Effective strategies for teaching mixed-ability learners with differentiated instruction

Estratégias eficazes para ensinar alunos com habilidades diversificadas por meio da instrução diferenciada

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Abstract: Teachers face difficulties while teaching mixed-ability classes because students vary greatly in their learning styles, rates of acquisition, prior knowledge, and capacity to evaluate and build on new knowledge. Slow learners will feel ignored and lose enthusiasm if the teacher concentrates on the more advanced students. Conversely, advanced students will become disinterested and may start making noise in the classroom if the emphasis is on slow learners. Therefore, educators should adapt their teaching methods to accommodate students' different demands. However, it takes a lot of time and effort from the teachers to prepare a lesson plan that addresses each student's level, meets the standards, and tries to deal with the anticipated noise. Aligned with several educational theories, this study recommends utilizing a flipped classroom model with technology integration to accommodate students' varying requirements and allow them to complete the lesson goals at their own speed. The study suggested useful strategies while creating group work. Students review the new materials before class at their own pace and then perform certain tasks inside the classroom following the teacher's instructions. By fulfilling certain tasks, students demonstrate their professional understanding of the objectives while working in groups with mixed-ability learners in the classroom.

Keywords: differentiated instructions; mixed-ability; multiple intelligences; individual diferences; flipped classes.

Resumo: Os professores enfrentam dificuldades ao ensinar turmas com níveis de habilidade variados, pois os alunos diferem muito em seus estilos de aprendizagem, ritmos de aquisição, conhecimentos prévios e capacidade de avaliar e construir novos conhecimentos. Alunos com dificuldades de aprendizagem podem se sentir ignorados e perder o entusiasmo se o professor concentrar sua atenção nos alunos mais avançados. Por outro lado, os alunos avançados podem ficar desinteressados e começar a fazer barulho na sala de aula se o foco estiver nos alunos com dificuldades. Portanto, os educadores devem adaptar seus métodos de ensino para atender às diferentes necessidades dos alunos. No entanto, preparar um plano de aula que atenda ao nível de cada aluno, cumpra os padrões e tente lidar com o barulho previsto exige muito tempo e esforço dos professores. Alinhado a várias teorias educacionais, este estudo recomenda a utilização do modelo de sala de

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aula invertida com integração de tecnologia para atender às diferentes necessidades dos alunos e permitir que eles alcancem os objetivos da aula no seu próprio ritmo. O estudo sugeriu estratégias úteis para a criação de trabalhos em grupo. Os alunos revisam o novo conteúdo antes da aula no seu próprio ritmo e depois realizam determinadas atividades em sala de aula, seguindo as instruções do professor. Ao cumprir essas atividades, os alunos demonstram sua compreensão prática dos objetivos enquanto trabalham em grupos com colegas de diferentes níveis de habilidade na sala de aula.

Palavras-chave: instruções diferenciadas; habilidades mistas; inteligências múltiplas; diferenças individuais; salas de aula invertidas.

Introduction to the Problem: significance of the Research

Students come from different backgrounds, cultures, interests, learning styles, preferences, and readiness. Readiness is the knowledge and skills the learners have, their prior learning, experience, and aptitudes (Sailaja, 2018). Different readiness levels increase the complexity of choosing the proper teaching materials and methods of delivery, so tiered activities are the best option. In mixed-ability classes, the higher-level students usually dominate and deprive the low-proficiency learners of full participation (Khan Rana et al., 2021). Since teachers need to reach all these types of learners at the same time in one classroom period, class instruction should be tailored to match learners' proficiency levels (AI-Subaiei, 2017). Following a one-size-fits-all technique might result in advanced learners getting bored and the slow learners struggling to cope with the flow of the new knowledge. Advanced learners may create chaos and lose attention as they think the presented knowledge does not match their abilities, so they might feel superior (Rahman, 2018).

The motivation factor might be low on both sides, as the advanced learners feel they are much better than this level, and the slow learners are less motivated owing to the difficulties that they cannot overcome (Zakarneh et al., 2020). Al-Shammakhi and AlHumaidi (2015) posited that differentiated instruction should be applied in various areas like the content, process, product, and learning environment. For the content, teachers should adjust the complexity by following varied instructional processes to deliver the content so that all learners can achieve the same learning objectives with different activities. As for the process, it is linked to the contents, defined as the activities that enable learners to reach their goals. These activities vary, like journals, tapes, role plays, oral presentations, projects, writings, and acting (Raza, 2020). Differentiation in activities is the flexible grouping based on their readiness, interests, and learning profiles (Mohamed, 2022).

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However, time management can pose a barrier, so all tasks and activities should be learner-centered to stimulate students' individual involvement. For the product, defined as the learning outcomes, teachers differentiate it by giving learners items they can use in their learning (Mavidou & Kakana, 2019). The product should be authentic, synthesize information, be based on real problems, and be based on problem-solving. Finally, in the learning environment, teachers should differentiate the classroom structure so that students can work within and between groups (Soneriu, 2024).

1. Central Research Question

What strategies can be used to effectively teach slow learners in mixed-ability classrooms?

2. Literature review

2.1 Differentiated instruction implementation

Dawson et al. (2018) emphasized the necessity of differentiated instruction by outlining three compelling strategies for teachers. To truly engage learners, educators must illustrate the relevance and significance of the knowledge and vary instructional techniques. Furthermore, starting from the right level is crucial for students who lack fundamental skills, and allows them to progress at their own pace (Ariss, 2017). This approach not only enhances understanding but also fosters a more inclusive learning environment (Aliakbari & Haghighi, 2014).

2.2 Barriers to differentiated instruction

Teachers are under immense pressure due to insufficient resources, a lack of administrative support, and demanding standards. As a result, they often find themselves racing to complete tasks rather than focusing on their students' needs (Mohamed, 2020). The preparation required to cater to individual interests, readiness, and learning profiles is a significant barrier (Prasad, 2023).

2.3 Some strategies to implement differentiated instruction

a) **Observational Learning (Modelling or Social Learning):** In this model, learners learn by watching the behaviors of others and evaluating the outcomes of

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those behaviors. Learning occurs without the learner directly engaging in the behavior themselves but by observing a model (another person or entity) (Zhuo & Qi-Xian, 2015).

Key Features of Observational Learning:

i. Modeling Behavior: Individuals watch and imitate the behavior of a model, such as a parent, teacher, or peer.

ii. Vicarious Reinforcement/Punishment: Learners observe the consequences of the model's behavior (e.g., rewards or punishments) and decide whether to imitate the behavior based on the observed outcomes.

iii. No Direct Experience Required: This model doesn't require the learners to perform the behavior and experience the outcomes firsthand.

iv. Cognitive Processes Involved: It involves attention, memory, and motivation.

