus Facilities," "Course Delivery," "Top Management Commitment," "Courtesy," and "Customer Feedback & Improvement" were the top five parameters to guarantee the quality of higher education. In addition to this, they investigated the relationship between a number of quality criteria and the overall degree of pleasure experienced by the students. Similarly, Hasan et al. (2008) considered the factors like "Student Satisfaction", "Assurance" "Empathy", "Reliability," "Responsiveness" and "Tangibility" in their quality assurance framework. Sayeda et al. (2010) have identified twenty-seven major quality factors based on a comprehensive review of the literature and explored the relationship between an institution's performance and the different quality aspects. Gambhir et al. (2016) performed an analysis of the elements that influence the quality of education provided by a technical institution and employed several methodologies for ranking, rating, and assessment. The following criteria were taken into consideration: "Physical resources," "Faculty and Staff," "Financial resources," "Governing policies," "Teaching and learning processes," "Industry-academia interaction," and "Stakeholder viewpoints." Mittal et al. (2018) have proposed a quality assessment framework for educational institutions in technical education. They identified crucial parameters for quality improvement influencing students' outcomes in terms of employability and entrepreneurship. They considered students' accomplishments in the form of placements, entrepreneurial output, enrolment in higher education, and university rankings for quality assessment. In addition, faculty's research output, which includes patents, consulting jobs, and publications in peer-reviewed journals was also included the framework for quality assessment. The study's conclusion claims that when the identified parameters are given the atmosphere and infrastructure necessary to demonstrate their abilities, the calibre of technical institutions naturally rises.

3. Objectives

- To identify different factors influencing quality of education in fashion technology courses in India.
- To ascertain how teaching professionals perceive the importance of selected quality assurance factors in fashion technology courses.

- To measure how industry professionals perceive the importance of selected quality assurance factors in fashion technology courses.
- To investigate the impact of selected factors in quality assurance framework on the overall quality in fashion technology courses.

4. Model

The hypothesized conceptual model of the study is shown in Figure 1. The model suggests that the factors like Resources (REs), Facilities and Infrastructure (FI), Leadership and Management (LM), Instructional Design and Delivery (IDD), Assessment & Evaluation (AE), Learning Outcome (LO), and Overall Quality contributes significantly to the Quality Assurance Framework of Fashion Technology (FT) Courses. The relationship between the predictors (Resources (REs), Facilities and Infrastructure (FI), Leadership and Management (LM), Instructional Design and Delivery (IDD), Assessment & Evaluation (AE), Learning Outcome (LO)) and outcome variable (Overall Quality) was examined in this empirical study. In addition, the influence of the demographic factors like gender, type of respondents (industry or education) and age was also explored on the different factors in quality assurance framework was also investigated in this study.
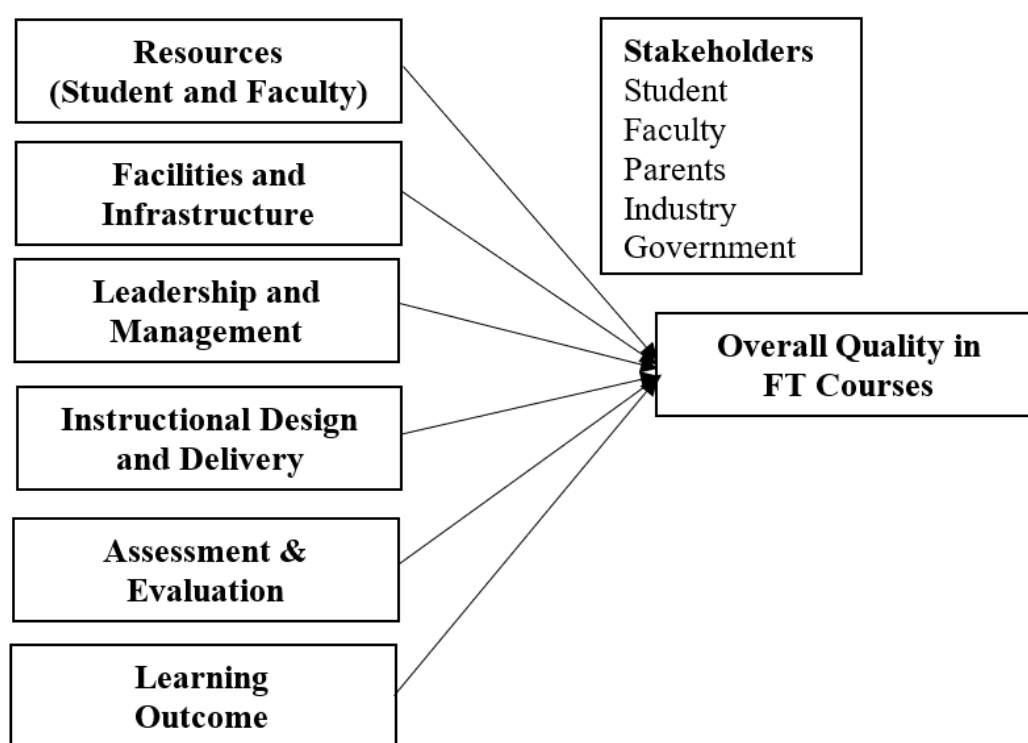

