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Transforming Education in Saudi Arabia: Unlocking Success Through Innovative Teaching

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ABSTRACT: The aim of this study is to evaluate the impact of Innovative pedagogical approaches on student engagement with institutional support and characteristics as the moderating factors. This paper employs quantitative approach in evaluating the flipped classroom, project-based learning, blended learning, experiential learning, and technology integration in increasing students' engagement. The target population of the present study is the student and teachers of colleges and Universities of Saudi Arabia from different socio-economic strata. A stratified random sampling technique was used to ensure that participants were drawn from different education level and socio-economic status and after screening the participants, 370 participants were selected. The data were gathered by means of a structured questionnaire which has been adapted from other similar studies. The findings reveal that innovative pedagogical approaches significantly enhance student engagement, with institutional support and students' characteristics positively moderating this relationship. These findings highlight the need for institutional investment and learner-centered strategies to improve engagement and learning outcomes. The study underscores the importance of adopting modern teaching methods and providing robust institutional support to maximize student engagement. The study therefore calls for implementation of contemporary teaching practices and full support of institutions in order to enhance student learning. Additional research should consider higher-level outcomes of these findings and include mixed-methods research to better capture the nature of students' engagement within learning environments.

Keywords: innovative pedagogical approaches, student engagement, institutional support, performance, management.

I. INTRODUCTION

The educational achievement in Saudi Arabia is still a matter of concern due to low literacy level, high dropout rate and due to inequality in educational institutes and quality between urban and rural areas. However, due to the implementation of education, traditional teaching methods that are mostly based on lectures and teachers' centeredness often lack effectiveness in learning hence producing poor learning results. The conventional strategies control ideas, inspiration, and engagement that are crucial to the learning process. These existing loopholes of students' engagement and performance indicate the necessity of educational reform in Saudi Arabia especially the use of new teaching techniques that may be suitable to address different students in the country [1-5].

In the recent past, new teaching and learning methods have transformed the education sector improving students' performance and interaction. Methodologies that are applied include the use of the flipped classroom using those means that come with teaching information out of the class and bringing more of the learning activities into class are efficient in enhancing active learning and thinking [6]. Another teaching method that has been found effective in enhancing motivation as well as enhancing understanding of

contents is project-based content approach that is based on real life projects. Integrated learning is the use of conventional blackboard and other learning aids with other alternative media that include use of digital technologies in teaching [7-9]. People have acquired competencies and skills through reflection on the act of doing through the process of experiential learning. Furthermore, the use of technology in learning has promoted shared learning environments and effective learning to all learners at different places in the world. Across the world, fresh instructional practices including the flipped classroom, project-based learning, blended learning, experiential learning, and use of technology in learning have shown a positive impact on student achievement and participation [10-11]. Though, due to various socio-economic, infrastructural and institutional constraints, their use in Saudi Arabia is still very limited [12-15]. Although research conducted in other countries has shown that such methods can foster more effective and engaging learning environments in education, there is relatively little empirical literature on the use of such methods in the context of Saudi Arabian education, with little attention paid to the moderating roles of factors such as institutional support and the characteristics of learners [16-19]. It is for this reason that it is imperative to fill these gaps in order to revolutionize the education sector in the country to accord with the current trends in the global market.

However, there is a digital divide in Saudi Arabia which also creates an issue when trying to implement technology integrated teaching and learning strategies. Because urban educational institutes utilize technology and technology supported units and resources, but on the other hand the students in rural or low-income settings don't have the same opportunity, compounding inequity in education opportunity [20-23]. These barriers are however overcome through institutional support through availing of resources, training teachers and putting in place practices that facilitate innovation. Likewise, the learner attributes including socio-economic status, past learning, and willingness to adopt new techniques affect the success of these techniques.

The present study intends to find out the missing link in this respect by focusing on the effectiveness of the innovative teaching strategies in enhancing students' engagement in Saudi Arabia. More so, this study will focus on examining the extent to which flipped classrooms, project-based learning, blended learning, experiential learning, and technology integration support these outcomes and the moderating impact of institutional support and students' characteristics. While numerous studies confirm the positive effects of flipped classrooms, project-based learning, and blended instruction on student engagement in Western and Asian contexts, there remains a notable research gap in Saudi Arabia [24]. Particularly, few studies have examined how contextual factors such as institutional support and student characteristics influence these relationships. The research will also give some real findings which will be helpful for the educators, policymakers, and institutions to adopt some of the strategies which are not only effective, but they are also suitable for the Saudi Arabian context.

In this regard, the primary objective of this study is to examine the impact of innovative pedagogical approaches specifically flipped classrooms, project-based learning, blended learning, experiential learning, and technology integration on student engagement in higher education institutions in Saudi Arabia. The study also wants to see how support from institutions as well as personal characteristics of students influence this relationship. The goals of the study include producing viable evidence that can instruct Saudi educators and specialist groups in selecting the most effective education strategies.