Components of Observational Learning (Bandura's Theory):

a. Attention: The learner must focus on the model and the behavior being demonstrated.

b. Retention: To memorize the observed behavior.

c. Reproduction: The learner can reproduce the observed behavior.

d. Motivation: There must be a reason or desire to replicate the behavior, often influenced by observed consequences.

An example of this model is that when a student succeeds in something, other students would try to copy their peer's behavior. This type of learning plays a significant role in socialization, skill acquisition, and behavioral development.

b) Task-Based Language Teaching (TBLT) is a student-centered approach that focuses on engaging learners in meaningful tasks (Almekhlafy & Alqahtani, 2020). Instead of teaching grammar rules or vocabulary in isolation, TBLT emphasizes the use of language to accomplish real-world tasks. It is rooted in the principles of communicative language teaching (CLT).

Key Features of TBLT:

i. Task-Centered: Lessons revolve around tasks that mirror authentic language use, such as making a phone call, planning a trip, or writing an email.

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ii.   Focus on Communication: The goal is effective communication, not just linguistic accuracy.

iii.   Learner Autonomy: Students often work collaboratively, promoting active participation and decision-making.

iv.   Real-Life Relevance: Tasks are practical and connected to everyday activities, making the learning process meaningful.

Components of a Task in TBLT:

- **Pre-Task Phase**: Introduces the topic and task, activates prior knowledge, gives instructions, and models tasks.

- **Task Phase**: Students complete the task in pairs or groups focusing on fluency.

- **Post-Task Phase**: Reflect on the task process and outcomes, and highlight areas for improvement.

This model encourages authentic communication, develops problem-solving and critical thinking skills, and integrates all four language skills. TBLT is widely used in ESL classrooms because it makes language learning interactive, engaging, and directly relevant to learners' needs (Rogers & Revesz, 2020).

c) Think-Pair-Share (TPS) theory is a collaborative learning strategy designed to enhance student engagement and foster critical thinking. Kothiyal et al. (2013) postulated that this strategy activates learning principles and encourages interaction among students to deepen understanding of a topic.

Key Components of Think-Pair-Share:

i.   **Think**: Students are given a question or problem and asked to think about their responses individually.

ii.   **Pair**: Students then pair up with a partner to discuss their thoughts and ideas.

iii. **Share**: Each pair shares their discussion with the larger group or class.

Theoretical Basis:

- **Constructivism**: Supports the idea that learners construct knowledge through social interaction and active participation.

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- **Sociocultural Theory**: Vygotsky's concept of the "zone of proximal development" highlights the importance of collaboration and dialogue in learning.
- **Bloom's Taxonomy**: Encourages higher-order thinking, including analysis, synthesis, and evaluation.

Benefits:

- Encourages active participation and engagement.
- Reinforces understanding by explaining ideas to a partner.
- Builds collaborative and communication skills.

d) The Teaching Adaptation Model (TAM)

All teaching methods, materials, and strategies are modified to meet the diverse needs of learners (Hazaea & Almekhlafy, 2022). It emphasizes flexibility, responsiveness, and a focus on inclusivity to ensure all students can succeed, regardless of their abilities, backgrounds, or learning preferences.

Key Elements of the Model:

a) **Assessment of Learners' Needs**: Teachers assess student needs through formative and diagnostic assessments to identify areas of strength, challenges, and preferred learning styles.

b) **Differentiated Instruction**: Adapting the curriculum content, process, product, or learning environment to suit different learners.

- **Content**: Simplifying or enriching materials based on ability levels.
- **Process**: Using various methods like hands-on activities, visual aids, or group work.
- **Product**: Allowing students to demonstrate learning in diverse ways, such as projects, presentations, or tests.

c) **Flexible Grouping**: Students work in different groups based on their needs, such as ability groups, mixed-ability pairs, or individual work.

d) **Use of Technology**: Incorporating technologies fosters method diversity.

e) **Feedback and Adjustment**: Continuously monitoring student progress and adjusting strategies as needed. Constructive feedback ensures alignment with learning goals.

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Theoretical Basis:

1. **Universal Design for Learning (UDL)**: Focuses on providing multiple means of engagement, representation, and expression to accommodate all learners.

2. **Zone of Proximal Development (ZPD)**: Encourages providing scaffolding to help students perform tasks slightly beyond their current abilities.

3. **Behaviorism and Constructivism**: Combines behaviorist reinforcement techniques with constructivist principles of active, personalized learning.

Example in Practice:

Provide visual aids and simple vocabulary for beginners. Use role-play and advanced grammar exercises for more advanced students. Allow some students to demonstrate understanding through art or oral presentations instead of writing essays. By implementing a Teaching Adaptation Model, educators can create an inclusive and effective learning environment that supports learners' different needs using real-world scenarios. Hordiinko and Lomakina (2015) mentioned that this model comprises four adaptation strategies: understanding the student population, keeping a teaching journal, increasing student participation, and filtering instruction.

1. **Keeping a teaching journal**: For self-evaluation, teachers can record their instructions, materials, and strategies to consult existing literature and evaluate learning outcomes.

2. **Understanding the student population**: This allows teachers to identify the difficulties their students are facing, understand the reasons behind these difficulties, and then brainstorm strategies to address these challenges.

3. **Increasing student participation**: For student inclusion in decision-making at a micro level, they can decide the types of activities, the amount of emphasis on a specific language topic, and set deadlines for assignments and homework. At the macro level, they can decide on assessment, curriculum design, teaching styles, and classroom management issues (Debbabi et al., 2019). Therefore, students are given a diagnostic test (e.g., a writing task, a discussion activity, or a mini-monologue prompt) to assess their proficiency in English.

4. **Filtering instruction**: This strategy incorporates principles of culturally responsive teaching and differentiated instruction. It emphasizes three effective techniques:

   a) **Identifying and Addressing Learner Differences**: Recognizing individual learner

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variations, grouping students based on shared characteristics, significance, or severity of needs, and devising tailored strategies to meet these needs through common or individualized lesson plans (Weselby, 2014).

b) **Developing a Culturally Responsive Curriculum**: Integrating topics that are culturally relevant, engaging, and motivating for students. Teachers should maintain neutrality on these topics, adopting the role of an interviewer who seeks clarification and fosters discussion without imposing personal viewpoints.

c) **Connecting Learning to Real-Life Applications**: Linking classroom tasks to students' practical experiences enhances motivation by demonstrating how the skills acquired can be applied beyond the classroom setting.

