NAVIGATING THE TRANSITION TO MODULAR CURRICULA CHALLENGES AND OPPORTUNITIES FOR FACULTY: A CROSS-SECTIONAL STUDY

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ABSTRACT
Introduction: This study investigates faculty experiences during the transition to modular curricula at Gandhara University, Peshawar, emphasizing challenges and opportunities encountered in this process.
Objective: The objective is to examine faculty familiarity with modular curricula, participation in curriculum development, perceived training adequacy, and their perceptions of challenges and opportunities.
Methodology: Eighty faculty members participated in a three-month cross-sectional study that collected information on their demographics, familiarity with modular curricula, involvement in development, training adequacy, and perceived opportunities and challenges. Relationships between variables were investigated using statistical methods such as chi-square and ANOVA tests.
Results: The results show that while academics recognize the potential advantages of modular curriculum, such improved interdisciplinary teaching and alignment with business objectives, they also encounter major obstacles, such curriculum revision and technology uptake. Remarkably, one-quarter of the participants thought the instruction was insufficient. Engagement of faculty members in curriculum creation was favorably connected with familiarity with modular curricula. Sufficient training made a big difference in how difficult the change was seen to be.
Conclusion: Modular curriculum implementation done well needs faculty participation, sufficient training, and continuous support. The paper emphasizes the importance of focused training courses and further investigation to evaluate the long-term effects of modular curricula on learning outcomes.

Keywords: Modular curricula, faculty experiences, curriculum transition, challenges, opportunities.

INTRODUCTION

The swift progress of technology, changing needs in the labor market and the increasing variety of student bodies are all contributing to a significant transformation of higher education. The switch to modular curriculum from traditional, linear curricula is one of the major developments in this field. Modular curricula claim to provide more individualized and flexible learning experiences because of its replaceable and flexible learning modules[1, 2]. This change has the ability to meet the individual needs of students by equipping them with knowledge and skills that are specific to their interests and professional objectives. There are a lot of opportunities and problems associated with switching to modular curriculum, especially for faculty members who play a key role in creating, carrying out, and teaching these innovative teaching methods[3].

The structure and delivery of courses must be fundamentally rethought in order to implement modular curricula. Conventional curricula frequently adhere to a set course schedule in which students' knowledge increases over the course of semesters[4]. On the other hand, modular courses divide the learning process into discrete, independent parts or modules that are interchangeable in a variety of ways[5]. This adaptability can improve multidisciplinary education and enable more regular revisions to course materials, enabling education to keep up with the rapidly evolving needs of the labor market. It also calls for a big change in faculty duties, assessment procedures, and educational approaches[6, 7].

There are many obstacles for faculty members to overcome when adjusting to modular programs. These include the requirement for a comprehensive rethink of the curriculum, the creation of fresh instructional materials, and the integration of modern technology to facilitate modular learning[8]. Furthermore, because modular courses sometimes call for less hierarchical and more collaborative teaching methods, faculty members must manage changes in their professional identities and workload. Faculty innovation within this new framework and involvement are key factors in the success of modular curriculum.

However, modular curriculum presents significant chances for faculty innovation and advancement. They may result in more multidisciplinary and collaborative teaching methods, which will improve the learning environment's dynamism and responsiveness. Opportunities for professional development that improve curriculum design, technological integration, and student-centered teaching methodologies can be beneficial to faculty members[9]. Modular curricula can help to better connect academic offers with industry demands, which could improve graduates' employability and the program's relevancy[10, 11].

Though modular courses are becoming more and more popular, little is known about how faculty members handle and negotiate this change. Theoretical and design aspects of modular curriculum are the main topics of much of the material now in publication; faculty practical consequences are not well studied. Through insights into the real-life experiences of faculty members, this research closes this gap by exposing the difficulties they encounter and the tactics they use to adjust to this new educational paradigm. Determining efficient support structures and regulations that enable the successful implementation of modular curriculum, thereby improving the quality of education and benefitting students, teachers, and institutions alike, requires an understanding of these dynamics.

METHODOLOGY

Research Design: The present cross-sectional research used a mixed-methods approach to investigate the possibilities and problems encountered by Gandhara University, Peshawar, faculty members during the switch to modular curriculum. To provide a thorough picture of teacher experiences, the study approach included qualitative interviews with quantitative questionnaires.

