

EFFECTIVENESS OF COLD CALLING ON STUDENTS' BEHAVIOR AND PARTICIPATION DURING CLASS DISCUSSIONS – PUNISHMENT OR OPPORTUNITY TO SHINE

EFICÁCIA DA CHAMADA FRIA NO COMPORTAMENTO E PARTICIPAÇÃO DOS ALUNOS DURANTE AS DISCUSSÕES EM SALA DE AULA – PUNIÇÃO OU OPORTUNIDADE DE BRILHAR

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ABSTRACT

Pedagogical objectives and the nature of the course content may lead instructors to take varied approaches to selecting a student for the cold call, specifically in a studio setup where students work on different projects independently and show progress work time to time at scheduled critiques. Cold-calling often proves to be an effective tool in eliciting a response without enforcing judgment onto the recipients. While there is a mixed range of behavior exhibited by students who are cold-called, a classification of responses from anxiety-provoking to inspiring may be elicited; there is a need for a greater understanding of utilizing the exchanges in bringing about fruitful and engaging outcomes of studio discussions. This study aims to unravel the dimensions of utilizing the cold-call approach in a didactic exchange within studio pedagogy. A questionnaire survey was conducted in an undergraduate class at Arts and Design School. The impact of cold calling on students' participation was determined through various parameters, including course choice, participation frequency, students' comfortability, and teaching methodology. After analyzing the surveys, specific classroom teachers were interviewed to provide a qualitative perspective of the faculty. It was concluded that cold-calling increases students' participation frequency and also increases preparation for class. Around 67% of students responded that teaching methods play an important role in learning activities and students' participation during class discussions. 84% of participants agreed that cold calling is an effective way of learning. According to research, cold-calling can be done in large numbers without making students uncomfortable. As a result, the findings of this study support the use of this instructional method to encourage more students to participate in class discussions.

Keywords: Active learning, Class discussion, Class participation, Cold calling, Pedagogical methods, Student engagement.

RESUMO

Objetivos pedagógicos e a natureza do conteúdo do curso podem levar os instrutores a adotar abordagens variadas para selecionar um aluno para a chamada fria, especificamente em uma configuração de estúdio onde os alunos trabalham em diferentes projetos de forma independente e mostram o progresso do trabalho de tempos em tempos em críticas programadas. A chamada fria geralmente se mostra uma ferramenta eficaz para obter uma resposta sem impor julgamento aos destinatários. Embora haja uma gama mista de comportamentos exibidos por alunos que são chamados a frio, uma classificação de respostas de provocadoras de ansiedade a inspiradoras pode ser obtida; há uma necessidade de uma maior compreensão da utilização das trocas para trazer resultados frutíferos e envolventes de discussões de estúdio. Este estudo visa desvendar as dimensões da utilização da abordagem de chamada fria em uma troca didática dentro da pedagogia de estúdio. Uma pesquisa por questionário foi conduzida em uma classe de graduação na Arts and Design School. O impacto da chamada fria na participação dos alunos foi determinado por meio de vários parâmetros, incluindo escolha do curso, frequência de participação, conforto dos alunos e metodologia de ensino. Após analisar as pesquisas, professores específicos da sala de aula foram entrevistados para fornecer uma perspectiva qualitativa do corpo docente. Concluiu-se que a chamada fria aumenta a frequência de participação dos alunos e também aumenta a preparação para a aula. Cerca de 67% dos alunos responderam que os métodos de ensino desempenham um papel importante nas atividades de aprendizagem e na participação dos alunos durante as discussões em sala de aula. 84% dos participantes concordaram que a chamada fria é uma forma eficaz de aprendizagem. De acordo com a pesquisa, a chamada fria pode ser feita em grandes números sem deixar os alunos desconfortáveis. Como resultado, as descobertas deste estudo apoiam o uso deste método instrucional para encorajar mais alunos a participarem das discussões em sala de aula.

Palavras-chave: Aprendizagem ativa, Discussão em sala de aula, Participação em sala de aula, Chamada fria, Métodos pedagógicos, Envolvimento do aluno.