2.5 Flipped Classroom

This strategy enables learners to independently interact with each other via various online platforms so they can identify the issue and find appropriate solutions (Bishop & Verleger, 2013). However, some internal and external factors direct this pattern. The internal factors are the learners' age, anxiety, aptitude, personality affective (attitude & motivation), learning style, experience, and mother tongue influence. The external factors are curriculum/syllabus, style of instruction, learning strategies, culture and background knowledge, motivating strategy, environmental support/contextual support, and the administrative system.

In the inverted class pattern, teachers assign certain videos for learners to watch as often as they prefer at home to introduce them to the new knowledge and get a better understanding (Lockwood & Esselstein, 2013). In the classroom, learners should complete task-based activities that cover all the required levels gradually, ranging from the previous knowledge to the advanced level (Çakıroğlu & Öztürk, 2017). To conclude the lesson, learners should have a role-play to present materials to show their in-depth understanding of the topic in an interactive process (Elmaleh & Shankararaman, 2017).

To evaluate learner understanding, teachers follow the PEER sequence pattern (Prompt, Evaluate, Expand, and Repeat) and the CROWD question design structure (Completion, Recall, Open-ended, Wh-, and Distancing), which encourages the use of different question types to prompt

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students' participation (Fassbinder et al., 2015). For example, in language teaching, the PEER strategy starts when a teacher asks students to describe a picture using one of the CROWD questions. After assessing their answers, the teacher gives them constructive feedback and adds additional linguistic elements, like words or sentences, to learners' initial responses to enhance them (Haatainen et al., 2013). Finally, the teacher asks students to repeat the expanded sentences. This approach improves speaking skills naturally and spontaneously, prompts learner participation, and ensures their understanding (Indi, 2016). It enriches learner innovation skills to critique, embellish, and elaborate on their ideas.

2.5.1. Scaffolding and Language Acquisition Supporting System (LASS)

Knutas et al. (2013) found that the collaborative interactional setting of the flipped classroom approach serves as a form of scaffolding for students, especially slow learners. Using simplified language, instructor modeling, images and graphics, cooperative learning, casual discussion, and hands-on activities to contextualize meaning is known as scaffolding in contextual support (Koutselini, 2006). This concept is aligned with the Zone of Proximal Development in Vygotsky's theory of learning. Creating this community language learning enables learners to explore their potential to process the new knowledge on their own after receiving the initial support (Iyer, 2019).

2.5.2. Group work

During the task, dividing the students into groups is the most effective method(Maher et al., 2015). Each group has 4 or 5 learners based on their language levels. Advancedlearners will support the slow ones who would feel more relaxed speaking with a few colleagues rather than the entire class and learn at their own pace. Groups should be based on the language levels where advanced learners are supposed to have more competent activities. Teachers should prepare a contingency plan to give bonus tasks to those who finish early. Chow et al. (2023) illustrated that group work is a kind of dialogic teaching approach that enables both teacher and students to interact collaboratively in a dialogue formto buildon ideas to deepen understanding.

Diferentiation Magableh and Abdullah (2020) found that differentiation is considered an effective solution for teaching mixed-ability as it is learner-centered and needs teachers to be awareof the starting point of each student, their level of understanding, and their learning styles to

customize the pedagogical instructions. However, lack of professional development, examples, and resources forms barriers to implementing differentiated practices. Tomlinson (2014, 2015, 2017) mentioned that effective differentiation requires in-depth knowledgeand understanding of the curriculum to adjust tasks. Watts-Taffe et al. (2012) proposed that rotating levels or splitting class time for learners at different levels are valid strategies, though it may lead learners to do more "desk work." Ashton (2019) mentioned that there are three different approaches:

1) Completely separate programs of study.

2) Common topics across year levels with differentiated materials.

3) a 'future-focused' program drawing on self-directed technology-assisted learningto free up teacher time to work individually with learners. Many factors influence the choice, including teacher experience, curriculum knowledge, student desire to group, technology availability, and focus on communication and assessment systems (Al-Khresheh, 2020).

2.5.3. **Approach one**: completely separate programs of study

Teachers explain the main topic and then split the class into different level groups. However, this approach is not the best for new, inexperienced teachers owing to their lack of confidence and experience with the curriculum and assessment. In addition, it is tough for teachers to track different activities and assessments (Khamdamovna & Karimovna, 2020).

2.5.4. Approach two: common topic

This approach has one topic across year levels by differentiating the materials to match students' language proficiency and age-appropriate content. Teachers use digital tools to facilitate their teaching and assess learners' understanding (Yunusova, 2019).

2.5.5. Approach three: future-focused learning

This approach follows the "self-directed learning" technique where all materials and resources are uploaded on an intranet platform like Google Classroom. Teachers should highlight the required tasks and objectives so that students draw their lines the way, the order, and the pace they prefer and keep personal logs of their progress. Teachers are around for help and work individually with students (Schoonenboom, 2016).

2.5.6. Factors influence the choice of pedagogy

There are many factors that decide on the pedagogy, namely teaching experience, knowledge of the curriculum, meeting curriculum and assessment requirements, preparation and classroom management, communicative focus, technology usage, group dynamics, and self-directed learning. Wroblewski and Majerova (2019) found that the more experience and knowledge of the curriculum, the more confident teachers feel in adopting the future-focused approach. Using digital tools enables teachers to give learners individual support. Additionally, learners' ability to engage in self-directed learning is required, so more PDwith more exemplars is required (Mohamed, 2019). To promote higher-order thinking, teachers should consider the following:

1) **Inquiry-Based and Contextualized Learning**

Inquiry-based learning emphasizes high-level cognitive skills, fostering knowledge construction through interaction within authentic social contexts. Context-aware ubiquitous learning further enhances this approach by providing real-world scenarios, enabling students to apply their learning practically. Educators recognize the value of strategies aligned with intended learning outcomes, such as question posing, which encourages deep thinking, systematic knowledge construction, and high-order reasoning (Bolli et al., 2018).

To support effective question-posing, researchers like Benmassoud and El Madani (2019) have developed scaffolding tools, including customizable online systems and mobile collaborative learning environments. However, many students struggle with question generation due to the complexity of synthesizing associations, differences, and influential factors in learning content. Magableh and Abdullah (2019) argued that active learning tools, such as concept mapping, offer a potential solution by visually representing relationships among knowledge elements, thereby aiding comprehension and question generation.