II. LITERATURE REVIEW

The rapidly evolving landscape of global education has prompted a growing interest in innovative pedagogical approaches that foster active, meaningful student engagement. Because the old way of teaching in large groups does not match the needs of students today, those in charge are using methods that emphasize teamwork, problem-solving and self-control. As Saudi Arabia places a lot of emphasis on new education strategies, studying these particular methods of teaching is very valuable. Although research worldwide proves that flipped classrooms, project-based learning, using technology and blended ways of instruction are useful for engaging students, there is still much to learn how these work in Saudi higher education. It brings together past findings about innovative strategies for teaching, student engagement and

the ways that support from the school and different student traits affect this, forming the base for this present research.

1. PEDAGOGICAL APPROACHES & STUDENT ENGAGEMENT

The pedagogical approaches (flipped classroom, project-based learning, blended learning, experiential learning, and technological integration) act as that is in direct contact with students. All of these teaching methods move students from being mere recipients of knowledge to being producers of that knowledge and hence enhance students' learning. For instance: The Flipped Classrooms involve moving the time when lecturing takes place, outside the classroom, so that more time is spent on in-class activities such as collaborative learning sessions. This method increases classroom participation and learning intention because the students come to class ready to be participative during class discussions and activeness during group assignments [19].

2. FLIPPED CLASSROOM

The flipped classroom has been defined as an effective way of increasing the activity and effectiveness of classes. In a flipped classroom, students watch lessons (videos, readings, etc.) outside class, and in class, there are discussions, group work, or other forms of learning [25]. Engaging students from passive to active learning can improve their classroom contribution, engagement and performance. Several past research works have shown that flipped classroom enhances understanding of concepts and development of higher order thinking skill [26-28]. Secondly, flipped classrooms promote group work, which is understood to improve the general comprehension of problem-solving in groups and individually [29]. Another study by [30] in a meta-analysis also reveals preferred retention rates and academic results possible through this technique accompanied by the support of interactive technologies. This teaching strategy enhances the uptake of learners in classrooms through enhancing participation and motivation since learners come ready to learn. Flipped model also improves learning achievements like cognition, retention, performance, and other course related results because of the social and student-centered learning [31].

3. PROJECT-BASED LEARNING (PBL)

Based on the approach, project-based learning (PBL) is characterized by application of project-based work where students work on real life problems. This approach of teaching and learning replaces the teacher as the source of knowledge with the student as the knowledge manager. PBL has been connected to higher levels of relevance, promoting the students' internal motivation to learn since they can observe the practical use of what they are doing. PBL has been reported to improve critical thinking and problem solving in particular [32-33]. Work [34] noted that PBL improves the student engagement since students are allowed to decide how to tackle tasks, and this will result in better attendance and longer time spent studying. Precisely, knowledge acquisition of learning outcomes like skills and competency achievements has been shown to improve greatly in PBL by solving real-life problems, coupled with group work. As Project-Based Learning (PBL) has students solving real-life problems, it increases their self-organized motivation and self-organized learning, further improving attendance rates and time on task [35]. Blended Learning combines both Face-to-face and Distance Learning, and thus offers the learners a flexibility of learning that suits their learning style. Technology and feedback enhance motivation, class contribution, and learning time than traditional approaches [36]. Distance Learning, as students engage in internships, simulations, or fieldwork, Experiential Learning adds real-life applicability to what is learned in class, motivating the students and enhancing classroom engagement [37]. Technological Integration promotes active and individualized learning, enhancing students' performance and involvement in class through creating an environment that allows the student to learn at his or her own pace [38].

4. BLENDED LEARNING

Blended learning integrates online and classroom learning and provides flexibility while providing individual attention by use of learning contracts [39-40]. Current studies conducted by [41] & [42] show that

that this approach address learners' individual differences and can enhance both motivation and achievement by providing the learners with a liberty of exploring the material at their own pace with the help of technological resources. Research shows that technologies used in a blended learning context enhance higher levels of engagement and motivation in a classroom by incorporating digital media to facilitate interactivity and feedback [43-45]. In addition, integration of learning platforms allows students to have constant access to materials, which enhances the rate of knowledge retention. Therefore, students actively participate in both online and face to face discussions thus increasing attendance and motivation.