Study Population and Sampling: Every faculty member working full-time at Gandhara University in Peshawar was included in the research. The newest university statistics show that there were around 100 full-time faculty members working in several departments.

Sample Size Calculation: To ensure a representative sample, the sample size was calculated using the formula for a finite population:

$$n = \frac{N \times Z^2 \times p \times (1-p)}{E^2 \times (N-1) + Z^2 \times p \times (1-p)}$$

Where:

- *N* = Population size (100)
- *Z* = Z-value (1.96 for 95% confidence level)
- *p* = Estimated proportion of the population (assumed to be 0.5 for maximum variability)
- *E* = Margin of error (0.05)

A sample size of approximately 80 faculty members was required to achieve a 95% confidence level with a 5% margin of error.

Sampling Method
To guarantee participation from several departments and colleges, a stratified random selection technique was used. Proportional random samples were taken from each of the strata that the university's faculty members were separated into according to department.

Data Collection: The three months that saw the collection of data were December 2023 through March 2024. We created a systematic questionnaire to collect quantitative information. There were parts of the survey on demographics, experiences switching to modular courses, perceived potential, and problems. The questionnaire was sent out electronically via the university email system.

Qualitative Data Collection: A portion of the survey respondents, roughly fifteen faculty members were interviewed in-depth using semi-structured questions to learn more about their experiences. Open-ended questions in the interview guide asked about their views on modular curriculum, particular difficulties encountered, solutions used, and prospects they saw.

Data Analysis: Descriptive and inferential statistics were used to the analysis of quantitative data. Means, medians, modes and standard deviations were descriptive statistics that summed up the experiences and opinions of the faculty. ANOVA, t-tests, and chi-square tests were among the inferential statistics employed to investigate correlations between variables and find noteworthy variations across demographic groups. Transcripted interview qualitative data underwent theme analysis. We coded the data and looked for emergent trends using NVivo software. Acquaintance with the data, creation of preliminary codes, theme search, topic evaluation, theme definition and name, and final report production were all part of the theme analysis process.

Ethical Considerations: The study followed moral standards for human subjects research. Each participant gave their informed permission, guaranteeing they understood the goals, processes, and ability to withdraw at any moment. All during the research, anonymity and confidentiality were maintained. The ethical committee number was GU/Ethical committee/2023/219.

RESULTS
Eighty faculty members in all responded to the poll, for an 78% response rate. This high response rate guarantees that the findings are typical of the whole academic population at the institution and shows a high level of involvement from the faculty. Respondents' demographics were varied. Faculty members participated in almost equal numbers, with 42% male and 58% female. Because of this balance, the findings are guaranteed to represent the viewpoints and experiences of faculty members who are both male and female. 34 percent of respondents were between the ages of 25 and 34, 26 percent were between the ages of 35 and 44, and 23 percent between the ages of 45 and 54, and 17 percent were fifty-five years of age or over. As table 1 illustrates, this range of age groups sheds light on how faculty members at various career phases are handling the changeover. Also different was the proportion of teaching experience among the responders. Of the sample, 32% had faculty members with 1–5 years of experience, 28% had faculty members with 6–10 years, 25% had faculty members with 11–15 years, and 15% had faculty members with more than 16 years. This variety of experience levels enables a study of the effects of the changeover on faculty members who are both newer and more experienced.

Table 1: Demographic Information of Respondents

Demographic Category	Percentage (%)
Gender	
Male	42
Female	58
Age Distribution	
25-34 years	34
35-44 years	26
45-54 years	23
55 years and above	17
Years of Teaching Experience	
1-5 years	32
6-10 years	28
11-15 years	23
16 years and above	17