2) **Key Learning Constructs**

i. **Ubiquitous Learning**: Technological advancements have transformed education, enabling seamless integration of in-class and out-of-class experiences. Firwana (2017) found that context-aware ubiquitous learning leverages wireless communication and

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sensing technologies, such as GPS, to deliver personalized, real-time learning activities. These systems bridge digital and real-world interactions, promoting immersive, location-sensitive educational experiences.

ii.   **Question Posing**: Question-posing involves generating new questions by connecting subject knowledge with real-life contexts. Research demonstrates a strong positive correlation between question-posing and learning performance, highlighting its potential as a metric for assessing student understanding and achievement (Naddafi et al., 2019).

iii. **Concept Mapping**: Hwang et al. (2020) argued that concept mapping serves as a cognitive tool for visually organizing and representing knowledge structures. It fosters creativity, self-awareness, and reflective thinking while also promoting critical thinking tendencies. By identifying associations, distinctions, and the importance of concepts, students can develop a deeper understanding of complex knowledge domains.

iv.   **Structural Knowledge and Assessment**: Structural knowledge represents the higher-order understanding of interrelations among concepts within a domain, linking procedural and declarative knowledge. Suprayogi et al. (2017) mentioned that effective structural assessment techniques, such as graphical network representations derived from concept maps, provide feedback on knowledge organization and support cognitive processes like analysis and problem-solving (Wroblewski & Majerova, 2019).

2.5.7. Ubiquitous Learning System Workflow: Roberts (2016) demonstrated that the proposed system integrates multimedia resources and hands-on experiences to support staged learning activities:

- Stage 1: Students observe target plants through videos and on-site exploration.
- Stage 2: Shallow-level question posing focuses on descriptive facts, fostering basic understanding and memorization.
- Stage 3: Deep-level question posing emphasizes complex knowledge, including relationships among different plants, requiring analytical and synthetic skills.

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- Stage 4: Students synthesize their knowledge using concept mapping techniques, involving:
  1) Shallow-level concept mapping.
  2) Question posing based on shallow-level concept maps.
  3) Deep-level concept mapping.
  4) Question posing based on deep-level concept maps.

2.5.8. Theoretical Framework

Differentiated instruction is grounded in three key theoretical foundations: Gardner's theory of Multiple Intelligences, Vygotsky's Zone of Proximal Development (ZPD), and Bloom's Taxonomy.

1) Multiple Intelligences

Gardner's theory (1983, 2011) posits that students learn through eight distinct intelligences: logical-mathematical, verbal-linguistic, musical, visual-spatial, bodily-kinesthetic, interpersonal, intrapersonal, and naturalist. Initially identifying seven intelligences, Gardner later added the naturalist intelligence to the framework. Sevy (2016) demonstrated that differentiated instruction leverages this diversity, enabling students to utilize their strongest intelligences in engaging with tasks. By aligning teaching strategies with students' preferred intelligences, educators provide scaffolding that enhances success and motivation (Devana & Agustina, 2019). Recognizing that students learn in diverse ways, teachers are encouraged to adopt varied instructional methods to accommodate a broader range of learners.

2) Zone of Proximal Development (ZPD)

Lev Vygotsky's ZPD theory serves as another cornerstone of differentiated instruction. The ZPD represents the range within which a learner can perform a task with guidance. Differentiated instruction, grounded in this concept, adjusts learning experiences to appropriately challenge students at all levels, including high achievers. Vygotsky emphasized that instruction beyond or

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below a learner's readiness can lead to frustration, withdrawal, or disengagement. By tailoring instruction to the ZPD, teachers create a supportive and motivating learning environment where students can thrive without becoming overwhelmed or under-stimulated (Levykh, 2008).

3) Bloom's Taxonomy

Bloom's Taxonomy (1956) categorizes cognitive skills into six hierarchical levels, ranging from lower-order skills (knowledge, comprehension, and application) to higher-order skills (analysis, synthesis, and evaluation). A revised version includes remembering, understanding, applying, analyzing, evaluating, and creating. Adams (2015) found that differentiated instruction integrates Bloom's Taxonomy to design tiered activities that align with students' cognitive abilities. For below-average students, activities may focus on foundational skills like knowledge and comprehension. Average learners can engage with application and analysis, while advanced students tackle higher-order tasks like evaluation and synthesis. This approach ensures that instruction is both accessible and appropriately challenging for diverse learners (Anderson & Krathwohl, 2001).

4) Integration of Theories in Differentiated Instruction

Differentiated instruction synthesizes elements from each of these theories. From ZPD, it adopts scaffolding and individualized approaches to meet students' unique needs and interests. From Bloom's Taxonomy, it incorporates tiered assignments and instruction tailored to cognitive domains. Gardner's Multiple Intelligences contributes by encouraging teachers to address varied learning preferences in the classroom. Together, these theories form the foundation of a comprehensive, student-centered approach to teaching in mixed-ability classrooms (Sebihi, 2016).

3. Procedures

3.1. Interview Procedures

Semi-structured interview is a qualitative data collection method that combines pre-prepared open-ended and structured questions to direct the interview but add some flexibility to allow interviewees to add their own ideas (Zhang et al., 2021). Researcher built questions upon the answers of the interviewees; since it is a participant-centered approach, participants are allowed to direct the

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conversation and share experiences to give comprehensive and detailed data. Born et al. (2022) posited that this method enables researcher to delve deeper and get contextual understanding through probing into underlying cultural and situational contexts to explore unexpected themes. The interviews were conducted virtually via Zoom with one coordinator, one manager, and seven teachers, with transcripts reviewed and coded to identify themes. Data analysis methods aligned participant responses with literature and provided a table of codes to determine compliance with specific themes. After all 15 participants voluntarily consented to participate in the study, the following 20 questions were utilized for the interviews (see Appendix A).

3.2. **Focus Group Procedures**

The third data collection method was a mini focus group. The selection criteria for participants included a minimum of three years of experience and solid expertise in integrating technology. A request-for-participation email was sent to each participant with the Zoom link and the meeting time. A consent form was included in the email, along with the details of conducting the meetings and a brief overview of the problem. A total of eight participants agreed to participate. Each participant provided useful input to solve the problem as the group discussed the 10 questions. Data were coded for analysis right after the virtual meeting. This qualitative method enables researcher to not only recognize the participants' attitudes and perceptions but also their comments on every speech. It focuses on the contextual understanding and versality. Zoom meetings were used for the focus group, which lasted for one hour and a half. The transcripts were reviewed and coded to determine themes. Kalu (2019) argued that choosing informative samples who articulate, reflect, and are interested in sharing knowledge leads to generalizable results (see Appendix B).

3.3. **Survey Procedures**

This study used a quantitative survey to investigate the issue of computer skills among CLB 4 and 6 learners. To collect data, a closed-ended Likert scale and true/false survey were administrated electronically using Google Forms, an Internet-based program. Participants included 18 teachers, a coordinator, and a manager. Purposeful sampling was used to ensure data trustworthiness. Participants were given two weeks to complete the survey, with the possibility of

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an extension. The survey included demographic questions and 15 prompts supported by scholarly literature, and participants should respond using a five-point Likert scale (see Appendix C).