Introduction

The process of teaching and learning in the classroom setting is a complex, multifaceted, and socially oriented phenomenon. Simultaneous occurrences demand rapid interpretation and assimilation by both educators and learners (Diananugeraheni & Zendrato, 2022). The act of teaching is not a unidirectional transmission of knowledge, as the learner employs an equal influence in the learning process as of the teacher. While the instructor undoubtedly holds a crucial responsibility in establishing a pertinent classroom atmosphere for students. The acquisition of knowledge is ultimately contingent upon the individual student's social and psychological behaviors and reactions (Diananugeraheni & Zendrato, 2022). The primary determinant of a student's educational outcomes is their cognitive approach to classroom activities, which encompasses their perception, analysis, processing, and comprehension rather than the actions of the teacher. When drawing inferences based on the analysis of student performance, it is imperative for educators and external evaluators to exercise prudence, whether in a formal or informal setting (Moser et al, 2022). The subjective viewpoints of students, encompassing their perceptions, opinions, and intuitions, may diverge considerably from the objective observations of an external observer. The assessment outcomes of a student, as exemplified by an evaluation framework, may exhibit notable disparities from the teacher's perspective, owing to the fact that students possess the capability to respond to queries and surmount challenges through diverse approaches (Moser et al, 2022).

The prevalence of diverse theoretical perspectives and educational philosophies in classrooms can be attributed to the intricate nature of the respective fields. The presence of varied perspectives enhances our comprehension of pedagogical practices and educational acquisition (Mahdikhani et al., 2016). However, it also challenges the notion of a universally ideal classroom encounter for every student. Divergent philosophical assumptions regarding education and human existence give rise to varying criteria for curriculum and classroom practices. Certain dissimilarities have persisted across generations, and the debate

surrounding them will probably endure (Mahdikhani et al., 2016). However, in recent times, there has been an improved understanding of the intricacies and multifaceted nature of classroom instruction and education. Research has shown that active participation in classroom activities benefits both teachers and students.

However, a considerable number of students show reluctance in participation and engage themselves in class discussions. There is a need to broaden the definition of class participation to include other forms of engagement and for instructors to identify strategies to facilitate the process of students as they learn to use their voice (Orwat et.al, 2017). Educators have been encouraged to utilize tactics that actively engage students in the teaching-learning process for more than 20 years by educational philosophers and practitioners. The objective of this study is to compare the perceptions and behaviors of design students in response to a conventional instructional method known as "cold calling."

Literature Review

The acquisition of knowledge through questioning and participation is historically rooted in the Socratic method of inquiry. The notion of learning is reflective in nature and encompasses engagement, interaction and introspection. Classroom discussions, considered the cornerstone of "active learning", embody these principles (Lisdawati, 2024). Conversely, educators often express apprehension regarding students who exhibit a lack of enthusiasm in participating voluntarily during classroom discourse.

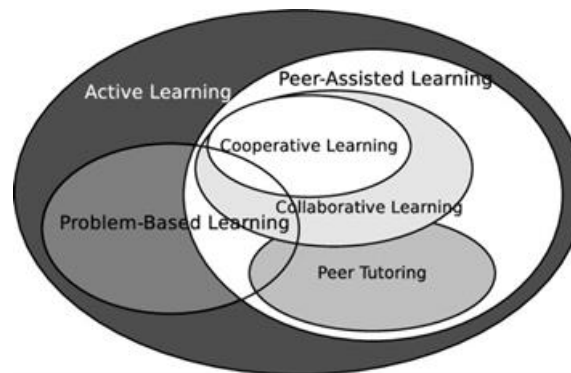


Fig. 1 Venn diagram of several student-centered learning theories and methods (Bishop, J., & Verleger, M. A, 2013)

Research has shown that various strategies can be employed to promote class participation, such as fostering a favorable classroom atmosphere for group discussions. Rocca, (2010) introduce them with activities that facilitates peer-to-peer interactions establishing a physical setting that encourages collaborative engagement. Implementing class activities that incentivize participation and incorporating class participation as a component of the grading system (Rocca, 2010). In addition to contemporary classroom practices, there exist traditional approaches such as cold calling, the instructor offering questions or prompts to stimulate discourse or opinions, and group discussions.