5. EXPERIENTIAL LEARNING

Experiential learning therefore is a process whereby knowledge and skills are acquired through the experiences of the learner and the reflection place on the experience [46]. This approach also encourages participation of the learners, and most of the time they are involved in practical exercises [47]. This method entails internships, field work and simulations which give the students real feel of the outside world. Engagement and learning effectiveness have been enhanced through the use of experiential learning especially in the professional/vocational training and education [48]. Study in [49] reveal that students' activity rises when the course content encourages learning through relevance to career aspirations and results in enhanced class involvement. Further, the execution of the experiential activities can help students apply the theoretical concepts in practice; thus, enhancing the competency attainment and enhancing the long-term learning [50].

The use of technology in class and especially the use of LMS, AI applications and multimedia in learning has greatly changed the perception that students have about lessons [51-52]. Work [53] showed that the use of technology leads to increased engagement and motivation in class and personalization through the use of technologies in learning. Technology also allows students to study from any source at any time making it easier for the students to retain what they have learnt and improve on their performance. Combined with the use of tools such as games, feedback, and learning analytics based on artificial intelligence, the effectiveness of the work of students is rising because students demonstrate higher activity and motivation to engage in the learning process and spend more time on studying [54].

Hence, all these pedagogical approaches enhance students' activity, the quality of which is characterized by the indices of classroom participation, motivation, attendance rates, and time devoted to learning [55]. This means that the teaching styles not only affect the learning process, but also have a direct bearing on the learning achievement which encompasses mastery, performance, skills acquisition and retention [56]. Therefore, the discussion concludes to the following hypothesis:

- H1: Innovative pedagogical approaches (flipped classroom, project-based learning, blended learning, experiential learning, technology integration) positively impact student engagement.

6. INSTITUTIONAL SUPPORT

Institutional support can be defined as the support given to an individual or a group of people by a large organization for instance, a university, a bank or any government Ministry/department etc. [57]. Such support can be in form of financial support, secretarial services, advisory and coaching, physical facilities and connections to other organizations. In essence, the institutional support has a significant role in increasing efficiency and effectiveness of work in many fields including research, business, and community-based projects; including offering financial assistance, facilitating bureaucratic procedures, offering information and training, providing physical facilities and equipment, and providing connections to other individuals and organizations [58]. There are several ways through which institutional support moderates the relationship between pedagogical approaches and students' engagement. Teacher professional learning includes the support from institutions in terms of resources, administration and professional development to enhance the applicability of teaching approaches including flipped classroom, blended learning and use of technology. That is why if institutions grant access to technological infrastructure, ensure the constant training of educators, and allocate appropriate resources, educators are more likely to apply these approaches effectively. As a consequence, student engagement improves as they are able to learn from well-

implemented instructional designs, especially in blended and technology enhanced learning contexts [59]. Furthermore, the results highlighted a positive relationship between institutional factors and learning outcomes, and therefore, when students are granted with those tools and the chances of attaining better scores that are needed, these outcomes will improve. Thus, I shall assume the following hypothesis here.

- H2: Institutional support positively moderates the relationship between pedagogical approaches and student engagement.

7. STUDENT CHARACTERISTICS

Learning environment, prior knowledge, learning style and students' socioeconomic status are also found to moderate the effects of pedagogy on engagement and performance [60]. For instance, students with more developed prior knowledge at the base of the slope are likely to perform well in flipped classroom or project-based learning where self-learning is regarded. Likewise, integrated technology might help those students who are already familiar with technology to be more engaged in learning. However, students from low SES background or students who are not well conversant with technology might experience challenges thus their access and utilization of these approaches may not be optimal [61]. In addition, a lot has been said about learning modalities (visual, auditory, and kinesthetic) that determine how students react to different teaching approaches and strategies, which affect student participation [62]. Therefore, divergent patterns were observed concerning the connection between instructional methods and student participation, suggesting that the moderating influence of the learner's traits cannot be considered as direct. Balancing of these factors enhances positive results in students' attendance and their performance on the course. Therefore, this results in the following hypothesis. Hence, this leads to the following hypothesis.

- H3: Student characteristics positively moderate the relationship between pedagogical approaches and student engagement.

Moreover, both the moderators are supported by the relevant theories also. Institutional support, grounded in Organizational Support Theory, is essential in facilitating teachers' ability to adopt innovative teaching strategies. Likewise, student characteristics such as motivation, prior knowledge, and adaptability, rooted in Constructivist Learning Theory, play a vital role in shaping how learners engage with instructional methods. These moderators help explain variance in learning outcomes across diverse educational settings.