4. Findings

1.1. Interview Findings

Many interviewees acknowledge that teaching mixed-ability learners poses significant challenges, but addressing these challenges can lead to a more inclusive and effective learning environment. Advanced learners often find activities too easy, which can lead to disengagement, while slower learners may struggle and feel embarrassed when trying to keep up with their peers.

Selecting the right teaching materials is essential; activities should be designed to engage learners across various ability levels. In speaking classes, advanced learners can dominate discussions and share their ideas freely, but this dynamic often sidelines low-intermediate learners who may lack the confidence to participate.

Teachers face the added difficulty of establishing consistent standards for reading activities, as vocabulary disparities can hinder comprehension. Furthermore, listening exercises can create challenges; some learners might not comprehend the material on their first attempt and may require repetition, potentially leading to frustration among advanced learners. By strategically addressing these challenges, teachers can create a balanced and empowering classroom experience for all students.

TABLE 1: Codes and Themes from Interview Data

Theme	Code	Participant Quotes
Inclusive Effective Learning Community	Collaborative support	"I prefer to create an effective learning environment.""I ask advanced learners to help the low-level learners."
Materials	Level-based adaptation	"I present materials that suit all levels and give extra tasks to the advanced learners.""Digital materials proved effective.""I prefer giving slow learners straightforward tasks to check their understanding, comprehension, and application."
Sharing Experience	Peer learning	"Through group and pair work learners can exchange their understanding and strategies."
Professional Development	Strategy enrichment	"I like listening to professional presenters in this aspect.""I applied many useful techniques learned from PD sessions."

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Effectiveness of Integrating Technology	Differentiated pacing	"Digital materials have all the levels so fast learners can complete more tasks while slow learners can take their time."
Motivation and Standards	Goal setting and encouragement	"Learning objectives can be achieved by all learners, but slow learners can get the least standards.""All the time I encourage slow learners to do their best and give them constructive feedback to follow and compensate for the time wasted."

Source: Elaborated by the author (2025).

1.2. Focus Group Findings

Many educators recognize the significant challenges in adhering to certain standards for all learners. When it comes to reading activities, numerous teachers have adapted their expectations to accommodate varying skill levels; however, the curriculum mandates specific goals for every student. This inconsistency highlights the need for more robust support from school administrators, particularly in providing access to valuable paid applications that could enhance learning.

Teachers also pointed out that students with lower proficiency levels tend to struggle more with grammar and syntax, leading to frequent mistakes. Moreover, low-intermediate students often feel too shy to participate in speaking activities, as they grapple with articulating their thoughts. This is where technology can make a substantial impact. With the right resources in place, educators believe technology can help tackle these issues, though it is essential that IT support is readily available to address any technical difficulties.

Furthermore, many teachers have embraced the flipped classroom model, which empowers students to learn at their own pace and practice as needed to keep up with their classmates. This approach not only fosters greater independence but also encourages students to engage more deeply with grammatical forms and vocabulary, ultimately improving their pronunciation. By investing in these strategies, it is possible to create a more inclusive and effective learning environment for all students.

FIGURE 1: During Speaking Classes, Advanced Learners Dominate the Groups
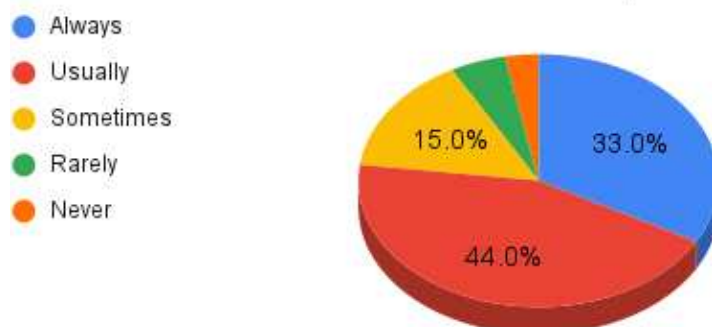
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Source: Elaborated by the author (2025).

FIGURE 2: Role of Technology in Tackling the Issue
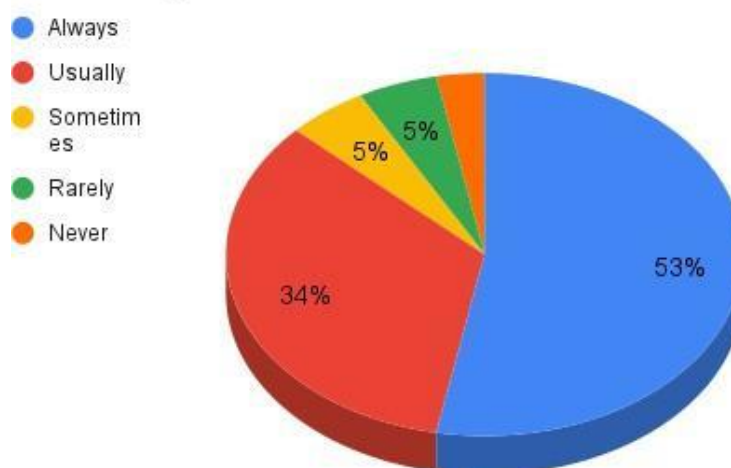
Source: Elaborated by the author (2025).

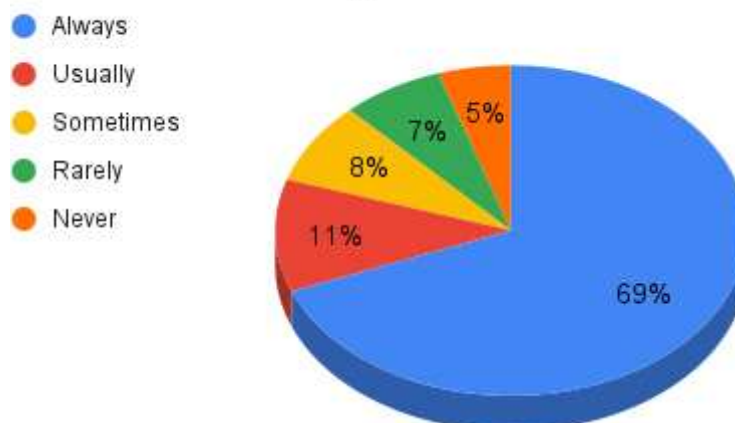**FIGURE 3: Percentage of teachers' opinions about the effectiveness of Flipped Classes**

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Source: Elaborated by the author (2025).

