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Research Article

# Studies The Dynamic Of The Teaching Strategies In English And Mathematic Classrooms

Abdullah Al Maqbali*

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**Abstract**

Teaching strategies play a critical role in shaping classroom interaction and student engagement across subject areas; however, their implementation often varies according to disciplinary contexts. This study aims to explore and compare the dynamics of teaching strategies employed in English and mathematics classrooms within the General Foundation Programme at a public university in Oman. Adopting a qualitative ethnographic design, data were collected through non participant classroom observations conducted in one English class and one mathematics class, supported by structured observation checklists and detailed field notes. The findings reveal a clear divergence in instructional approaches, with the English classroom predominantly employing learner centered strategies that foster active participation, collaboration, and instructional responsiveness, while the mathematics classroom relied largely on teacher centered instruction emphasizing content delivery and procedural accuracy. These contrasting approaches significantly influenced classroom climate, patterns of interaction, and levels of student engagement. The study contributes to the literature by providing classroom based, observational evidence of subject-specific instructional dynamics within a shared institutional context. The findings imply that professional development programs should emphasize adaptive pedagogical strategies that enable teachers, particularly in traditionally teacher centered subjects such as mathematics, to integrate learner centered elements in ways that enhance student engagement without compromising instructional efficiency.

**Keywords:** Classrooms; Dynamic; English; Mathematic; Teaching Strategis.

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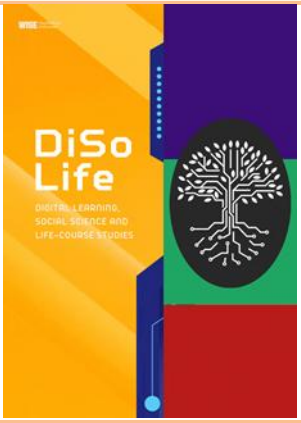

## INTRODUCTION

Teaching strategies play a pivotal role in shaping the quality of learning experiences and determining students' academic engagement and achievement across educational contexts. In contemporary education, increasing attention has been directed toward how instructional strategies mediate students' cognitive, affective, and behavioral outcomes, particularly in diverse subject domains such as language and mathematics [1], [2], [3]. Teaching strategies are commonly conceptualized as systematic plans and instructional decisions that guide the organization of content, selection of learning activities, and modes of classroom interaction to facilitate effective learning [4], [5], [6]. Within this framework, the strategic choices made by teachers are not neutral; rather, they directly influence classroom dynamics, student participation, and the construction of knowledge.

The literature broadly categorizes teaching strategies into two dominant paradigms: teacher centered and student centered approaches. Teacher centered instruction emphasizes direct transmission of knowledge, structured explanation, and teacher control over learning processes, often prioritizing efficiency and content coverage [7], [8], [9], [10]. In contrast, student centered strategies position learners as active participants who collaboratively construct knowledge through interaction, inquiry, and reflection, aligning closely with constructivist learning theories [7], [11], [12], [13]. Empirical evidence suggests that student centered learning environments are associated with higher levels of student engagement, critical thinking, and meaningful learning, particularly when learners are encouraged to connect content to real life contexts [14], [15], [16].

Despite these advantages, the effectiveness of student centered strategies remains contested, particularly across different subject areas. Several studies have indicated that traditional, teacher-centered approaches may be more effective for certain learners, especially those with lower academic readiness, limited literacy skills, or learning difficulties [9], [17], [18]. Moreover, contextual pressures such as high stakes assessments, curriculum constraints, and limited institutional support often lead teachers to rely on familiar, teacher directed practices, even when they acknowledge the pedagogical value of student centered methods [1], [19], [20]. These findings suggest that instructional effectiveness cannot be examined in isolation from disciplinary contexts, classroom cultures, and institutional expectations.

Subject specific differences further complicate the application of teaching strategies. Research indicates that language classrooms, such as English instruction, tend to naturally accommodate interactive, communicative, and collaborative activities that support student centered learning [21], [22], [23], [24]. Conversely, mathematics classrooms are frequently characterized by procedural instruction, example based explanation, and individual practice, which often reinforce teacher centered dynamics [25], [26], [27], [28]. Although comparative studies have examined instructional effectiveness within individual subjects, limited empirical attention has been given to the *dynamic comparison* of teaching strategies across different disciplines within the same institutional and cultural context, particularly at the tertiary foundation level.