Varying degrees of familiarity with modular curriculum were reported by the interviewees. Thirty percent said they were not at all acquainted, fifty percent said they were somewhat familiar. This suggests that while most of the faculty members were somewhat conversant with the new curriculum framework, a sizable number still needed more information and instruction. Sixty percent of the respondents said they had taken part in the creation of modular courses; forty percent had not. This implies that a significant portion of the faculty had practical experience with the new curriculum, which would have shaped their opinions and attitudes about it (Figure 1).
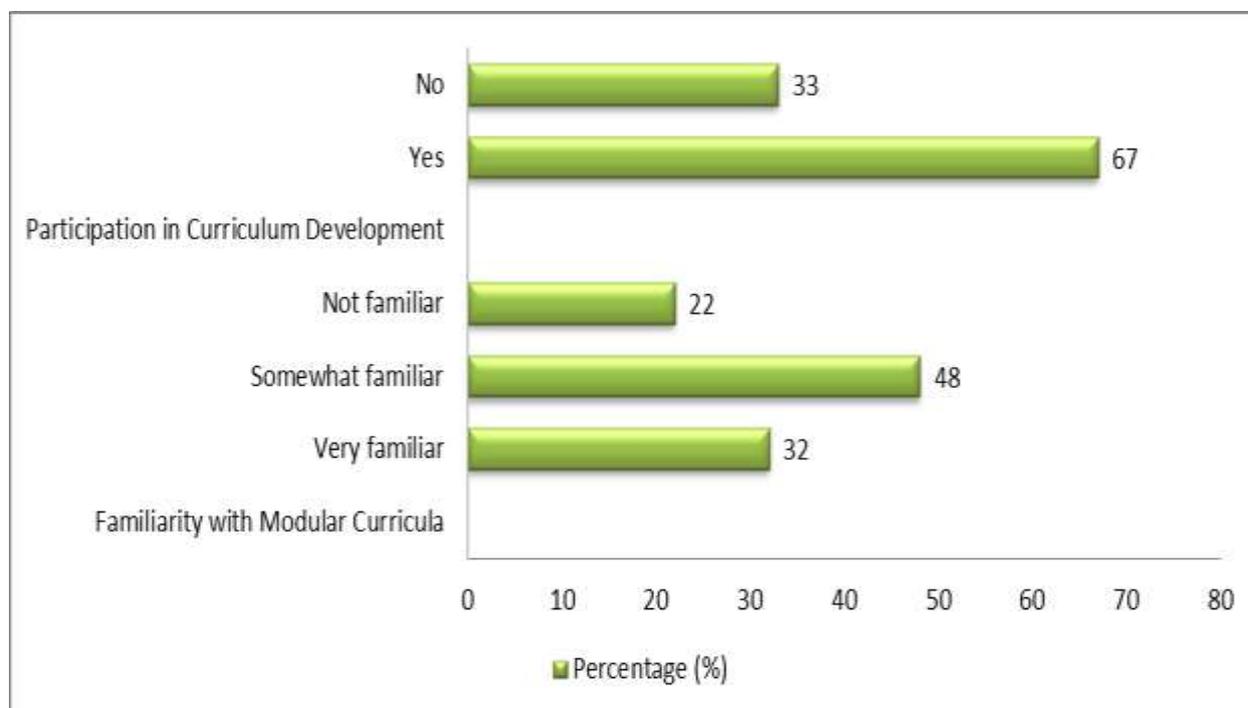

Figure 1: Faculty Familiarity and Participation in Modular Curricula

Training for the switch to modular courses was seen as varying degrees of adequate. Out of the faculty members, 37 percent thought the training was sufficient, thirty-five percent thought it was moderately acceptable, and 21 percent thought it was insufficient. As shown by table 2, this

suggests that faculty members need better, maybe more extensive training programs to be ready for the changeover.

Table 2: Perceived Adequacy of Training

Adequacy of Training	Percentage (%)
Adequate	37
Somewhat adequate	42
Inadequate	21