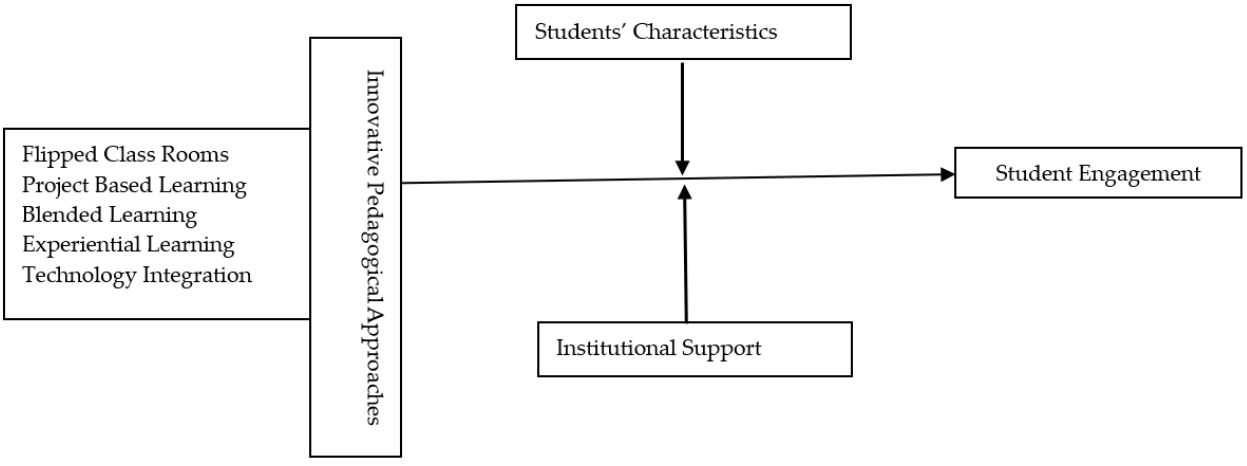

FIGURE 1. Research Framework of this Study.

III. METHODOLOGY

In this research, quantitative research methodology is used to analyze the extent to which innovative pedagogy can influence student participation and support this with institutional backing and students' characteristics as the moderators. The discussed teaching models are the flipped classroom, the project-based learning, the blended learning, the experiential learning, and the technology application. The target population under study includes students and teachers from different college and universities in Saudi Arabia from different socio- economic status. The stratified sampling has been employed in order to achieve samples from different educational levels and socio-economic status. The sample size is 370 for adequate power to reject the null hypothesis. An adopted questionnaire based on five-point lickert scale was used from validated past studies. The items for innovative pedagogical approaches were taken from [63] items for Institutional support were taken from [64], and the items for student engagement were taken from [65]. The questionnaire was divided into sections focusing on demographic information, the extent of implementation of innovative teaching methods (flipped classroom, project-based learning, blended learning, experiential learning, and technology integration), levels of student engagement, the degree of institutional support, and individual student factors such as motivation, adaptability, and prior knowledge. The questionnaire was administered to a sample of 370 participants through both online and offline modes to ensure a higher response rate and accommodate participants' preferences using convenient sampling technique. Additionally, Informed consent was obtained from all participants, and confidentiality and anonymity were maintained throughout the data collection process.

- Data Collection

Survey data for this study was collected using structured questionnaire adapted from previous works by other researchers. The questionnaire collects data on innovative pedagogical approaches, student engagement, institutional support, and students' characteristics. They were grouped under demographic data, extent of use of teaching innovation (flipped classroom, project based, blended learning, experiential and technology integrated learning), levels of engagement, institutional support and individual student factors such as motivation, flexibility and prior knowledge. A self-developed questionnaire was used for the study and was completed by 370 participants via online and offline means to increase the response rate and cater to participant's choice. The online surveys were sent through email and learning management systems while paper-based surveys were administered to the classrooms and collected by the researcher. Administered questionnaires were retrieved and data were keyed on Statistical Software Package called Statistical Package for Social Science (SPSS) for analysis, data cleaning was also conducted to handle missing value or any inconsistency observed. Reliability, validity and regression analysis were computed and analyzed using the SPSS 22.

IV. RESULTS

1. DESCRIPTIVE STATISTICS

This section presents demographic data for gender, age, education level, socio-economic status, and exposure to pedagogical methods.

Table 1. Demographics.

Demographic Characteristic	Category	Frequency (n=370)	Percentage (%)
1. Gender	Male	180	48.6%
	Female	190	51.4%
2. Age Group	18-24	120	32.4%
	25-34	100	27.0%

	35-44	80	21.6%
	45+	70	18.9%
3. ducational Level			13.5%
	College (Undergraduate)	170	45.9%
	University (Postgraduate)	200	54.1%
4. Socio-Economic Status	Low	60	16.2%
	Middle	210	56.8%
	High	100	27.0%
5. Teaching Models Experienced	Flipped Classroom	150	40.5%
	Project-Based Learning	130	35.1%
	Blended Learning	100	27.0%
	Experiential Learning	90	24.3%
	Technology Application	80	21.6%
6. nstitutional Backing	Yes	300	81.1%
	No	70	18.9%
7. Frequency of Participation	Rarely	80	21.6%
	Occasionally	150	40.5%
	Frequently	120	32.4%
	Always	20	5.4%