The practice of Cold-Calling involves the instructor randomly calling on students as a means of enhancing their participation in class. There is an emerging literature on cold-calling that investigates the relationship between instructor cold-calling and student participation. First, when students were asked what instructors do or say that (a) improves the level of student engagement and (b) improves the effectiveness of the conversation, cold-calling was a common motif in their responses to both questions (Lisdawati, 2024). The practice of Cold-calling is considered to enhance the number of students participating in classroom discussions. Cold-calling refers to any situation in which a teacher calls on a student at random who is generally shy and hesitant to participate in the class discussion. However, Cold-Calling as a technique has been seen to be particularly disadvantageous for students who are shy, anxious, or come from different cultural backgrounds (O'Connor, 2013). Despite the fact that cold-calling may engage more students in the debate, some professors are opposed to the idea because they are

concerned that a student who is cold-called may feel uncomfortable, if not humiliated. Student responses, however, suggest that this may not necessarily be the case (Souza et al., 2010).

(Kay, 2018) reported a quote of his student in his book, *Not Light but Fire*: *“Going to a class with a teacher that frequently cold-calls students is like preparing for war. My heart rate accelerates, and I break out in a cold sweat, even before the teacher asks a question... I am constantly fighting myself to stay in my seat, instead of making an exit by way of ‘going to the bathroom’ or whatever excuse will get me out of the classroom and out of the pool of victims that the teacher is at leisure to call on at any moment.”.*

compared student participation in classes with and without cold-calling and here’s what they found: “The percentage of students who participate in class discussions increases quite dramatically from just more than half in low cold-calling sections to just more than 90% in high cold-calling sections.”

It is imperative for reticent students to recognize that educators value their contributions and opinions, not solely those of the more vocal individuals. Students need to be aware of the fact that their ideas are highly valued by their teachers. It is important to communicate to students that our classrooms provide a secure environment for such purposes. Active learning has long been promoted as an educational technique that stimulates student collaboration in the teaching-learning process. One of the most common types of active learning is discussion teaching. Students can practice and improve fundamental skills including organizing thoughts, forming arguments, analyzing evidence, and reacting thoughtfully and critically through discussion (Ballen, 2020). (Aguillon et al, 2020) elicits higher level reflective thinking. Through participation in discussion, students are better able to retain information and to learn more. Several explanations have been proposed for why students who participate in discussion learn more. Reference suggest more learning occurs, since it is easier to assimilate explanations from knowledgeable peers and disagreements/misunderstandings can be handled during group discussions.

As any classroom teacher knows, not all students are equally likely to participate voluntarily. Although some reticence may be because of learning styles, (Dallimore et al., 2010) suggest a broad-based relationship between participation and learning. This study demonstrates that the frequency of class engagement is positively correlated with learning and that student participation in class fosters learning.



Fig. 2: Voluntarily class participation during design studio session

Consequently, non-participation of students in classroom discussions may lead to a reduction in their learning outcomes, as well as the learning outcomes of their peers. Numerous methodologies have been proposed to enhance the level of student engagement, particularly in a voluntary capacity. It has been noted that it is important for instructors to set clear expectations about participation to provide feedback and evaluation rubrics encourage all students to participate. Others have noted specific techniques such as study questions and response logs or assigning roles in discussion. More recently, there have been references to using technology to increase student participation in discussion—including clickers, online discussions, or even online course delivery. Although any of these approaches may help involve some students who are reluctant participants, they do not resolve this problem entirely. Some students may have developed adequate classroom discussion skills, while others may not. Students who have not previously engaged in discussions may possess adequate knowledge and readiness for the course, yet

they may exhibit reluctance or incapacity to participate actively owing to *Fig. 2* Voluntarily class participation during design studio session insufficiently honed discussion abilities. Since higher frequency of participation in class discussions has been linked to comfort during discussions (Dallimore et al., 2010) Educators may be required to involve these less motivated students in the discussion, even if it is not voluntary, to facilitate their participation and foster a sense of ease in volunteering.