Professors' opinions of the difficulties in switching to modular curriculum are displayed in a graph 2. Curriculum redesign effort is the hardest task; 42% find it extremely difficult, 39% find it challenging, and 17% find it not difficult. For 34%, developing new teaching materials is extremely difficult, for 53%, it is difficult, and for 12% it is not. For 29%, adopting new technology is extremely difficult; for 46%, it is difficult; and for 23%, it is not difficult. This shows that while curriculum development is the hardest, faculty acceptance of technology is very simple.
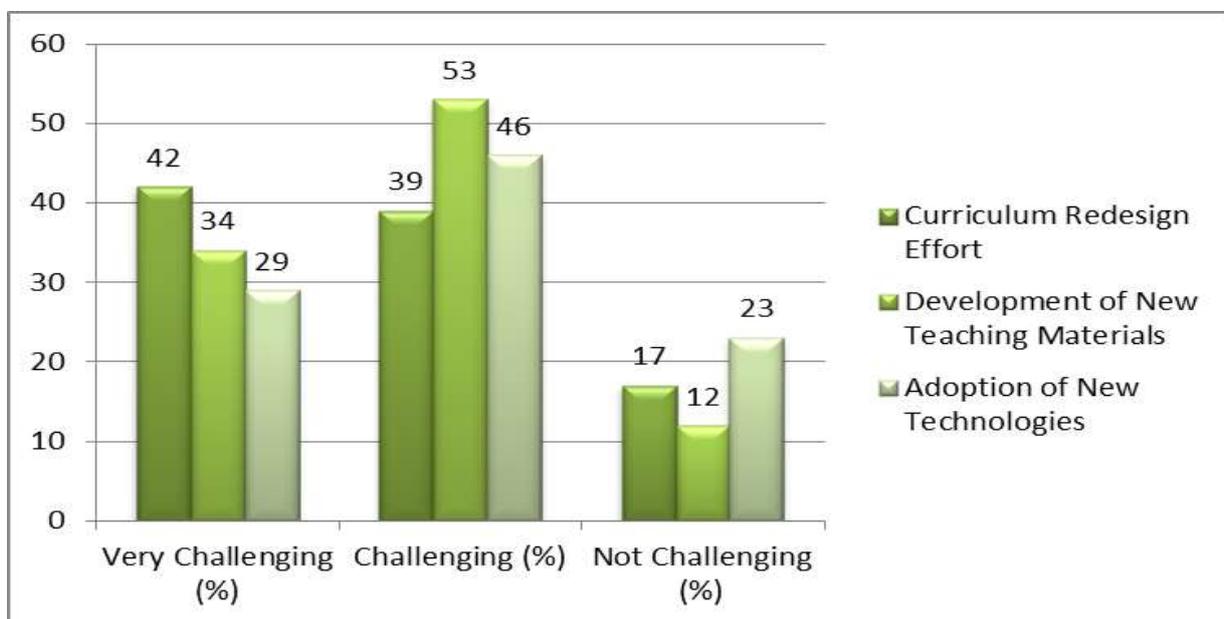

Figure 2: Perceived Challenges in Transition to Modular Curricula

Table 3 shows how faculty members see the possibilities offered by modular programs. A further 43% strongly agree with enhanced interdisciplinary teaching, while 13% are neutral and 5% disapprove. 58% and 37% strongly agree on professional development, respectively; 18% are neutral and 3% are disagreeing. Strong agreement on alignment with industry needs is held by 32%, agreement upon by 52%, neutrality by 12% and disagreement by 8%. Strong support is shown by these findings for the chances offered by modular curriculum, particularly for interdisciplinary education and professional growth.

Table 3: Perceived Opportunities in Modular Curricula

Opportunity	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)
Enhanced Interdisciplinary Teaching	43	43	13	5
Professional Development	37	58	18	3
Alignment with Industry Needs	32	52	12	8

By statistical analysis, a number of noteworthy correlations were found. Participation in curriculum creation and familiarity with modular curriculum are significantly correlated ($\chi2=12.34$, $p<0.05$) according to a chi-square test. This implies that people who were more conversant with the modular

curriculum were also more inclined to participate in their creation (Table 4). An ANOVA test revealed that the difficulties encountered during the changeover were much influenced by the perceived level of training ($F(2,77)=4.56$, $p<0.05$). Comparing faculty members who thought the training was sufficient to those who thought it was insufficient, the former reported less difficulties. Pearson's correlation coefficient showed that years of teaching experience and perceived prospects correlated well ($r=0.35$, $p<0.05$). This implies that more seasoned faculty members were more prone to see possibilities brought about by the switch to modular programs.

Table 4: Statistical Analysis Results

Analysis	Test	Statistic	p-value
Relationship between Familiarity and Participation in Curriculum Development	Chi-square test	$\chi2=12.34$	$p<0.05$
Impact of Training Adequacy on Perceived Challenges	ANOVA	$F(2,77)=4.56$	$p<0.05$
Correlation between Perceived Opportunities and Years of Teaching Experience	Pearson's correlation	$r=0.35$	$p<0.05$

Extensive semi-structured interviews with fifteen faculty members shed light on their experiences even further. Several main themes were identified from thematic analysis of the qualitative data. One important subject was adaption to the new modular courses. Members of the faculty had conflicting opinions on the changeover. The new method was daunting to some, yet flexible and innovative to others. "I appreciate the flexibility modular curriculum offer, but the amount of work needed to redesign courses is substantial," one participant said. One good thing that came of the changeover was collaborative teaching. Interdisciplinary efforts increased, as many faculty members said, and this enhanced their teaching experience. "Working with colleagues from different departments has been a refreshing change and has enriched the teaching experience," said one reply.