The Table 1 presents demographic statistics. The demographic information gathered from the 370 participants' questionnaire provides the necessary information about gender, age, education, SES, and experience in effective teaching-learning models. With regard to gender distribution, there are 48.6% male and 51.4% female respondents. The age distribution indicates relatively high LO for the young people with 32.4% from the 18-24 years and 27.0% from the 25-34 years. It's clear that older age groups are less represented: 21.6 % of the respondents were between 35 and 44 years old and 18.9% of the respondents were 45 years old or older. With regards to educational attainment, the majority of the respondents are either university students/ University graduates (54.1%) seconded by college students/College graduates which is 45.9%. Regarding the socio-economic status of the sample, it was found that the larger proportion of participants 56.8% belonged to middle socio- economic status while 27.0% belonged to higher socio-

economic status and 16.2% to lower socio- economic status. It also helps spread the study in a way that will ensure that a variety of angles will be covered. Concerning the teaching models as presented in the study, the respondents reveal diverse experiences. Most of the respondents, (40.5%) reported to have come across the flipped classroom model. Project-based learning is the second closest with 35.1% while blended learning is at 27.0% experiential learning 24.3% and technology application 21.6% respectively. In terms of institutional support, 81.1% of the respondents claim that their institutions endorse innovative pedagogical approaches that could explain their exposure to the teaching models. Finally, the frequency of participation in innovative pedagogies reveals that 40.5% and 32.4% of the participants use innovative pedagogies e and f occasionally and frequently respectively 21.6% of the respondents rarely use them while only 5.4% of the participants use the innovative pedagogies often.

2. *RELIABILITY STATISTICS*

Table 2. Factor Loadings, Cronbach Alpha, AVE, and CR.

Construct	Items	Factor Loadings	Cronbach's Alpha	AVE	CR
Innovative Pedagogical Approaches	IPA1	0.745			
	IPA2	0.812			
	IPA3	0.798	0.85	0.61	0.88
	IPA4	0.772			
	IPA5	0.801			
Student Engagement	SE1	0.734			
	SE2	0.789			
	SE3	0.821	0.87	0.62	0.89
	SE4	0.765			
	SE5	0.790			
Institutional Support	IS1	0.728			
	IS2	0.812			
	IS3	0.799	0.84	0.59	0.87
	IS4	0.765			
	IS5	0.746			
	IS6	0.780			
Students' Characteristics	SC1	0.710			
	SC2	0.788			
	SC3	0.765	0.83	0.58	0.86
	SC4	0.780			
	SC5	0.750			

The Table 2 shows reliability statistics. In order to test validity and reliability of the constructs identified in the study, values obtained using Cronbach's Alpha, Factor Loadings, Average Variance Extracted, and

Composite Reliability are presented below in the table. The reliability analysis reveals internal consistency for all the constructs with Cronbach's Alpha coefficients > 0.70 as follows; this further ascertains that the items used in operationalization of the different constructs are valid and reliable. The item-total correlations for all items in all the constructs were all greater than 0.7 and ranged from 0.710 to 0.821, which shows that the items were indeed reliable indicators of the corresponding underlying construct. The AVE values for all constructs are in between 0.58 and 0.62 which above the cut-off level of 0.50. These results support acceptable levels of "convergent validity", demonstrating that multiple items of one construct do a good job of measuring the intended concept as a whole. The Composite Reliability (CR) values were between 0.86 and 0.89, and higher than the acceptable level of 0.70. This also extends the confidence one has in the constructs, and can be used to argue that the measures are in fact reliable and can produce consistent results. Collectively, the results argue that the constructs—Innovative Pedagogical Approaches, Student Engagement, Institutional Support, and Students' Characteristics are clear and appropriate for further examination in the study. These values present a good starting point for investigating the interconnections of the variables, as well as the moderation elements in the proposed framework.

3. INFERENTIAL STATISTICS

This section presents results from the regression and moderation analyses, including beta values, R-squared, and p-values.

Table 3. Regression analysis results.