The caliber of students or professors involved in the exchange has little relevance on the impact of class size and opportunity on interaction and involvement. It is unrealistic to expect all or even most students in a big chunk of an introductory course to participate and cover even a small fraction of the content. This, in turn, encourages the consolidation of responsibility with a high enrollment facilitate greater anonymity, allowing students the chance to occupy distant seating and enabling the majority to depart strategically. Within a classroom setting, a hierarchy and division of class structure may emerge consisting of the "excellent ones" who actively participate, the "silent ones" who demonstrate attentiveness but rarely contribute, and the "bad performers" that take part sporadically and exhibit inattentiveness through activities such as sleeping, reading the news, or engaging in casual conversation. Conversely, reduced class sizes not only facilitate overall student engagement but also decrease the likelihood of passive disengagement. Further, greater opportunities for student participation are likely to prevail. Several studies support the view that class size negatively affects participation, as larger classrooms tend to increase students' anxiety regarding participation due to fears of instructor criticism and peer disapproval (Hennink et al., 2020; Aguilon et al., 2020). The sheer number of students may also limit opportunities for individual engagement, making large class sizes a perceived barrier to active involvement (Eddy et al., 2014). These findings suggest that both the physical size of the class and the psychological pressures associated with it contribute to reduced student participation.

Methodology

Research Design

The research design involved gathering data at random design studios of two faculty i.e., industrial design and architecture at a public sector university in Pakistan. Out of 06 studios of diverse design studio courses in which 450 students who were enrolled in their junior, senior and final year level, 159 participated in the voluntary survey. To ensure the confidentiality of the participants, they were asked to refrain from disclosing any personal details such as names, student identification numbers, and email addresses. Data were gathered using a survey administered to students and observations of class discussions for each level for each design studio. Before data collection, the students were provided with a briefing regarding the purpose of the survey form, and that the study is exclusively intended for research purposes, pertaining to the voluntary participation of students during class discussions. The study integrates quantitative data with qualitative insights obtained from interviews, classroom observations, and student questionnaires in order to comprehend the impact of cold calling on the educational experience. Following the analysis of surveys, teachers from particular classrooms were interviewed to obtain a qualitative viewpoint of the faculty.

Course

This research was conducted in the undergraduate major field courses required for the BS in Industrial Design and Architecture degree at a large, public-sector university in Pakistan. These courses are taught in a regular mode face to face, not as distant learning, online. The courses and student levels were selected because it has different competency level taught by multiple instructors each year, and a similar studio practice for conducting projects based on the course learning objectives. Although the sections are not identical because of individual differences in instructional style between instructors, all sections share common pedagogical elements such as course outlines, course learning outcomes projects and, slides for lectures, cases, final exam, and so on. Pedagogy includes case discussions, written

case analyses, small-group problem solving, lectures, team projects, and student presentations. Data were gathered from 6 design major field courses in the spring semester. The course meets three times a week as a general practice within a design studio courses that allow students to engage in a theoretical lecture for only about 90-minute sessions for a total of about 8 sessions among 4 months. There were approximately 40 students in each section and attendance was required.

Data

The voluntary survey was used to gather data on student opinions and perceptions about class discussions. Relevant teachers were interviewed to provide a qualitative perspective of the faculty.

Surveys

The purpose of the survey was to investigate the effects of cold calling on students' attitudes and behaviors related to class participation. To avoid biasing students, it did not mention cold-calling or calling on students whose hands were not raised. The survey stated, "We are conducting a study on class discussion and student learning to help faculty understand approaches that lead to student learning so they may become more effective teachers." Fig. 3 shows the flow chart for current research. Cold-calling per se, it asked whether the professor had called on students whose hands were not raised in this course, and, if so, the effect on the overall discussion and the respondent's preparation. The appendix lists questions analyzed in this study. Students responded to these questions using a 5-point Likert-type scale. They also provided their gender.