4.3 Survey Results

The frequency and mean table below displays the responses to each Likert-scale item in the survey. The scale ranges from 5 (Strongly Agree) to 1 (Strongly Disagree).

TABLE 2: Frequency and Mean of Likert-Scale Responses

	Question	Frequency					Mean
		5	**4**	**3**	**2**	**1**	
1	Dealing with mixed-ability learners is a big issue in my class.	11	8	3	0	0	3.6
2	It is hard to keep all learners motivated.	6	2	4	3	2	3.2
3	Usually, advanced learners lose their enthusiasm to learn as the activities are very easy.	8	10	6	2	0	3.6
4	During speaking class, advanced students usually dominate the session.	7	3	4	3	0	4.2
5	I face difficulties in choosing a listening passage that suits all the learners' abilities.	9	10	14	8	1	3.6
6	I find it difficult to choose the reading passage that suits all learners' abilities.	9	10	11	7	0	3.6

7	Slow learners usually struggle to prove themselves among other learners.	4	8	9	4	1	3.8
8	I have to set different standards in writing essays.	8	7	4	2	0	3.6
9	Technology helps me differentiate tasks and learning outcomes.	5	2	4	2	0	3.0
10	Flipped classes are a nice option to ensure slow learners are coping.	4	4	2	2	0	3.6
11	Materials, goals, and standards are the same, but the expectations are different.	3	3	2	3	0	3.6
12	Digital tools are the best option.	2	1	2	2	0	3.2
13	During listening class, the videos are the same, but the questions are different.	2	2	3	3	0	3.4
14	In reading class, students might get different passages according to the language complexity but on the same topic.	3	5	6	0	2	3.6
15	Teacher expectations are different among fast and slow learners.	3	0	2	3	0	3.6

Source: Elaborated by the author (2025).

5. Recommendations

Based on the comprehensive analysis conducted in this study, a strong recommendation is made for the adoption of a flipped classroom model complemented by the widespread use of technology in educational settings. This approach is particularly beneficial as it affords slower learners increased opportunities to engage in practice at home, enjoying an environment that guarantees high-quality training.

To facilitate this model effectively, educational institutions should establish a secure online platform that enables private communication between teachers and students. Tools such as Google Classroom or similar alternatives are ideal for this purpose, as they provide a structured environment for academic interactions.

Educators should be proactive in uploading all necessary instructional materials, including instructional videos, reading assignments, and various exercises designed to assess students' comprehension. By utilizing features such as discussion rooms within the platform, teachers can foster a vibrant learning community where students feel comfortable asking questions, sharing

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insights, and offering suggestions. It is crucial for educators to actively monitor these discussions, intervening at appropriate points to guide conversations and ensure that all learners remain on track.

This collaborative approach empowers students to engage with the material at their own pace, allowing them to enter the classroom with a solid understanding of the topics to be discussed. This preparation maximizes the value of in-class time, allowing for the focus to shift toward engaging in task-based activities that deepen understanding.

Within the classroom, teachers can implement group work that strategically pairs students of varying ability levels. For instance, groupings might involve pairing beginners with intermediate learners or upper-intermediate learners with advanced students. Such strategies promote collaboration and peer learning, enabling students to benefit from each other's strengths and experiences.

The effective utilization of technology is essential for managing mixed-ability classrooms. Educators can curate a selection of online resources that align closely with established lesson objectives, allowing them to assign tailored tasks that correspond to each student's specific learning needs. In the realm of language acquisition, a wide array of online platforms offers opportunities for learners to practice the four fundamental language skills—listening, speaking, reading, and writing.

These resources not only allow students to evaluate their understanding of the material digitally but also give them the chance to apply vocabulary and grammatical structures learned online to compose coherent written responses to topics specified by their instructors.

To further enhance learning outcomes, teachers can assign reading passages that vary in complexity according to the individual levels of their students. During class sessions, students can engage in meaningful discussions about these texts, exchanging ideas and exploring different perspectives to gain a deeper understanding of the subject matter.

Additionally, students should be encouraged to write essays using the same online platform, incorporating insights gleaned from their readings, peer opinions, and instructor directives. This writing task can be completed at home, allowing students to make effective use of technology to receive feedback on grammar, syntax, and paraphrasing. Such feedback is invaluable in helping students refine their writing skills and enhance their overall academic performance. By combining

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these strategies, educators can create a dynamic and supportive learning environment that caters to the diverse needs of all students.

6. References

ADAMS, N. E. Bloom's taxonomy of cognitive learning objectives. Journal of the Medical Library Association: JMLA, v. 103, n. 3, p. 152, 2015.

ALIAKBARI, M.; HAGHIGHI, J. On the effectiveness of differentiated instruction in the enhancement of Iranian learners reading comprehension in separate gender education. Procedia-Social and Behavioral Sciences, v. 98, p. 182-189, 2014.

AL-KHRESHEH, M. H. The impact of cultural background on listening comprehension of Saudi EFL students. Arab World English Journal, v. 11, n. 3, p. 349–371, 2020. DOI: 10.24093/awej/vol11no3.22.

ALMEKHLAFY, S. S. A.; ALQAHTANI, A. A. J. The visual memory development technique: A remedial and pre-reading activity to enhance EFL learners' motivation. Heliyon, v. 6, n. 3, e03627, 2020. DOI: 10.1016/j.heliyon.2020.e03627.

AL-SHAMMAKHI, F.; AL-HUMAIDI, S. Challenges Facing EFL Teachers in Mixed Ability Classes and Strategies Used to Overcome Them. World Journal of English Language, v. 5, n. 3, 2015. Available at: http://wjel.sciedupress.com. DOI: https://doi.org/10.5430/wjel.v5n3p33.

AL-SUBAIEI, M. S. Challenges in Mixed Ability Classes and Strategies Utilized by ELI Teachers to Cope with Them. International Journal of Higher Education, v. 9, n. 1, 2017. Available at: http://ijhe.sciedupress.com. DOI: https://doi.org/10.5539/elt.v10n6p182.

ANDERSON, L. W.; KRATHWOHL, D. R. A taxonomy for learning, teaching, and assessing: a revision of Bloom's taxonomy of educational objectives. New York: Longmans, 2001.

ARISS, L. D. Differentiated instruction: An exploratory study in a secondary mathematics classroom. 2017. Thesis (Doctorate) – University of Toledo.

ASHTON, K. Approaches to teaching in the multi-level language classroom. Innovation in Language Learning and Teaching, v. 13, n. 2, p. 162-177, 2019. DOI: https://doi.org/10.1080/17501229.2017.1397158.