Furthermore, existing research predominantly relies on quantitative measures of achievement or self reported perceptions, leaving a gap in qualitative, classroom based investigations that capture the lived instructional dynamics of teaching strategies as they unfold in real time [1], [29], [30], [31]. Ethnographic and observational approaches remain underutilized,

despite their potential to reveal nuanced differences in classroom interaction, participation patterns, and teacher student relationships across subject areas.

Addressing these gaps, the present study focuses on examining the dynamics of teaching strategies employed in English and mathematics classrooms within the General Foundation Programme (GFP) at a university in Oman. By adopting a qualitative ethnographic approach grounded in classroom observation, this study seeks to provide an in depth comparison of how teaching strategies are enacted, how students respond to these strategies, and how instructional practices shape classroom engagement across disciplines. The novelty of this research lies in its cross-disciplinary, context specific analysis of teaching strategies using direct classroom observation rather than solely relying on outcome based measures.

Accordingly, the aim of this study is to explore and compare the dynamics of teaching strategies in English and mathematics classrooms, with particular attention to instructional methods, student participation, classroom climate, and responsiveness to student feedback. By illuminating subject-specific instructional patterns, this study is expected to contribute to the broader discourse on pedagogical effectiveness and offer practical insights for educators seeking to enhance teaching practices across diverse subject domains.

## METHODS

This study employed a qualitative ethnographic research design to explore the dynamics of teaching strategies implemented in English and mathematics classrooms within the General Foundation Programme (GFP) at a university in Oman. An ethnographic approach was selected as it enables an in depth examination of instructional practices, classroom interactions, and participants' behaviors within their natural learning environment, thereby providing rich contextual insights into how teaching strategies are enacted in real classroom settings [32], [33], [34], [35]. Data were collected through non participant classroom observations, which are widely recognized as a systematic and rigorous method for capturing authentic teaching learning processes, including verbal and non verbal interactions, instructional sequences, and patterns of student engagement [36], [37], [38]. The research site was chosen purposively to ensure comparability across subject areas, with observations conducted in one English class and one mathematics class taught at the same program level. Each classroom was observed during two instructional sessions of approximately 50 minutes per subject, allowing sufficient exposure to instructional routines and interactional dynamics. Prior to data collection, formal permission was obtained from the head of the General Foundation Programme as well as from the participating instructors to ensure ethical compliance and institutional approval.