Figure 1 Framework for Quality Assurance in Fashion Technology Education

5. Hypothesis

The research hypothesis of the study are given below:

Hypothesis 1: There is no significant difference between industry professionals and teaching professionals on their perception toward different factors in quality assurance framework in fashion technology courses

Hypothesis 3: There is no significant difference between respondents with different age on their perception toward different factors in quality assurance framework in fashion technology courses

Hypothesis 4: Different factors (Resources, Facilities and Infrastructure, Leadership and Management, Instructional Design and Delivery, Assessment & Evaluation and Learning Outcome)

in Quality Assurance Framework have significant impact on Overall Quality in Fashion Technology Courses

6. Methodology

The main challenges encountered by educational institutions in providing quality fashion technology education were identified and analysed, based on a review of a large number of studies on quality assurance frameworks in higher education and insights garnered from industry professionals in fashion design industry. The initial analysis revealed twenty-five factors. The pilot study was conducted with a representative sample of 25 teaching professionals who are handling fashion design and technology courses and also with another 25 fashion design industry professionals in order to refine and identify the most significant factors in the design of quality assurance framework in fashion technology courses in India.

As a result of the pilot study, seven factors were identified for the design of quality assurance framework in fashion technology courses. The factors included "Resources", "Facilities and Infrastructure", "Leadership and Management", "Instructional Design and Delivery", "Assessment & Evaluation", "Learning Outcome", and "Overall Quality in FT Courses".

This study utilised a descriptive and cross-sectional quantitative research design methodology. Teaching Professionals from various institutions offering "Fashion Technology and Design Courses" and Industry Professionals from the Fashion Design Industry comprised the sample of respondents of the study. According to Krejcie and Morgan's (1970) formula for determining the sample size for research projects, the sample size was determined to be 600. Data were collected from a total of 700 respondents The final sample size was restricted to 600 with an 85.7% response rate. Respondents to the research were selected using a combination of the snowball and convenience sampling techniques (Creswell, 2007).

A fifty one item questionnaire was developed by the authors to evaluate the importance of different quality assurance parameters (factors) in the framework of the study. Respondents were asked to rate the degree of importance and necessity of different factors in the design of quality assurance framework in fashion technology courses in India. The study utilised a five-point Likert scale with the options "Not at all Important," "Not Important", "Neutral", "Important", and "Very Important".

7. Results and Discussion
7.1 Demographics Profile

The demographic profile of the respondents of the study is shown in Table 1. The study included 600 respondents with 300 from fashion design industry and another 300 from academic institutions offering fashion technology courses. Based on the gender, 66.7% were male and 33.3% were female respondents. With respect to the age profile, majority of the respondents were aged between 31 and 40 years (57.7%), followed by respondents with age over 50 years (26.00%) and 13.7% of respondents belonged to 41-50 years. Finally, only 2.7% of respondents were from the age group of below 30 years. With regard to education, 63% of the respondents hold PG degrees and 32.0% of the respondents were holding doctorate degrees and 5.00% of respondents were Undergraduates.