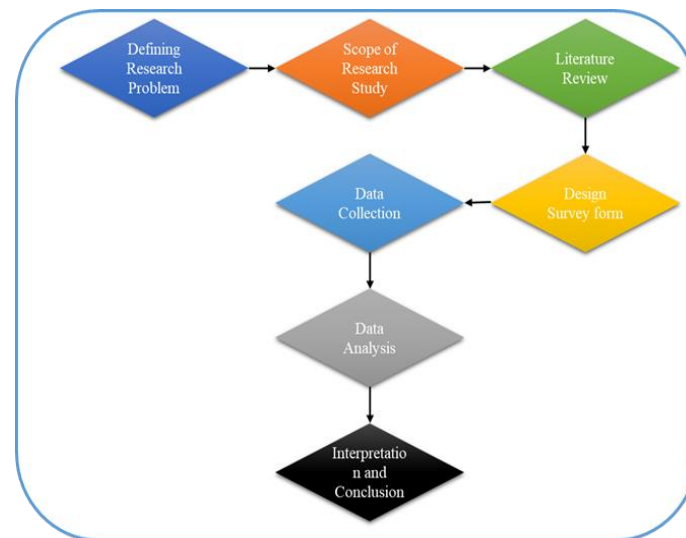


Fig. 3 Flow Diagram of Research Methodology

Data Collection

The data was collected through a questionnaire survey that was distributed among the four sessions of the undergraduate art and design course. The course is delivered through a face-to-face teaching approach. The sample comprised a total of 159 generated responses. To ensure the confidentiality of the participants, they were asked to refrain from disclosing any personal details such as names, student identification numbers, and email addresses. Before data collection, the students were provided with a briefing regarding the purpose of the survey form, and that the study is exclusively intended for research purposes, pertaining to the voluntary participation of students during class discussions. The students’ responses to the questionnaire survey were recorded on a five-point Likert scale.

Data Analysis

Descriptive statistical analysis was carried out on participants' responses. Different variables were measured from participants including attendance, course choice, participation frequency in voluntarily class discussion, and teaching methodology.

Results and Discussions

A total of 159 responses were obtained via a questionnaire survey to collect data. The survey results indicate that the majority of participants, specifically 79%, were female students, while the remaining 21% were male students. A significant number of students, specifically 75%, demonstrated a personal inclination towards the chosen course. Additionally, approximately 19% of students cited limited options during the enrollment process as the reason for selecting the particular course. According to the survey results, a majority of students, specifically 6.4%, reported consistent voluntary participation in class discussions. In contrast, a minority of students, specifically 2.5%, indicated that they never engage in in-class discussions. 44.6% of students said they occasionally participate in class discussions, and 31% said they frequently participate. The results also indicated that 75% of students reported a positive attitude towards class discussions and expressed their willingness to actively engage in conversations during class debates. The higher number of students participating in classroom discourse suggests that students engage in such discourse voluntarily and derive satisfaction from expressing their perspectives and opinions during instructional sessions.

Factors influencing the students' participation in learning activities

Gender

Among the most important factors influencing class participation is the gender of students which indicates either student will participate or not in learning activities. Various researchers conducted studies and reported their findings, (Aguillon et al., 2020), Hennink et al., 2020) and (Eddy et al., 2014) found that males were overrepresented in voluntary responses, especially after small-group discussions.

(Hennink et al., 2020) conducted research and a qualitative study to compare male and female oral participation and exam performance. On average, 32 percent of males and 22 percent of females orally participated at least once throughout class,

according to the researchers. Males were more likely to be classified as "talkers," which means they engaged verbally more than once. (Eddy et al., 2014) reported similar results when measuring and comparing participation by gender in 23 sections of two introductory biology courses and it was concluded that "despite the fact that females make up 60% of the students in these courses, their voices make up less than 40% of those heard responding to instructor-posed questions to the class," Fig. 4 depicts the comparison of male and female students' participation during learning activities. It can be observed that participation percentage of male students is more as compared to the female students, whilst fig. 4 shows the comfortability comparison of male and female students. the male students. The male students showed more comfortability and showed more encouraging and initiative response within class.