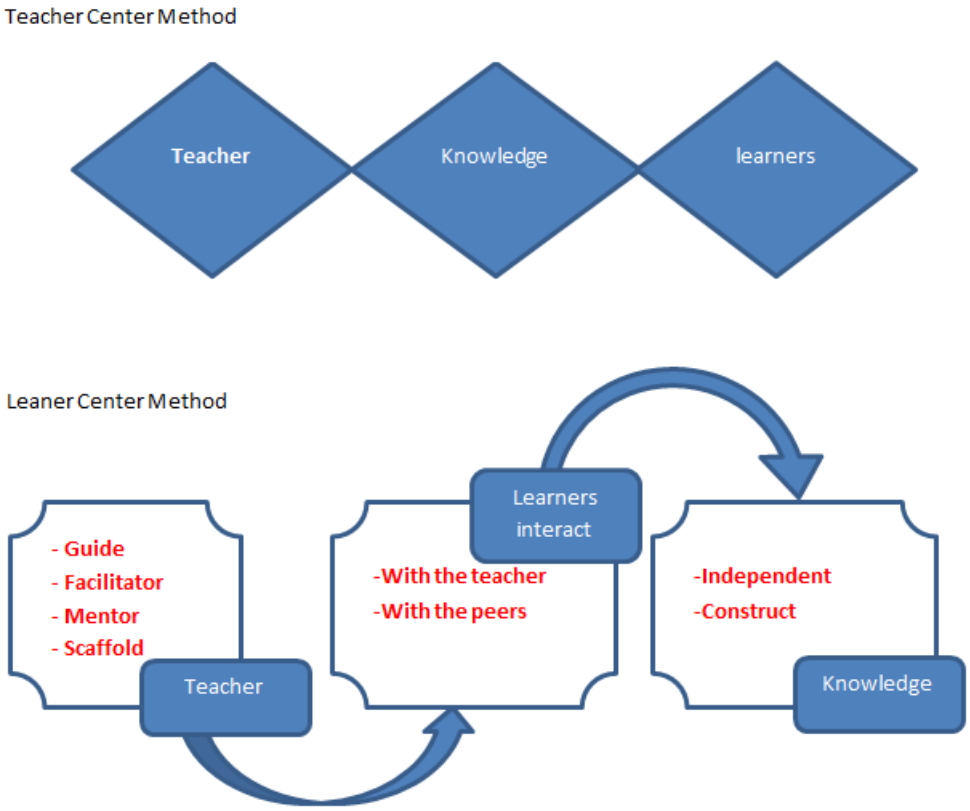


**Figure 1.** Teacher Centered Method Versus Learners Centered Method

Figure 1 illustrates the fundamental contrast between teacher centered and learner centered instructional approaches as observed in the English and mathematics classrooms. In the teacher centered model, instructional authority and knowledge transmission are primarily controlled by the teacher, resulting in limited student interaction and predominantly one way communication. Conversely, the learner centered model emphasizes active student participation, collaborative learning, and shared responsibility for knowledge construction, with the teacher acting as a facilitator rather than the sole source of information. This visual comparison highlights how differences in instructional orientation influence classroom interaction patterns, student engagement, and the overall learning environment across subject areas.

## *Research Design*

The This study employed a qualitative ethnographic research design to examine the dynamics of teaching strategies used in English and mathematics classrooms. The ethnographic approach was selected because it enables an in depth exploration of instructional practices and classroom interactions as they naturally occur, allowing researchers to capture contextual, behavioral, and interactional aspects of teaching and learning processes. This design is particularly suitable for investigating how teaching strategies are enacted across different subject areas within the same institutional context.

## *Population and Sample*

The study was conducted in the General Foundation Programme (GFP) at a public university in Oman. The research setting was purposively selected to ensure comparability between subject areas within a shared academic and institutional environment. Participants consisted of undergraduate

foundation level students aged between 18 and 22 years, representing a mixed gender cohort typical of the GFP context. Two classrooms were observed: one English class and one mathematics class, each taught by a different instructor at the same program level. Prior to data collection, formal permission was obtained from the programme administration and the participating instructors, and ethical principles related to voluntary participation, confidentiality, and anonymity were strictly upheld.

### *Data Collection Procedures*

Data were collected through non participant classroom observations, a method widely recognized for its effectiveness in documenting authentic teaching learning processes without interfering with instructional activities. Each classroom was observed during two instructional sessions, with each session lasting approximately 50 minutes. This observation period allowed the researcher to gain sufficient exposure to routine instructional practices, classroom management strategies, and patterns of student engagement. To guide the observation process, a structured observation checklist was used as the primary data collection instrument. The checklist was developed based on relevant literature on teaching strategies and instructional effectiveness and included indicators related to clarity of learning objectives, classroom climate, instructional methods, opportunities for student participation, individualization of instruction, and teacher responsiveness to student feedback. In addition to the checklist, detailed field notes were taken to document verbal and non verbal interactions, instructional sequences, and students' responses to assigned tasks.

### *Data Analytics on X*

The collected data were analyzed using an inductive thematic analysis approach. Observation notes and checklist records were reviewed repeatedly to identify recurring patterns, similarities, and contrasts in teaching strategies across the English and mathematics classrooms. Initial codes were generated from the data and subsequently grouped into broader themes representing teacher centered and student centered instructional practices. The analysis focused on comparing how teaching strategies were implemented in each subject and how these strategies influenced classroom interaction and student participation. To enhance the credibility and trustworthiness of the findings, the analysis emphasized systematic documentation, prolonged engagement with the research context, and alignment of emerging themes with established theoretical perspectives on instructional strategies.

## RESULT AND DISCUSSIONS

This section presents and interprets the findings derived from classroom observations conducted in the English and mathematics classes within the General Foundation Programme. The results are organized to highlight key patterns in instructional strategies, classroom interaction, and student engagement across the two subject areas. Specifically, the analysis focuses on differences in teaching orientation, teacher roles, and student participation as they emerged during instructional activities. The discussion integrates these findings with relevant theoretical perspectives and prior empirical studies to contextualize the observed teaching dynamics, identify points of convergence and divergence with existing literature, and elucidate the pedagogical significance of the results. Through this integrated presentation, the section aims to provide a comprehensive understanding

of how teaching strategies are enacted in practice and how they shape learning environments across disciplinary contexts.