Table 1: Demographic Profile

Variable	Category	Frequency	Percent
Gender	Male	400	66.7
	Female	200	33.3
Age	Upto 30	16	2.7

(Years)	31-40	346	57.7
	41-50	82	13.7
	Above 50	156	26
Education	UG	30	5
	PG	378	63
	PhD	192	32
Respondents	Faculty Member	300	50
	Industry Professional	300	50

7.2 Descriptive Statistics and Reliability Analysis

The descriptive statistics and reliability analysis of different factors in the proposed quality assurance framework in fashion technology courses in India is presented in Table 2. The table also shows the results of reliability analysis using Croanbach' Alpha Coefficient.

Table 2: Descriptive Statistics and Reliability Analysis (N=600)

Variables	No. of Items	Mean	Std. Deviation	Skewness	Kurtosis	Cronbach's Alpha
Resources	12	3.94	0.55	-0.45	0.52	0.86
Facilities and Infrastructure	8	4.14	0.43	-0.83	1.11	0.86
Leadership and Management	7	4.42	0.58	0.14	-1.52	0.79
Instructional Design and Delivery	5	4.09	0.51	0.23	-0.63	0.83
Assessment & Evaluation	5	4.10	0.55	-0.65	0.31	0.80
Learning Outcome	8	4.12	0.58	-0.29	-0.81	0.88
Overall Quality in FT Courses	6	4.18	0.43	-0.53	-0.23	0.92

On the basis of the mean rating, "Leadership and Management" (M=4.42, SD=0.38), " Facilities and Infrastructure" (M=4.14, SD=0.43), and " Learning Outcome" (M=4.12, SD=0.58) were observed to be the highest-rated factors influencing the Overall Quality in FT Courses in higher education. The outcome variable " Overall Quality in FT Courses" was also given higher rating with mean value of 4.18 and standard deviation of 0.43. In contrast, respondents believed that the variable "Resources" (M=3.94, SD=0.55) moderately influences the quality assurance framework in fashion technology courses. The table displays the coefficient of reliability (Cronbach Alpha) for each variable influencing quality assurance framework. In general, Cronbach's Alpha values above 0.7 are regarded as reliable (Brown, 2002). A reliable scale precisely measures what it is intended to measure. All quality assurance variables in the framework have Cronbach's Alpha values greater than 0.6, indicating the reliability of the scale.

7.3 Hypothesis Testing

Hypothesis 1: There is no significant difference between industry professionals and teaching professionals on their perception toward different factors in quality assurance framework in fashion technology courses

The hypothesis was tested using an independent sample t-test with Teaching Professionals (N=300) and Industry Professionals (N=300) as the independent variable and different factors in quality assurance framework in fashion technology courses as the dependent variable, and the results (Table 3) are discussed.

Table 3: Independent Sample t-test between Education and Industry Professionals on different Factors in Quality Assurance Framework

Variable	Respondents	N	Mean	Std. Deviation	t-value	p-value
Resources	Teaching Professional	300	3.84	0.55	4.45	0.001**
	Industry Professional	300	4.04	0.55		
Facilities and Infrastructure	Teaching Professional	300	4.04	0.43	6.05	0.001**
	Industry Professional	300	4.25	0.42		
Leadership and Management	Teaching Professional	300	4.36	0.58	2.512	0.012*
	Industry Professional	300	4.48	0.59		
Instructional Design and Delivery	Teaching Professional	300	4.19	0.55	4.45	0.001**
	Industry Professional	300	3.99	0.51		
Assessment & Evaluation	Teaching Professional	300	4.14	0.56	1.99	0.048*
	Industry Professional	300	4.05	0.55		
Learning Outcome	Teaching Professional	300	4.12	0.58	0.21	0.830
	Industry Professional	300	4.11	0.59		
Overall Quality in FT Courses	Teaching Professional	300	4.13	0.43	2.88	0.004**
	Industry Professional	300	4.23	0.42		

The above table shows that Industry Professionals have given higher weightage to the factors like Leadership and Management (M=4.48, SD=0.59) and Facilities and Infrastructure (M=4.25, SD=0.42). On the other hand, Leadership and Management (M=4.36, SD=0.58) and Instructional Design and Delivery (M=4.19, SD=0.55).