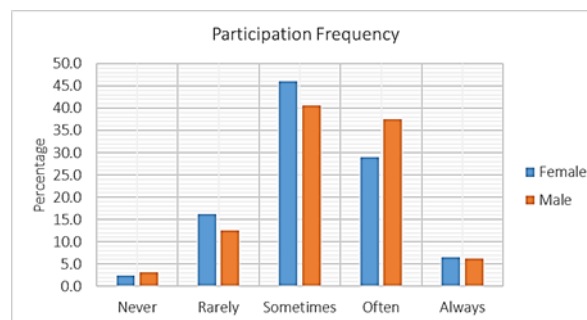


Fig. 4: Participation frequency of male and female students

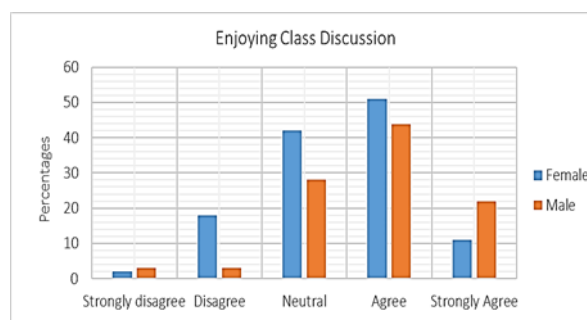


Fig. 5: Response comparison of male and female students in class participation

Teaching Methods and Course Contents

Teaching methods refer to standard procedures for delivering course content and structuring teacher-student engagement within a given instructional session. Teaching methods can be categorized into two main types: direct and indirect

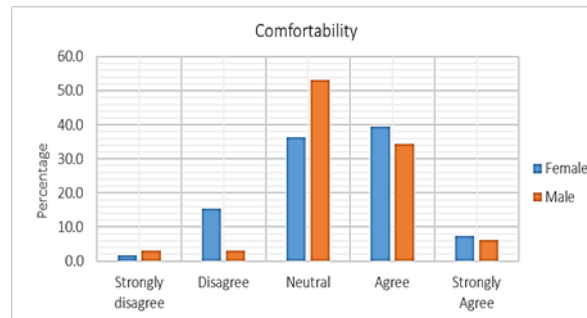
teaching methods. The direct teaching approach is characterized by a teacher-centered approach, where the instructor takes an active role while the learners remain passive. This communication is unidirectional, with the teacher serving as the source of information and the learner as the passive recipient, lacking opportunities for contribution. In contrast to student-centered methods, many teaching practitioners in the conventional epoch used teacher-centered ways to convey knowledge to students. Questions about the effectiveness of teaching methods on student learning have sparked a lot of interest in the field of educational research up to now.

Regarding the engagement and participation during the class discussion, 67.5% students responded that teaching method of instructors is one of the major factors which develop their interest of voluntarily participation during class discussions, 29% replied that instead of teaching method, course content is the main factor for them which develop their interest in class participation. Furthermore, the participants were asked about the reasons why they chose this course. 75% of students responded that they chose this course because of their personal interest and course contents.

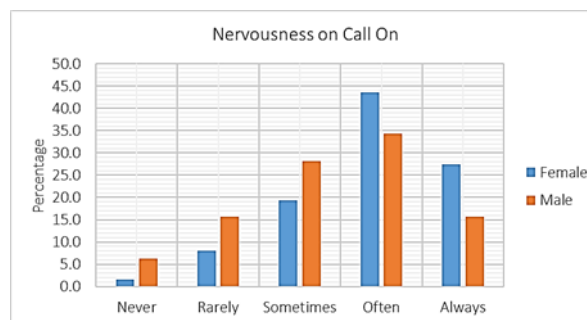
Effect of cold calling of students' behavior

The question on how call-on affects the behavior and comfortability of students is of great interest. 24% of students said they feel nervous and uncomfortable when teachers ask them for their opinions and comments during class discussion, whereas only 12% responded that they never felt uncomfortable and nervous during the class discussions. Fig. 6a and fig. 6b present the students' behaviors during the class participation and call on activity. As compared to the female students, male participants showed more comfortability and voluntarily participation in class discuss and learning activities.