### *Teaching Strategies in the English Classroom*

The classroom observations revealed that teaching strategies in the English classroom predominantly reflected a learner centered instructional orientation. The teacher actively facilitated learning through interactive tasks, group discussions, questioning techniques, and scaffolded guidance. Students were frequently encouraged to express ideas, collaborate with peers, and engage in communicative activities aligned with lesson objectives. The instructional flow allowed students to build understanding progressively, with the teacher providing feedback and clarification in response to students' needs. This approach fostered a supportive classroom climate characterized by high student participation, reciprocal interaction, and sustained engagement throughout the lesson.

### *Teaching Strategies in the Mathematics Classroom*

In contrast, the mathematics classroom demonstrated a predominantly teacher centered instructional approach. The lesson was largely structured around teacher explanations, worked examples, and individual practice tasks. Classroom interaction was mostly unidirectional, with the teacher delivering content while students assumed a passive role as recipients of information. Opportunities for student questioning, peer discussion, or exploratory problem solving were limited. While this approach enabled efficient coverage of mathematical procedures, it constrained students' active involvement and reduced opportunities for collaborative learning and conceptual exploration.

### *Student Engagement and Classroom Interaction*

Differences in instructional orientation significantly influenced student engagement and classroom interaction patterns. In the English classroom, students displayed higher levels of behavioral and cognitive engagement, as evidenced by frequent participation, peer interaction, and responsiveness to instructional prompts. Conversely, student engagement in the mathematics classroom was largely confined to task completion and note taking, with minimal interaction beyond responding to direct teacher questions. These findings indicate that instructional strategies directly shaped the nature and quality of student participation across subject areas.

### *Teacher Roles and Instructional Responsiveness*

The role of the teacher varied markedly between the two classrooms. In the learner centered English classroom, the teacher functioned primarily as a facilitator who guided learning, monitored student progress, and adapted instruction based on observed student responses. In the mathematics classroom, the teacher assumed the role of a content expert and primary knowledge source, focusing on explanation and accuracy. Instructional responsiveness in the English classroom was more pronounced, with the teacher adjusting pacing and support in response to students' difficulties, whereas such responsiveness was less evident in the mathematics classroom.

## *Discussion*

The findings of this study demonstrate a clear divergence in teaching strategy dynamics between English and mathematics classrooms, reinforcing the long standing distinction between learner centered and teacher centered instructional approaches. The learner centered orientation observed in the English classroom aligns with constructivist learning theory, which emphasizes active engagement, social interaction, and knowledge construction through meaningful participation [39], [40], [41], [42]. Similar results have been reported by Arthi et al. [43], who found that interactive instructional practices significantly enhance student engagement and communicative competence in language learning contexts. The present study extends these findings by providing direct observational evidence that structured scaffolding and continuous teacher facilitation contribute to a supportive classroom climate and sustained learner participation.

In contrast, the predominance of teacher centered strategies in the mathematics classroom corroborates previous research highlighting the persistence of traditional instructional practices in mathematics education [44], [45], [46], [47]. These studies argue that teacher centered instruction is often favored due to its efficiency in content delivery and alignment with assessment driven curricula. Consistent with these claims, the mathematics classroom in this study prioritized procedural explanation and individual practice, which limited opportunities for student interaction and collaborative problem solving. However, as also noted by Stovener and Klette [48], such approaches may constrain students' conceptual understanding and engagement, particularly when instructional responsiveness and formative feedback are minimal.

Comparatively, this study supports and extends Truong et al. [49], argument that pedagogical choices are strongly shaped by contextual constraints, including curriculum demands and institutional expectations. While learner centered strategies were effectively implemented in the English classroom, their limited adoption in mathematics suggests that subject specific epistemologies and entrenched beliefs about mathematical knowledge continue to influence instructional practice. This finding aligns with Patel [50], who emphasized that disciplinary norms play a critical role in determining the feasibility of student centered learning across subject areas. By examining both classrooms within the same institutional setting, the present study isolates subject related pedagogical differences from broader contextual variables.