The above table also indicates that, Teaching Professional and Industry Professionals have differed substantially on majority of the factors in quality assurance framework in fashion technology courses except Leadership and Management, and Learning Outcome. Thus, the hypothesis was refuted for the factors like Resources (t=4.45, p=0.001), Facilities and Infrastructure (t=2.88, p=0.001), Leadership and Management   (t=2.51, p=0.012), Instructional Design and Delivery (t=4.45,

p=0.001), Assessment & Evaluation (t=6.05, p=0.0001) and Overall Quality in FT Courses (t=2.88, p=0.004). However, the hypothesis was accepted for the factor namely Learning Outcome as the p-value is greater than 0.05.

Hypothesis 2: There is no significant difference between male and female respondents on their perception toward different factors in quality assurance framework in fashion technology courses

The hypothesis was tested using an independent sample t-test with gender of the respondents as the independent variable and different factors in quality assurance framework in fashion technology courses as the dependent variable, and the results (Table 4) are discussed.

Table 4: Independent Sample t-test between Gender and Factors in Quality Assurance Framework

Variables	Gender	N	Mean	Std. Deviation	t-value	p-value
Resources	Male	400	4.03	0.47	3.64	0.00**
	Female	200	3.76	0.64		
Facilities and Infrastructure	Male	400	4.24	0.33	4.79	0.00**
	Female	200	3.96	0.52		
Leadership and Management	Male	400	4.46	0.41	2.25	0.03*
	Female	200	4.36	0.33		
Instructional Design and Delivery	Male	400	3.96	0.59	2.93	0.00**
	Female	200	4.16	0.45		
Assessment & Evaluation	Male	400	3.94	0.46	3.81	0.00**
	Female	200	4.18	0.58		
Learning Outcome	Male	400	3.84	0.72	5.31	0.00**
	Female	200	4.26	0.44		
Overall Quality in FT Courses	Male	400	3.97	0.48	5.93	0.00**
	Female	200	4.29	0.35		

The above table shows that Male respondents have given higher weightage to the factors like, Leadership and Management (M=4.46, SD=0.41) and Facilities and Infrastructure (M=4.24, SD=0.33). On the other hand, Female respondents have also given higher importance to Leadership and Management (M=4.36, SD=0.33), followed by Learning Outcome (M=4.26, SD=0.44). The above table also indicates that, male and female respondents have differed substantially on all the factors in quality assurance framework in fashion technology courses. Thus, the hypothesis was refuted at the 1% level for all factors.

Hypothesis 3: There is no significant difference between respondents with different age on their perception toward different factors in quality assurance framework in fashion technology courses

The hypothesis was tested using a One-way ANOVA test with Age group of the respondents as the independent variable and different factors in quality assurance framework in fashion technology courses as the dependent variable, and the results (Table 4) are discussed.

Table 5: One way ANOVA between Age and Factors in Quality Assurance Framework

Variable	Mean Comparison	Sum of Squares	df	Mean Square	F-value	p-value
Resources	Between Groups	17.99	3.00	6.00	24.88	0.00**

	Within Groups	71.37	296.00	0.24		
	Total	89.36	299.00			
Facilities and Infrastructure	Between Groups	8.31	3.00	2.77	17.88	0.00**
	Within Groups	45.84	296.00	0.16		
	Total	54.15	299.00			
Leadership and Management	Between Groups	4.06	3.00	1.35	9.97	0.00**
	Within Groups	40.14	296.00	0.14		
	Total	44.19	299.00			
Instructional Design and Delivery	Between Groups	10.35	3.00	3.45	15.06	0.00**
	Within Groups	67.82	296.00	0.23		
	Total	78.17	299.00			
Assessment & Evaluation	Between Groups	16.48	3.00	5.49	21.67	0.00**
	Within Groups	75.00	296.00	0.25		
	Total	91.48	299.00			
Learning Outcome	Between Groups	8.29	3.00	2.76	8.72	0.00**
	Within Groups	93.83	296.00	0.32		
	Total	102.12	299.00			
Overall Quality in FT Courses	Between Groups	4.32	3.00	1.44	8.58	0.00**
	Within Groups	49.73	296.00	0.17		
	Total	54.06	299.00			

The above table indicates that, respondents with different age group have differed substantially on all the factors in quality assurance framework in fashion technology courses. Thus, the hypothesis was refuted at the 1% level for all factors.

