

## МЕНЭДЖМЕНТ

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### **LEARNING STYLES ISSUES ON STUDENT PERFORMANCE IN THE FLIPPED CLASSROOM**

**Abstract.** Many researchers point out that in the context of the digital transition, which is rapidly introducing all sectors of society, a flipped classroom is a necessary method to implement an outcome-based learning curriculum at the tertiary level to train prospective professionals who meet the needs of employers. Therefore, we believe that the basis for the successful introduction of learning is, firstly, to diagnose the student's learning style, and secondly, to determine the student's learning outcome in the 21st century based on 4Cs; being proficient communicators, creators, critical thinkers, and collaborators. By doing this, 41 second-year students from two different groups studying in Business Administration at Mandakh university were selected non-randomly and divided into three groups on the basis of their learning styles. The EFL learners' task performance is evaluated with the criteria (information and discovery, idea design, innovation, delivering an oral presentation, engaging in conversations and discussions) on the basis of 4Cs principles as variables. According to the data, Visual learners' critical thinking, Kinesthetic learners' creativity, and Audio learners' communication skills are dominant. Overall, we expect that the need for new pedagogical approaches in English classrooms to enhance students' essential skills in the 21st century, the flipped learning approach where the direct instruction in class-time and homework are reversed, has recently received significant attention from many language teachers, educators, and researchers. In today's academic world, one of the learning environments that have gained acceptance is the learning and teaching management system. A learning management system, also known as a virtual learning environment, course management system, or learning platform, is a collection of software tools and Web-based technology that support the organization, administration, delivery, monitoring, and management of online education and training programs as well as the evaluation of particular learning processes.

Keywords: **Visual Learner, Audio Learner, Kinesthetic Learner, 4Cs, Education Management, Student Engagement in Flipped-Learning.**

JEL Classification: A23; I21; I23.

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**Introduction.** An educational manager's role involves making sure that you are supporting teaching and learning, which means giving teachers the resources they need to do their jobs properly and reacting to student requirements. Thus, learning should typically be a collaborative effort between a subject-matter expert instructor and a learner. As a result, the learning process requires two fundamental activities: the teacher imparting knowledge and the student actively participating and learning (Amresh, Carberry, & Femiani, 2013). These two activities result in two main modes of instruction or pedagogical models, namely traditional and flipped classroom approaches. In a traditional pedagogical paradigm, knowledge is often imparted in the classroom through lectures, tutorials, and so on, while students are expected to engage by doing homework and assignments outside of the classroom, typically at their homes (Mason, Shuman, & Cook, 2013). The flipped learning, on the other hand, is an emerging pedagogical model in which direct instruction moves from the group learning to the individual learning space, transforming into a dynamic, interactive learning environment in which the educator guides students as they apply concepts and engage creatively in the subject matter according to Bergmann (Bergmann & Sams, 2014). In other words, the flipped learning is an instructional method that allows a teacher to provide a learning material explaining the key concept of the topic to students and leaving the class time for more activity engagement under the teacher's guidance (Milman, 2012). Students may take notes for their questions and bring issues to class for more clarifications while getting a deeper understanding during learning activities in class. What's more, it encourages students to use critical thinking, analysis, and collaboration increasing more active engagement and devoting class time to discussing topics, answering questions, and practicing exercises (Mehring, 2015). The lecture time can be used primarily for evaluating students' knowledge and the instructors have the responsibility of fostering active learning through interactive activities. As a result, this approach boosts students' engagement and performance (Stone, 2012).

In recent years, "flipped learning" has been a feasible solution that offers a new pedagogical tendency in the field of ESP (Zahra & Mohsen, 2021). Since the emphasis has shifted from traditional teacher-centered to learner-centered approaches, researchers and methodologists have focused on developing teaching styles and

strategies that correspond to the dominant learning styles of the learners. One of the most important discoveries in education about learning styles is that students in language classrooms have different profiles. Celcia-Murcia (2001) stated learning styles as the general approaches that students use when learning a new language or any other subject, such as global or analytic, auditory or visual (Gilakjani, 2011). Furthermore, Curry Lynn defines "A learning style is a consistent mode of operation that reflects the underlying causes of behavior". It refers to the general area of interest concerning individual differences in cognitive approach and learning process (Curry, 1983).

Gilakjani depicted (Gilakjani, 2012) learning styles with varying educational and cultural backgrounds, personalities, and learning experiences, everyone's approach to learning a foreign language differs, resulting in varying degrees of success. Walter Burke Barbe and his colleagues identified three learning methods in the 1970s, which are now commonly referred to as Visual, Auditory, and Kinesthetic) VAK (Millsaps, 2019). Some students are visual learners, while others are auditory or kinesthetic learners. While students use all of their senses to absorb information, they appear to have preferences in how they learn best. Visual learners think in pictures and learn best through visual images. They rely on nonverbal cues such as body language from the instructor or facilitator to aid comprehension. Visual learners sometimes prefer to sit near the front of the classroom. They also take descriptive notes on the material being presented.