Predictor	B (Unstandardized Coefficients)	Std. Error	Beta (Standardized Coefficients)	T	Sig. (p-value)	VIF
(Constant)	1.275	0.210		6.071	0.000	
Innovative Pedagogical Approaches	0.621	0.053	0.614	11.698	0.000	1.95
Institutional Support	0.489	0.060	0.264	4.817	0.000	1.82
Students' Characteristics	0.298	0.047	0.182	4.213	0.000	1.77
R value	.832		R^2 Value	0.692		

The Table 3 presents the regression analysis. The regression analysis provides valuable insights into the relationships between the predictor variables—Innovative Pedagogical Approaches, Institutional Support, and Students' Characteristics—and the dependent variable, Student Engagement. The model demonstrates a strong overall fit, as indicated by an R value of 0.832, suggesting a robust correlation between the predictors and student engagement. Additionally, the R^2 value of 0.692 indicates that 69.2% of the variance in student engagement can be explained by the combined effect of these predictors, reflecting the model's strong explanatory power. The unstandardized coefficient beta for Innovative Pedagogical Approaches is 0.621, with a highly significant p-value of 0.000. This indicates that for every one-unit increase in the implementation of innovative pedagogical approaches, student engagement increases by 0.621 units, holding other variables constant. The standardized coefficient (Beta) of 0.614 highlights that this variable is the most influential predictor in the model. The results are in line with the past studies [66-68].

The findings show that both Institutional Support and Students' Characteristics significantly moderate the relationship of Innovative Pedagogical Approaches with Student Engagement. Moderation analysis

results show that Institutional Support provide stronger moderation effect with the Beta=0.489, Beta=0.264, and p<0.000 this confirms that most of the resources, policies, infrastructure are the key factors that help in improving the impact of the innovative teaching method. These results are in line with the past studies [69]. On the other hand, Students' Characteristics also have a positive impact on this relationship represented here by the Beta value of 0.298, the Beta of 0.182 and a p-value of 0.000, though slightly higher compared to Academic Performance. These results are in line with the past studies [70-71]. This means that there is a relationship between some of the students' characteristics which include motivation, adaptability and prior knowledge when learning with the help of innovative teaching methods. Finally, VIF values for the predictors included in the model are all acceptable, since they are far below 5. So, it seems that the model does not show signs of multicollinearity and all independent variables add their own unique influence to the prediction of student engagement [72]. This means that these factors are independent enough, so combining them in one regression model will not increase the chances of false results. For this reason, we can rely on the model for interpretation and drawing conclusions.

4. HYPOTHESIS-WISE RESULTS

- H1: Innovative pedagogical approaches positively impact student engagement.

The regression analysis confirms a strong and statistically significant relationship between innovative pedagogical approaches and student engagement. The unstandardized coefficient (B) is 0.621 with a standard error of 0.053, and the standardized coefficient (Beta) is 0.614. The t-value of 11.698 and a p-value of 0.000 indicate that the result is highly significant. This suggests that for every one-unit increase in the implementation of innovative pedagogical approaches, student engagement increases by 0.621 units, holding other variables constant [73]. Among all predictors, innovative pedagogy emerged as the most influential factor. These results are consistent with previous research.

- H2: Institutional support positively moderates the relationship between innovative pedagogical approaches and student engagement.

Institutional support was found to be a significant moderator in the relationship between pedagogical innovation and student engagement. The unstandardized coefficient is 0.489 with a standard error of 0.060, and the standardized coefficient (Beta) is 0.264. The t-value is 4.817 and the p-value is 0.000, confirming statistical significance. This finding indicates that institutional elements such as resources, infrastructure, and supportive policies enhance the effectiveness of innovative teaching strategies [74]. The result supports the assumption that institutional support strengthens student engagement outcomes, aligning with previous studies.

- H3: Student characteristics positively moderate the relationship between innovative pedagogical approaches and student engagement.

Student characteristics also play a significant moderating role in the relationship between innovative pedagogical approaches and student engagement. The unstandardized coefficient is 0.298, with a standard error of 0.047, and the standardized coefficient (Beta) is 0.182. The t-value of 4.213 and the p-value of 0.000 confirm the significance of the moderation effect. These findings indicate that individual differences such as motivation, adaptability, and prior knowledge can positively influence how students respond to modern teaching methods. This supports findings from past research [61] and highlights the importance of personalized instruction.

Cumulatively, all the hypotheses of the present study are accepted and it highlights the need to focus on the organizational level supports in addition to the individual student characteristics to enhance interest and achievement.

V. DISCUSSION

The regression analysis shows relationship between innovative pedagogies and support system with the specific student characteristics such as gender, age, ethnicity etc. The coefficients of determination from the results show that the chosen predictors can explain 69.2% of the total variance with an R-value of 0.832 and

an R^2 of 0.692. Of the predictors, innovative pedagogical approaches come out as the most influential variable (Beta = 0.614, $p < 0.001$). This is in line with demographic data where 40.5% of the respondents stated that they had at one point followed flipped classroom and 35.1% that had practiced project-based learning which have been proved to make learning more engaging. Likewise, institutional support playing a highly significant role in engagement (Beta = 0.264, $p < 0.001$); 81.1% had access to institutional support. The implementation of innovative teaching practices requires support imperative institutional support which allows for the provision of all the necessary platforms that will ensure students they are accorded adequate support [75].