7.4 Correlation Analysis

Using Pearson bivariate correlation analysis, the relationship between the variables was investigated. Table 6 demonstrates that all the predictor variables had a significant relationship with the outcome variable (Overall Quality). The significance level was at 0.01 (**).

Table 6 Correlation Analysis

Factor	RES	FI	LM	IDD	AE	LO	OQ
Resources (REs)	1.00						
Facilities and Infrastructure (FI)	0.92** [0.00]	1.00					
Leadership and Management (LM)	0.45** [0.00]	0.47** [0.00]	1.00				
Instructional Design and Delivery (IDD)	0.59** [0.00]	0.69** [0.00]	0.62** [0.00]	1.00			
Assessment & Evaluation (AE)	0.49** [0.00]	0.43** [0.00]	0.21** [0.00]	0.53** [0.00]	1.00		
Learning Outcome (LO)	0.84** [0.00]	0.80** [0.00]	0.50** [0.00]	0.66** [0.00]	0.48** [0.00]	1.00	
Overall Quality (OQ)	0.88** [0.00]	0.88** [0.00]	0.61** [0.00]	0.81** [0.00]	0.64** [0.00]	0.89** [0.00]	1.00

**. Correlation is significant at the 0.01 level (2-tailed).

Values in [] represents p-value.

7.5 Regression Analysis

Hypothesis 4: Different factors (Resources, Facilities and Infrastructure, Leadership and Management, Instructional Design and Delivery, Assessment & Evaluation and Learning Outcome) in Quality Assurance Framework have significant impact on Overall Quality in Fashion Technology Courses

This hypothesis was tested using Multiple Regression Analysis. The variables like Learning Outcome, Assessment & Evaluation, Leadership and Management, Instructional Design and Delivery, Facilities and Infrastructure, and Resources were used as Predictors and Overall Quality in FT Courses was used as Dependent Variable (Table).

Table 7 Multiple Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t-value	p-value
	B	**Std. Error**	**Beta**		
(Constant)	-0.03	0.08		-0.40	0.69
Resources	0.13	0.03	0.16	4.45	0.00
Facilities and Infrastructure	0.23	0.04	0.23	6.48	0.00
Leadership and Management	0.15	0.02	0.14	8.67	0.00
Instructional Design and Delivery	0.14	0.02	0.17	7.65	0.00
Assessment & Evaluation	0.16	0.01	0.21	13.52	0.00
Learning Outcome	0.22	0.02	0.30	12.74	0.00
Model	**R**	**R^2**	**Adj. R^2**	**F-value**	
	0.98	0.96	0.96	1139.58	

Predictors: (Constant), Learning Outcome, Assessment & Evaluation, Leadership and Management, Instructional Design and Delivery, Facilities and Infrastructure, Resources

Dependent Variable: Overall Quality in FT Courses

The regression analysis revealed that the R square value was 0.96, and that the p value was less than 0.05 (significant). Since R Square is greater than zero, the model is statistically significant, and the hypothesis is accepted. The contribution of different factors to the Quality Assurance Framework was measured using Standardized Coefficients (Beta) values. Based on the beta values, it is inferred that Learning Outcome, Facilities and Infrastructure and Assessment & Evaluation were the top contributor to the model with beta values of 0.30, 0.23 and 0.21 respectively. The overall regression equation of the model is represented as below:

Overall Quality in FT Courses = -0.03 + 0.13(Resources) + 0.23(Facilities and Infrastructure) + 0.15(Leadership and Management) + 0.14(Instructional Design and Delivery) + 0.16(Assessment & Evaluation) + 0.22(Learning Outcome)

Based on the regression analysis, the hypothesis "Different factors in Quality Assurance Framework have significant impact on Overall Quality in Fashion Technology Courses" was accepted.