BENMASSOUD, J.; EL MADANI, M. E. M. The teaching multilevel classrooms in Morocco: The case study of high schools in Meknes. GPH – International Journal of Educational Research, v. 2, n. 3, p. 1–14, 2019.

REVISTA TÓPICOS EDUCACIONAIS
Revista do Programa de Pós-Graduação em Educação
da Universidade Federal de Pernambuco (UFPE)

BISHOP, J. L.; VERLEGER, M. A. The flipped classroom: A survey of the research. In: American Society for Engineering Education Annual Conference and Exposition (ASEE), Atlanta, GA, 2013. Proceedings... Atlanta: ASEE, 2013. v. 30, p. 1–18.

BLOOM, B. S. Taxonomy of educational objectives. Michigan: Longmans, Green and Co., 1956.

BOLLI, T.; RENOLD, U.; WÖRTER, M. Vertical educational diversity and innovation performance. Economics of Innovation and New Technology, v. 27, n. 2, p. 107–131, 2018. DOI: 10.1080/10438599.2017.1314075.

BORN, M. P.; STEGERS-JAGER, K. M.; ANDEL, C. E. E. Inferring signs from purposeful samples: The role of context in competency assessment. Medical Education, v. 56, n. 1, p. 117-126, 2022. DOI: https://doi.org/10.1111/medu.14669.

ÇAKIROĞLU, Ü.; ÖZTÜRK, M. Flipped classroom with problem based activities: Exploring self-regulated learning in a programming language course. Journal of Educational Technology & Society, v. 20, n. 1, p. 337–349, 2017.

CHOW, B. W. et al. Dialogic teaching in English-as-a-second-language classroom: Its effects on first graders with different levels of vocabulary knowledge. Language Teaching Research, v. 27, n. 6, p. 1408-1430, 2023. DOI: https://doi.org/10.1177/1362168820981399.

DAWSON, J. Q. et al. Designing an introductory programming course to improve non-majors' experiences. In: ACM symposium on Computer Science Education (SIGCSE), 2018. Proceedings... ACM, 2018. p. 26–31.

DEBBABI, A. S. et al. A study of Saudi English foreign language (EFL) learners: Impact of timed reading on learners' reading speed and comprehension. International Journal of Applied Engineering Research, v. 14, n. 19, p. 3778–3782, 2019.

DEVANA, T.; AGUSTINA, A. Effect of screen text in improving students' reading rate and comprehension. Jambi-English Language Teaching Journal, v. 4, n. 2, p. 1–79, 2019.

ELMALEH, J.; SHANKARARAMAN, V. Improving student learning in an introductory programming course using flipped classroom and competency framework. In: IEEE Global Engineering Education Conference (EDUCON), 2017. Proceedings... IEEE, 2017. p. 49–55.

FASSBINDER, A. G. O. et al. Applying Flipped Classroom and Problem-Based Learning in a CS1 Course. In: IEEE Frontiers in Education Conference (FIE), 2015. Proceedings... IEEE, 2015.

FIRWANA, S. S. The effect of differentiated instruction on learning English vocabulary and grammar among second graders in UNRWA schools. 2017. Thesis (Doctorate) – The Islamic University, Gaza.

REVISTA TÓPICOS EDUCACIONAIS
Revista do Programa de Pós-Graduação em Educação
da Universidade Federal de Pernambuco (UFPE)

GARDNER, H. Frames of mind: Theory of multiple intelligences. New York: Basic Books, 1983.

GARDNER, H. Frames of mind: The theory of multiple intelligences. New York: Basic Books, 2011.

HAATAINEN, S. et al. A practice for providing additional support in CS1. In: Learning and Teaching in Computing and Engineering, 2013. Proceedings... IEEE, 2013. p. 178–183.

HAZAEA, A. N.; ALMEKHLAFY, S. S. A. Timed reading activity for developing EFL students' reading skills in mixed-ability classes. Learning & Teaching in Higher Education Gulf Perspectives, v. 18, n. 1, p. 49-61, 2022. DOI: https://doi.org/10.1108/LTHE-01-2021-0006.

HORDIINKO, N. M.; LOMAKINA, L. V. Teaching EFL to Mixed-Ability Classes: Strategies, Challenges, and Solutions. Advanced Education, n. 3, p. 38-42, 2015. DOI: https://doi.org/10.20535/2410-8286.44198.

HWANG, G.; ZOU, D.; LIN, J. Effects of a multi-level concept mapping-based question-posing approach on students' ubiquitous learning performance and perceptions. Computers and Education, v. 149, 103815, 2020. DOI: https://doi.org/10.1016/j.compedu.2020.103815.

INDI, T. S. An Experience Report of Flipped Classroom Strategy Implementation for Java Programming Course. In: IEEE 18th International Conference on Technology for Education (T4E), 2016. Proceedings... IEEE, 2016. p. 240–241.

IYER, M. S. Flipped English as a Second Language (ESL) Classroom Approach to Scaffold the Slow Learners. Language in India, v. 19, n. 2, 2019.

KHAMDAMOVNA, M. U.; KARIMOVNA, K. S. The problem of teaching English in mixed ability classes. Еости Жения науки и образования, v. 5, n. 59, p. 40–41, 2020.

KHAN RANA, A. M. et al. Classroom practices for slow learners in the Punjab, Pakistan. Journal of the Research Society of Pakistan, v. 58, n. 1, p. 159, 2021.

KNUTAS, A. et al. The Flipped Classroom Method: Lessons Learned from Flipping Two Programming Courses. In: International Conference on Computer Systems and Technologies, 2016. Proceedings... ACM, 2016. p. 423–430.

KOTHIYAL, A. et al. Effect of think-pair-share in a large CS1 class: 83% sustained engagement. In: ACM conference on International Computing Education research, 2013. Proceedings... ACM, 2013. p. 137–144.

REVISTA TÓPICOS EDUCACIONAIS
Revista do Programa de Pós-Graduação em Educação
da Universidade Federal de Pernambuco (UFPE)

KOUTSELINI, M. Towards a meta-modern paradigm of curriculum: Transcendence of a mistaken reliance on theory. Educational Practice and Theory, v. 28, n. 1, p. 55–68, 2006.

LEVYKH, M. G. The affective establishment and maintenance of Vygotsky's zone of proximal development. Educational Theory, v. 58, n. 1, p. 83-101, 2008.

LOCKWOOD, K.; ESSELSTEIN, R. The inverted classroom and the CS curriculum. In: ACM symposium on Computer Science Education (SIGCSE), 2013. Proceedings... ACM, 2013. p. 113–118.