The novelty of this research lies in its qualitative, ethnographic comparison of teaching strategy dynamics across two distinct disciplines within a single foundation programme context. Unlike prior studies that rely predominantly on self reported data, surveys, or experimental designs, this study offers real time, classroom based evidence of how instructional strategies are enacted and how they shape interaction patterns and student engagement. This cross disciplinary, observation driven perspective provides nuanced insights into the practical realities of implementing learner centered instruction and highlights the contextual conditions under which such strategies are more or less effective.

The findings carry important theoretical and practical implications. Theoretically, the study reinforces constructivist perspectives by demonstrating that learner centered strategies foster richer interaction and engagement, while also acknowledging the contextual limitations that affect pedagogical implementation. Practically, the results suggest that professional development initiatives should prioritize adaptive pedagogy, equipping teachers particularly in mathematics with strategies that balance instructional efficiency and student engagement. Integrating guided inquiry,

peer assisted learning, and formative assessment may help mitigate the limitations of strictly teacher centered instruction without compromising curriculum coverage.

Despite its contributions, this study is not without limitations. The research was confined to two classrooms within a single institution, which restricts the generalizability of the findings to broader educational contexts. Additionally, the reliance on classroom observation as the sole data collection method limits methodological triangulation and may not fully capture students' perceptions or learning outcomes. The relatively short observation period may also overlook longitudinal variations in teaching practices. Future research is therefore encouraged to involve larger samples, multiple institutions, and mixed method approaches to further explore the dynamics of teaching strategies across disciplines and educational levels.

## CONCLUSION

This study concludes that teaching strategies in English and mathematics classrooms exhibit distinct instructional dynamics shaped by subject specific pedagogical orientations. The English classroom predominantly adopted learner centered strategies that promoted active participation, collaborative interaction, and instructional responsiveness, resulting in higher levels of student engagement and a more supportive learning environment. In contrast, the mathematics classroom relied largely on teacher centered instruction, emphasizing content delivery and procedural accuracy, which limited opportunities for student interaction and active knowledge construction. These findings underscore the influence of disciplinary epistemologies and curricular demands on instructional practices, while highlighting the potential of learner centered approaches to enhance engagement when appropriately implemented. By providing classroom based, qualitative evidence of how teaching strategies are enacted across disciplines within the same institutional context, this study contributes to the pedagogical literature by illuminating both the affordances and constraints of instructional approaches in practice. The findings suggest that fostering adaptive pedagogy through targeted professional development may enable educators, particularly in mathematics, to integrate learner centered elements without compromising instructional efficiency. Overall, this research offers valuable insights for educators and policymakers seeking to improve instructional quality across subject domains while acknowledging the contextual realities of classroom teaching.

## LIMITATIONS

Despite its contributions, this study has several limitations that should be considered when interpreting the findings. First, the research was conducted in only two classrooms within a single institution, which limits the generalizability of the results to broader educational contexts and different institutional settings. Second, data collection relied solely on classroom observations without methodological triangulation through interviews, student reflections, or learning outcome measures, which may have constrained the depth of interpretation and the ability to capture participants' perspectives. Third, the relatively short observation period may not fully reflect variations in teaching strategies over time or across different instructional units. Additionally, the study focused on foundation level courses, which may limit the applicability of the findings to other educational levels. These limitations suggest that future research should employ larger and more diverse samples, incorporate mixed method approaches, and extend observation periods to provide

a more comprehensive understanding of teaching strategy dynamics across disciplines and educational contexts.

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## AUTHOR CONTRIBUTION

The author solely contributed to all stages of this study, including the conceptualization and design of the research, data collection through classroom observations, data analysis and interpretation, and the drafting, revision, and final approval of the manuscript. The author also takes full responsibility for the accuracy, integrity, and originality of the work presented in this article.

## CONFLICT OF INTEREST

The authors declare no conflict of interest.

## DECLARATION OF USE OF AI IN SCIENTIFIC WRITING

The authors used several generative AI tools in the process. ChatGPT was used to help organise complex concepts, while Grammarly was employed to enhance the grammar, style, readability of the text and improve the overall clarity of the writing. Although these tools provided valuable support, the researcher wrote all the content and conclusions.

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