Socio-economic status and educational levels of the students also played a major role in engagement (Beta = 0.182, $p < 0.001$). According to demographic data, 56.8% of respondents work in middle sec, 54.1% are the university-level students, thus those students would be more interested and can be benefited with innovative pedagogy. Also, 32.4% of the sample is aged 18–24 years, and this means that there is a need to propel the teaching strategies that are appropriate for the younger, innovative and technologically inclined students [76]. These results suggest that instructional approaches, organizational support, and knowledge of students' characteristics of different demographic can improve their engagement.

Consequently, the findings of this study are informative to understanding students' engagement when learning within the context of the innovation of pedagogy. The high level of association between these strategies and the level of students' interest makes it crucial for the educational organizations to embrace and implement the contemporary strategies in education. The evidence of a strong institutional influence underlines the necessity for well-developed organizational environments that can supply all the requirements and conditions for effective and creative pedagogy. Also, the positive moderation effect of student characteristics implies that there are differences when it comes to students and success of innovative pedagogical strategies. This finding is in par with previous studies that recommend personalization of students in interventions implemented in education system. The outcome of this research provides insight for educators and policymakers in their practice. Hence, not only the advanced methods of reaching the student, but also the support from the institutions have to be provided. Moreover, knowing and managing students' individual differences may enhance the use of these instructional strategies as well.

The findings of the study are grounded to the Constructivist Learning Theory, as it says students learn better and remember things they discover for themselves, influenced by their previous knowledge, drive to learn and learning techniques. This belief is highlighted by the positive link between student characteristics and the use of innovative teaching styles which means students with strong adaptability, motivation or previous exposure to similar environments are more likely to take advantage of unique teaching methods. By contrast, due to higher technological skills, students aged 18–24 (32.4% of the study group) seem more drawn to technology and student-centered forms of learning. Also, according to Organizational Support Theory, education departments can achieve better outcomes by providing schools with what they need and good opportunities for professional growth. Since 81.1% of participants received support from their institution, it is clear that strong support helps teachers use advanced practices well and makes students more active in learning. It is evident that what a student learns is affected by how they are taught as well as their surroundings and their own traits. They indicate that alignment between available tools and skills as well as teaching methods is necessary. As a result, using innovative approaches in education means attending to the institution's support and to tailoring the learning experience for each student. It agrees with modern theories in education which aim for perfect alignment of learners and the whole system for better learning results.

All in all, this study provides an explanation of how these two theories complement each other to describe student involvement in innovative classrooms. Basically, these findings allow educators and policy makers to plan lessons that are practical and sensitive to every student's needs.

VI. CONCLUSION

This study underscores the critical role of innovative pedagogical strategies in enhancing student engagement within higher education, particularly in the context of Saudi Arabia. The findings offer

compelling evidence that modern teaching approaches—such as flipped classrooms, project-based learning, blended instruction, experiential learning, and the integration of technology—serve as powerful tools for transforming the student learning experience. These strategies not only increase active participation but also contribute to deeper cognitive engagement and improved academic performance. Among the various factors examined, innovative pedagogical approaches emerged as the most influential determinant of student engagement. This highlights the necessity for educational institutions to transition from traditional, lecture-based instruction to more dynamic, student-centered methods that encourage collaboration, critical thinking, and real-world application of knowledge. The prominence of these methods affirms the relevance of contemporary teaching practices in cultivating an interactive and motivating learning environment. Equally important are the contextual and individual factors that moderate the effectiveness of these teaching strategies. The study revealed that institutional support significantly enhances the implementation and success of innovative pedagogy. Supportive institutional environments—characterized by the availability of technological infrastructure, continuous professional development for educators, and a culture that embraces instructional innovation—serve as enablers that empower teachers to adopt and sustain modern pedagogical practices. Without such support, even the most promising instructional methods may fall short of achieving their intended impact. Furthermore, the characteristics of students themselves play a pivotal role in determining how well they respond to and benefit from innovative teaching approaches. Learner attributes such as intrinsic motivation, adaptability, prior exposure to technology, and readiness for active learning significantly influence engagement outcomes. These findings underscore the importance of acknowledging and accommodating learner diversity in instructional planning and execution. Tailoring pedagogical strategies to meet students' varying needs can amplify the effectiveness of educational interventions and foster more inclusive learning environments.

In light of these insights, this research contributes to both theory and practice by emphasizing the interconnectedness of pedagogy, institutional context, and learner characteristics. It suggests that fostering student engagement is not solely a function of instructional design, but rather the result of a holistic educational ecosystem that aligns innovative practices with organizational capacity and individual learner profiles. For policymakers and educators seeking to improve educational quality and outcomes, this study offers a clear directive: invest in institutional infrastructure, support teacher innovation, and adopt learner-centered strategies that address the diverse needs of today's students. In doing so, the education system can move closer to achieving meaningful, lasting transformation in teaching and learning.