MAGABLEH, I.; ABDULLAH, A. The effect of differentiated instruction on developing students' reading comprehension achievement. International Journal of Management and Applied Science (IJMAS), v. 5, n. 2, p. 48-53, 2019.

MAGABLEH, I. S. I.; ABDULLAH, A. On the Effectiveness of Differentiated Instruction in the Enhancement of Jordanian Students' Overall Achievement. International Journal of Instruction, v. 13, n. 2, p. 533–548, 2020. DOI: https://doi.org/10.29333/iji.2020.13237a.

MAHER, M. L. et al. Flipped classroom strategies for CS education. In: ACM symposium on Computer Science Education (SIGCSE), 2015. Proceedings... ACM, 2015. p. 218–223.

MAVIDOU, A.; KAKANA, D. Differentiated instruction in practice: Curriculum adjustments in kindergarten. Creative Education, v. 10, p. 535-554, 2019. DOI: https://doi.org/10.4236/ce.2019.103039.

MOHAMED, A. Designing a CS1 programming course for a mixed-ability class. In: Western Canadian Conference on Computing Education (WCCCE'19), 2019. Proceedings... p. 1–6.

MOHAMED, A. Evaluating the effectiveness of flipped teaching in a mixed-ability CS1 course. In: The 20th ACM Conference on Innovation and Technology in Computer Science Education (ITiCSE'20), 2020. Proceedings... p. 452–458.

MOHAMED, A. Teaching highly mixed-ability CS1 classes: A proposed approach. Education and Information Technologies, v. 27, n. 1, p. 961-978, 2022. DOI: https://doi.org/10.1007/s10639-021-10546-8.

NADDAFI, F.; VOSOUGHI, M.; KOWSARY, M. A. Inspecting mixed-ability group challenges within Iranian EFL public high schools: An exploratory study. International Journal of Foreign Language Teaching and Research, v. 7, n. 27, p. 125–145, 2019.

PRASAD ADHIKARY, R. An analysis of the challenges and strategies of English language teachers in teaching mixed-ability classes: A qualitative inquiry. Revista Multi-Ensayos, v. 9, n. 18, p. 3-20, 2023. DOI: https://doi.org/10.5377/multiensayos.v9i18.16427.

RAHMAN, M. Teaching English Language to the Mixed-ability Classes at the HSC Level in Bangladesh: Challenges and Probable Solutions. International Journal of Ethics in Social Sciences, v. 6, n. 1, p. 29-50, 2018. Available at: http://www.crimbbd.org/wp-content/uploads/2018/12/6.1.3a.pdf.

RAZA, K. Differentiated instruction in English language teaching: Insights into the implementation of Raza's teaching adaptation model in Canadian ESL classrooms. TESL Ontario Contact Magazine, v. 46, n. 2, p. 41-50, 2020.

ROBERTS, J. The 'more capable peer': Approaches to collaborative learning in a mixed-ability classroom. Changing English, v. 23, n. 1, p. 42–51, 2016.

ROGERS, J.; REVESZ, A. Experimental and quasi-experimental designs. In: The Routledge Handbook of Research Methods in Applied Linguistics. New York: Routledge, 2020. DOI: 10.4324/9780367824471-12.

SAILAJA, S. S. ELT in Mixed Ability Classrooms - Teacher Challenges and Strategies in the Rural Context. International Journal of Academic Research, v. 5, n. 11, 2018. Available at: http://ijar.org.in/stuff/issues/v5-i11/v5-i11-a004.pdf.

SCHOONENBOOM, J. The multilevel mixed intact group analysis: A mixed method to seek, detect, describe, and explain differences among intact groups. Journal of Mixed Methods Research, v. 10, n. 2, p. 129–146, 2016.

SEBIHI, A. Strategizing teaching: Differentiated teaching style and learning brain. EPRA, v. 4, n. 12, p. 115-118, 2016.

SEVY, J. Teaching a large multi-level class using different strategies and activities to motivate English language learning. Studies in English Language and Education, v. 3, n. 2, p. 91-99, 2016. DOI: https://doi.org/10.24815/siele.v3i2.4934.

SONERIU, C. A. Classroom management in large and mixed ability classes. RATE Issues, v. 30, n. 2, 2024. DOI: https://doi.org/10.69475/RATEI/2023.2.8.

SUPRAYOGI, M. N.; VALCKE, M.; GODWIN, R. Teachers and their implementation of differentiated instruction in the classroom. Teaching and Teacher Education, v. 67, p. 291-301, 2017.

TOMLINSON, C. A. The differentiated classroom: Responding to the needs of all learners. Alexandria: ASCD, 2014.

TOMLINSON, C. A. Teaching for excellence in academically diverse classrooms. Society, v. 52, n. 3, p. 203-209, 2015.

REVISTA TÓPICOS EDUCACIONAIS
Revista do Programa de Pós-Graduação em Educação
da Universidade Federal de Pernambuco (UFPE)

TOMLINSON, C. A. How to differentiate instruction in academically diverse classrooms. 3. ed. Alexandria: Association for Supervision and Curriculum Development (ASCD), 2017.

WATTS-TAFFE, S. et al. Differentiated instruction: Making informed teacher decisions. The Reading Teacher, v. 66, n. 4, p. 303-314, 2012.

WESELBY, C. What is differentiated instruction? Examples of how to differentiate instruction in the classroom. 2014. Available at: https://education.cuportland.edu/blog/classroom-resources/examples-of-differentiated-instruction/.

WROBLEWSKI, B.; MAJEROVA, M. Teaching strategies and techniques in mixed-ability classes. CASALC Review, v. 9, n. 2, p. 31, 2019. DOI: 10.5917/CASALC2019-2-3.

YUNUSOVA, A. A. Strategies for teaching in mixed ability classes. Международный академический вестник, n. 1, p. 34–35, 2019.

ZAKARNEH, B.; AL-RAMAHI, N.; MAHMOUD, M. Challenges of teaching English language classes of slow and fast learners in the United Arab Emirates universities. International Journal of Higher Education, v. 9, n. 1, p. 256, 2020. DOI: https://doi.org/10.5430/ijhe.v9n1p256.

ZHANG, J. et al. Investigating the influencing factors of teachers' information and communications technology-integrated teaching behaviors toward 'Learner-centered' reform using structural equation modeling. Sustainability, v. 13, n. 22, 12614, 2021. DOI: https://doi.org/10.3390/su132212614.

ZHUO, L.; QI-XIAN, G. The Application of Hybrid Flipped Classroom in the Course of Java Programming. In: 7th International Conference on Information Technology in Medicine and Education (ITME), 2015. Proceedings... IEEE, 2015. p. 637–641.