Moreover, 84% students agreed that class discussion and cold calling is an effective way of learning, and it gives more exposure to those who do not participate voluntarily, and they replied that instead of lectured format, the discussion formats or active leaning methodology is more helpful and effective.



(a)



(b)

Fig. 6: a & b: Comparison of male and female students' behavior during cold calling

D: Qualitative Overview

The study also investigates the pedagogical strategy of cold-calling aiming to increase engagement, participation, and attentiveness in classrooms through a qualitative analysis which examines its impact on student behavior, learning outcomes, and classroom dynamics. Using a mixed-methods approach, the research combines quantitative data with qualitative insights from interviews, classroom observations, and student surveys to understand cold-calling's influence on the educational experience.

Student engagement is substantially improved by cold-calling. Students reported that the unpredictable nature of being summoned helped them remain more attentive and prepared. Nevertheless, individuals who experienced anxiety or low self-confidence experienced tension and discomfort, which occasionally resulted in a superficial level of engagement with the material. Cold calling fosters active learning, which enhances critical thinking skills and information retention. Reinforcing knowledge and identifying voids in comprehension are facilitated by the act of articulating thoughts. For effective cold calling, the instructor's role in

delivering positive feedback is essential. Negative responses can hinder participation and learning. Cold calling has the potential to cultivate a more interactive and inclusive learning environment, which in turn encourages the exchange of diverse perspectives and in-depth discussions. Nevertheless, it can also foster a hierarchical environment in which students feel judged, which can impede the flow of discussions and make students hesitant to share their ideas.

Conclusions

The primary objective of this study was to conduct a comparative assessment of the behavior and opinions of students in a scenario involving cold calling. Educators implemented their pedagogical approach, which encompassed the frequency and quantity of students being cold-called. The identification of key characteristics aimed at comprehending the underlying motivations that drive students to participate in classroom discussions could potentially enhance a teacher's ability to effectively manage their classroom. The study has yielded valuable insights into the factors that drive individuals to participate in classroom discussions. Educators can develop tactics and employ appropriate methodologies to establish a classroom that is receptive to students' needs based on this understanding. The objective of enhancing student engagement within academic settings is a commonly pursued aim among educators. Research has shown that cold-calling can increase voluntary participation among male and female students in academic environments. According to this study, cold-calling is an approach that could be useful in preparing students for the next step in their schooling. The clear conclusion for teachers is that cold-calling is a means to get more students to participate more actively in class discussions, and that it can be done without making them feel uncomfortable. It was revealed in this study that cold-calling enhances students' engagement frequency and comfort level, as well as some indication that it improves class preparation. Furthermore, it allows students to express their opinions and remarks during class discussions. As a result, cold-calling raises the levels of elements that have previously been linked to improved learning.

Faculty Observations

The faculty members who have used cold calling into their courses have noted both the advantages and the challenges of this method. Although cold calling has the potential to invigorate a classroom and enhance student participation, it must be implemented with caution to prevent students from feeling excluded or demotivated. Certain students, especially those who experience anxiety or lack confidence, have acknowledged feeling pressured and uneasy when unexpectedly asked to participate. This stress can occasionally hinder their capacity to concentrate on the content, resulting in a shallower involvement with the subject matter. The faculty also acknowledges the significance of their responsibility as educators in establishing a nurturing atmosphere. The effectiveness of cold calling relies significantly on the management of answers and the provision of feedback. Positive reinforcement and constructive criticism enhance students' sense of worth and motivation, whereas negative or dismissive reactions might impede their engagement and acquisition of knowledge.

In addition, the faculty has noted that cold calling might occasionally foster a hierarchical environment in which students see themselves being evaluated. This impression might impede open and unrestricted debates, causing students to be cautious about expressing their thoughts. Ultimately, the effectiveness of cold calling as an instructional approach hinges on the faculty's capacity to provide a conducive and encouraging classroom atmosphere. To maximize the benefits of this strategy and provide an inclusive and engaging learning experience for all students, it is important to use it wisely and with attention to their requirements.