8. Conclusions

The study's findings have numerous implications for key stakeholders in Indian higher education in general and for institutions offering fashion technology courses in particular. Based on the results, it is observed that the critical components in the quality assurance framework based on the regression analysis were Learning Outcome, Facilities and Infrastructure and Assessment & Evaluation. The empirical findings have reiterated the importance of these factors in the quality assurance framework in fashion technology courses. The quality assurance implementation requires additional funds, and continuous efforts are needed to attract the required funding and investments from different financial sources

Educational leaders and management teams, who are major stakeholders working towards the goal of imparting quality teaching and learning environment in fashion technology courses could take into consideration the applicability of several findings that were highlighted in this study. It is suggested, on the basis of the empirical results, that educational leaders should put a greater priority and emphasis on the development of better "Facilities and Infrastructure", continuous monitoring and management of "Learning Outcome" by providing exemplary "Leadership and Management" to enhance the quality of education provided by institutions that specialise in fashion design and technology courses. Student Resources must be equipped with cutting-edge skills, knowledge, and experiences in order for them to excel on the job market. Administration and control of educational processes are essential for the formation of an effective and productive team capable of achieving the intended objectives.

9. Future Scope and Limitations

This study used a kind of research known as cross-sectional research, in which responses from participants were obtained simultaneously. As a consequence of this, future research may focus on conducting longitudinal studies in which the development of the response attitudes held by stakeholders will be thoroughly evaluated. According to the findings of the study, a comparative study might be carried out by collecting data from a variety of disciplines of study within higher education, such as engineering, medicine, the arts, and the sciences. The participants in this research were teaching professional and industry professionals. Hence, it would be fascinating if former students or graduates could also be included in the study in order to help in the evaluation of the proposed quality assurance framework in fashion technology courses.

References

1. Aithal, P. S., & Aithal, S. (2020). Implementation Strategies of Higher Education Part of National Education Policy 2020 of India towards Achieving its Objectives. *International Journal of Management, Technology, and Social Sciences (IJMTS)*, *5*(2), 283-325.
2. Ansah, F. (2015). A strategic quality assurance framework in an African higher education context. *Quality in Higher Education*, *21*(2), 132-150.
3. Azmi, A. N., Kamin, Y., Noordin, M. K., & Nasir, A. N. M. (2018). Towards industrial revolution 4.0: employers' expectations on fresh engineering graduates. *International Journal of Engineering & Technology*, *7*(4.28), 267-272.
4. Brown, J. D. (2002). The Cronbach alpha reliability estimate. *JALT Testing & Evaluation SIG Newsletter*, *6*(1).
5. Gambhir, V., Wadhwa, N. C., & Grover, S. (2016). Quality concerns in technical education in India: a quantifiable quality enabled model. *Quality assurance in education*, *24*(1), 2-25.

6. Hasan, H. F. A., Ilias, A., Rahman, R. A., & Razak, M. Z. A. (2008). Service quality and student satisfaction: A case study at private higher education institutions. *International business research*, *1*(3), 163-175.

7. Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and psychological measurement*, *30*(3), 607-610.

8. Mittal, R. K., Garg, N., & Yadav, S. K. (2018). Quality assessment framework for educational institutions in technical education: a literature survey. *On the Horizon*, *26*(3), 270-280.

9. Poole, M., Harman, E., Snell, W., Deden, A. & Murray, S. (2000). ECU Service 2000: A client-centred transformation of corporate services, 00/16. Canberra: Evaluations and Investigations Programme. Higher Education Division, Department of Education, Training and Youth Affairs.

10. Prakash, G. (2020). QoS in higher education institutions: the concept, a literature review and future directions. *The TQM Journal*, *33*(6), 1245-1262.

11. Sakthivel, P. B. (2007). Top management commitment and overall engineering education excellence. *The TQM Magazine*, *19*(3), 259-273.

12. Sayeda, B., Rajendran, C., & Sai Lokachari, P. (2010). An empirical study of total quality management in engineering educational institutions of India: perspective of management. *Benchmarking: an international journal*, *17*(5), 728-767.

13. Suresh, E. S. M., & Kumaravelu, A. (2022). Enhancing the Quality Assurance of Fashion Technology Courses in India: A Comparative Study between Educators and Industry Professional. *Proceedings of the Canadian Engineering Education Association (CEEA)*.

14. Thomas, S. (2011). What drives student loyalty in universities: an empirical model from India. *International Business Research, 4*(2), 183-102.