1. THEORETICAL SIGNIFICANCE

In this respect, this study contributes to the development of teaching and learning practices by examining the effects of the Flipped Classroom, Project-Based Learning, Blended Learning, Experiential Learning, and Technology Integration in the context of Saudi Arabia. Through the assessment of these approaches, the study contributes to the development of theories and offers fresh understanding of best practices within instruction in various contexts. Furthermore, the use of moderating variables such as Institutional Support and Student Characteristics extends theoretical models to explain the impact of extraneous and personal factors on educational efficiency. This refined perspective benefits theoretical models and broadens the overall knowledge of how strategies used within teaching operate in different settings.

2. PRACTICAL SIGNIFICANCE

The managerial implications of this study are significant for the educators and policymakers of Saudi Arabia. Consequently, the findings provide practical recommendations on which instructional strategies are most beneficial in increasing students' interest and improving learning accomplishments. By such information, enhanced teaching strategies in line with the requirement of Saudi Arabian students can be adopted, and consequently enhance educational practices. In addition, the finding of the study in terms of the nature and impact of Institutional Support will assist other educational institutions to improve on the support structures required to enhance the delivery of services by teachers and the support required to foster the learning process of students as well as obtain necessary resources and professional development. Because

the study outlines how the various Student Characteristics influence learning, it encourages the adoption of enhanced, differentiated instructional practices that address the needs of all students. All these practical contributions are needed for the improvement of educational environment in the country and making it more responsive to the needs of learners.

3. CONTRIBUTIONS OF THE STUDY

In view of these, this study has made the following important contributions to the field of education. First, it offers practical insights into the efficacy of different educational practices in the context of the Saudi Arabian education system while strengthening and developing the current theories and practices. Secondly, the research aims at contributing to the advancement of the systematic body of knowledge on the effectiveness of innovative teaching practices by providing educators with a conceptual toolkit for the assessment and implementation of innovative teaching practices. Thus, the study enriches the findings that reflect cultural and contextual features related to Saudi Arabia and can help others to make improvements in similar educational settings, stressing the need for the contextualization of educational practices. The research also has practical implications for teachers and educational leaders and policymakers in terms of how different instructional methods can be implemented and improved student achievement. Finally, the contribution of the study to the existing body of knowledge of innovative teaching practices is discussed in terms of the research that has not been conducted before and the foundation for future research in similar contexts. It is therefore the hope of this research to generate empirical evidence that could help bring about the desired change in the education sector in Saudi Arabia through the evaluation of innovative teaching practices. Thus, the analysis of these approaches, student engagement, learning outcomes, and moderating factors will provide practical recommendations for improving educational practices and policies in the framework of the present research.

4. LIMITATIONS AND FUTURE DIRECTIONS

There are few limitations of this study that should be noted. First of all, data that was collected through questionnaires that inevitably results in social desirability or inaccurate self-assessment bias. Secondly, cross-sectional study design precludes causality conclusions, and therefore, longitudinal studies are recommended. In the same way, it must also be noted that the finding may have low external validity; the data may not necessarily apply to other contexts or countries other than in Saudi Arabia; the socio-economic and culture background of the sample is different from the others. However, it can be noted that the sample of this study is 370, which although assuring statistical adequacy, may be even more robust with higher sample size. Additionally, although the adopted questionnaires were valid and reliable, there might be some loss in the depth of the main constructs being measured. Moreover, previous studies have often lacked consideration of moderating variables such as institutional support or student attributes. Moreover, limited empirical work exists in the Middle Eastern context. This study addresses these gaps by including both institutional and learner-based moderators, while focusing specifically on the underexplored Saudi educational system.

More research should be longitudinal to allow for the establishment of causality between the use of innovative processes in classroom practices and students' interest in the future. The use of quantitative techniques, like interviews or focus groups may bring additional perspectives of students and teachers concerning new approaches to the integration of innovative teaching methods. Doing the study in other areas and comparing results of education in other regions will be of great help since it will give a clearer picture on factors affecting the results. Furthermore, future research could include other possible moderating variables which may be of value – for example, teacher characteristics or institutional policies that can enhance the understanding of what conditions affect students' engagement. Carrying out intervention studies to compare outcomes of learning with curriculum based educational methodologies and those innovative pedagogical practices could also offer prescriptive advice to use in school contexts.

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Conflicts of Interest

The authors have no potential conflicts of interest.

Data Availability Statement

Data are available from the authors upon request.

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