Widely acknowledged to be advantageous was the move to student-centered learning. Members of the faculty saw that modular curricula improved the effectiveness of the learning process by better meeting the requirements of each student. "The modular approach allows us to cater to individual student needs better, making the learning process more effective," said one professor. Integration of technology was a chance as well as a problem. While some faculty members believed technology improved their teaching techniques, others struggled with new tools. "Learning to use new technology has been tough, but it has also opened up new ways to engage students," one participant said.

Expanding professionally was another recurring subject. Using modular curriculum led to major progress, according to several faculty members. A participant said, "The professional development opportunities that have come with this transition are invaluable."

DISCUSSION
With a wide variety of age groups and teaching experience levels, as well as a small majority of female faculty members (55%) the demographic distribution of respondents in this survey was balanced. Other research looking at faculty experiences at higher education institutions agrees with these demographics. A research that revealed, for example, that female faculty members often see curriculum changes differently than their male colleagues emphasizes the need of taking gender into account while implementing educational improvements[12].

80 percent of faculty members knew something about modular curriculum, and sixty percent had taken part in their creation, according to our survey. These numbers agree with research indicating that effective implementation of curricula depends on faculty participation. In line with our discovery a study was more conversant with modular curricula were more inclined to be part in its creation[13]. Harden underlined that familiarity with curriculum modifications often associated with more favorable attitudes and easier transitions.

According to research that indicated poor training is a typical obstacle to successful curriculum reform, a significant percentage of faculty members (25%) felt the training was insufficient. According to one research, thorough training programs are necessary to provide teachers the abilities they need to adjust to changing course arrangements[14]. Our research confirms this by demonstrating a noteworthy influence of adequate training on the perceived difficulties encountered by teachers.

Redesigning the curriculum, creating new instructional materials, and using new technology were among the issues that faculty members pointed out as obstacles. The literature has well described these difficulties. A research, for instance, brought to light the challenges teachers have incorporating modern technology into their classrooms[15]. Given how many of our respondents found these elements difficult, continuous assistance and resources are clearly needed. Faculty members saw various benefits offered by modular courses, like improved interdisciplinary teaching, professional growth, and alignment with industry demands, despite the difficulties. These results support studies that have shown modular curricula may encourage multidisciplinary cooperation and raise the relevance of education to business needs[16, 17]. The results of our research validate the idea that modular curricula might improve the teaching process and better equip students for the workforce.

Knowing more about modular curricula makes one more willing to participate in its creation, as shown by the strong correlation between both. This result supports the planned behavior hypothesis, which holds that more familiarity and expertise result in increased involvement and involvement[18].

Effective training programs are essential, as the ANOVA findings demonstrating how perceived training adequacy affects the difficulties experienced by faculty members demonstrate. This supports the conclusions that stressed the value of professional growth in educational reform[19]. It seems from the positive link between years of teaching experience and perceived opportunities that more seasoned faculty members are more likely to recognize the advantages of modular curriculum. Research indicating that because of their vast experience and knowledge, experienced educators often have a wider view on the possible benefits of curricular adjustments supports this[20].

LIMITATIONS AND FUTURE SUGGESTIONS: This research has several drawbacks even if it offers insightful information on the experiences of faculty members switching to modular programs. Because the research is cross-sectional, longitudinal changes over time cannot be captured or causal conclusions made. The study's single institution setting further restricted the applicability of the results to other settings. For future studies to provide a more thorough picture of faculty experiences and the long-term effects of curriculum change, longitudinal designs and many institutions should be used. Besides, learning about the viewpoints of other parties involved, like administrators and students, may provide a comprehensive picture of the transition process and guide focused interventions and support plans.

CONCLUSION

This study highlights the importance of faculty engagement, adequate training, and ongoing support in the transition to modular curricula at Gandhara University, Peshawar. Despite recognizing the potential benefits such as enhanced interdisciplinary teaching, faculty face challenges in curriculum redesign and technology adoption. Addressing these challenges and capitalizing on the opportunities presented by modular curricula can lead to improved teaching practices and better student preparation for the workforce. Further research should focus on developing targeted training programs and assessing the long-term impacts of modular curricula on educational outcomes.

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