REFERENCES

- Aguillon, S. M., Siegmund, G. F., Petipas, R. H., Drake, A. G., Cotner, S., & Ballen, C. J. (2020). Gender differences in student participation in an active-learning classroom. *CBE—Life Sciences Education*, 19(2), ar12.
- Bishop, J., & Verleger, M. A. (2013, June). The flipped classroom: A survey of the research. In *2013 ASEE annual conference & exposition* (pp. 23-1200).
- Dallimore, E. J., Hertenstein, J. H., & Platt, M. B. (2010). Class participation in accounting courses: Factors that affect student comfort and learning. *Issues in Accounting Education*, 25(4), 613-629.
- Dallimore, E. J., Hertenstein, J. H., & Platt, M. B. (2013). Impact of cold-calling on student voluntary participation. *Journal of Management Education*, 37(3), 305-341.
- Diananugeraheni, P., & Zandrato, J. (2022). Class Discussions to Improve Students' Active Participation in A Christian School During Online Learning. *SANCTUM DOMINE: JURNAL TEOLOGI*, 11(1), 115-130.
<https://doi.org/10.46495/sdj.v11i1.125>
- Eddy, S. L., Brownell, S. E., & Wenderoth, M. P. (2014). Gender gaps in achievement and participation in multiple introductory biology classrooms. *CBE—Life Sciences Education*, 13(3), 478-492.
- Hennink, M. M., Kaiser, B. N., & Marconi, V. C. (2017). Code saturation versus meaning saturation: how many interviews are enough?. *Qualitative health research*, 27(4), 591-608.
- Hightower, A.M., Delgado, R.C., Lloyd, S.C., Wittenstein, R., Sellers, K. and Swanson, C. (2011). Improving student learning by supporting quality teaching. 3, 14.
- Aguillon, S. M., Siegmund, G.-F., Petipas, R. H., Drake, A. G., Cotner, S., & Ballen, C. J. (2020). Gender differences in student participation in an active-learning classroom. *CBE—Life Sciences Education*, 19(2), ar12.
- Kay, M. R. (2018). *Not light, but fire: How to lead meaningful race conversations in the classroom*. Stenhouse Publishers Portsmouth, New Hampshire.
- Lisdawati, I. (2024). EXPLORING DIVERGENT QUESTIONS AND COLD CALLING IN A CLASS DISCUSSION. *JELA (Journal of English Language Teaching, Literature and Applied Linguistics)*, 6(1), 34-43. <https://doi.org/10.37742/jela.v6i1.124>
- Mahdikhani, M., Hamzehloo, S., Shayestefard, M., & Mahdikhani, N. (2016). Student Participation in Classroom Discussions. *International Journal of Science and*

Research (IJSR), 5(6), 1422–1431. <https://doi.org/10.21275/v5i6.nov164514>

Moser, M., Reusser, K., Wischgoll, A., Pauli, C., & Zimmermann, M. (2022). Student's vocal participation trajectories in whole-class discussions during teacher professional development. *Learning, Culture and Social Interaction*, 34, 100633. <https://doi.org/10.1016/j.lcsi.2022.100633>

O'Connor, K. J. (2013). Class participation: Promoting in-class student engagement (report). *Education*, 133, 340–345

Orwat, J., Kumaria, S., Spira, M., Boyle, L., & Besinger, A. (2018). Class participation as a pedagogical tool in social work education. *Social Work Education*, 37(3), 361–377.

Rocca, K. A. (2010). Student participation in the college classroom: An extended multidisciplinary literature review. *Communication Education*, 59(2), 185–213.

Souza, T. J., Dallimore, E. J., Aoki, E., & Pilling, B. C. (2010). 13: communication climate, comfort, and cold calling: an analysis of discussion-based Courses at multiple universities. *To Improve the Academy*, 28(1), 227–249.