To grasp a new concept, auditory students prefer to listen to a lesson, a lecture, a podcast, or any other type of audio. They remember something they have heard much better than something they have seen. Music, pronunciation, reading aloud, and conversation will be far more effective than a curriculum that consists solely of reading and quizzes (Millsaps, 2019). Individuals who are kinesthetic learners learn best through an active "hands-on" approach. Kinesthetic learners gain knowledge by doing. Teachers must teach as many of these preferences as possible to help students learn (Syofyan, 2018).

*Relevance of the Topic* – Technology's rapid advancements are causing profound changes, particularly in higher education, while simultaneously calling for a shift from traditional teaching strategies. Therefore, instructors and researchers need to continually study and learn from various learning approaches in order to

successfully meet the 4Cs which require students to share ideas, work with others, think systematically, and develop ideas using imagination or flexibility, respectively. A lot of research papers have been published on how to best solve these problems from the point of view of teaching because the results of e-learning during the previous pandemic showed to the world that every student faced difficult learning challenges like habits, methods, and attitudes during the learning process. As a result, there is an opportunity to share experiences. The primary issue with Flipped learning, say the research studies, is the increased workload that teachers must bear in order to address students' poor adaptability, even though Flipped learning has a positive impact on lowering cognitive load, boosting motivation, and improving independent learning ability. Therefore, The Flipped classroom should be used in higher education since it is very advantageous in developing 21st-century abilities that refers to an educational reform aiming to provide the necessary skills for every student.

**Problem** – Is there a relationship between learning style and 4Cs outcomes in flipped classrooms? Flipped learning makes it more likely that students' independent learning styles and their learning strategies are the key to a successful outcome, demonstrating their 4Cs in both online and offline sessions, starting with creativity, cooperation, critical thinking, and communication, as opposed to traditional learning, in which students readily receive teacher-assisted summaries of information.

**Research Objects** – The participants of this study are 41 second-year students from two different groups studying business administration at Mandakh University were chosen non-randomly and identified through their learning styles with a VAK test followed to prepare a presentation on a given topic by three teams; V1, A1, and K1.

**Research Aims** – This article aims to identify some of the skills that are developing more or less in each student's learning style and to recommend some of the pedagogical and learning approaches that can be suggested for the flipped classroom. The following tasks will be carried out in order to achieve this goal:

- 1) to identify students learning styles with a VAK test;
- 2) to instruct them to prepare a presentation by teams on the basis of VAK test results;
- 3) to evaluate the task performance by criteria of 4Cs principles;
- 4) to propose a methodology for a flipped classroom.

**Scientific contribution** – The findings posed to evaluate the impact of learning styles relatively with 4Cs on student performance in the flipped learning. This study details our efforts to

investigate the effects of students' chosen learning styles on performance in flipped pedagogy and to experimentally validate the impact of flipped classrooms on student performance.

**Practical significance** – Our research addresses the issues on students' performance in the flipped classroom, thus the results of the paper can be used by lecturers, educators, mentors, teachers, students and self-learners, especially if the classroom setting is digitally oriented. The 21st-century students are looking to improve their 4C skills, which the flipped classroom offers better than any other methodology. Thus, this paper can be used by educators and students to improve the efficiency of the flipped classroom.

**Research limitations** – Since there is little or any prior studies on this topic, we might have narrowed or formulated our research aims and objectives addressing the significant relationships between flipped learning and 4Cs or learning styles in relevance with 4C's so that the level of emphasis of the study could be increased.

**Literature review.** The findings of scholars implementing flipped pedagogy in their classrooms have reported the following benefits including students' performance (Bradford, Muntean, & Pathak, 2014), efficient time management in a class (Ziegelmeier & Topaz, 2015), student participation and engagement (DeSantis, Van Curen, Putsch, & Metzger, 2015) based on qualitative observation. Though, the contradictory results of flipped classroom efficiency on student performance were validated by a few researchers after quantitative confirmation: neutral (Mason, Shuman, & Cook, 2013), positive (Bradford, Muntean, & Pathak, 2014), and negative impact (Moffett & Mill, 2014). However, there is a lack of previous studies evaluating the impact of learning styles relatively with 4Cs on student performance in flipped learning.

### **The 21<sup>st</sup> century learning**

Modern science is shifting away from a subject-oriented approach and toward a problem-oriented one. Specialists from various fields combine their intellectual resources to solve problems. This contributes to out-of-the-box solutions to current problems. (Nadezhda) Nunan believes that such changes in teaching styles help students become more effective and dynamic learners and serve as the foundation for developing learner-centered approaches (Gulnaz, 2018).

The term "21st-century learning" refers to an educational reform that aims to provide every student with the necessary skills to face 21st-century challenges (Beetham & Sharpe 2013). It emphasized four key elements, which are known as the 4 C's: communication, collaboration, creativity, and critical thinking.

According to Urarat Parnrod (Parnrod, 2018) preparing various classroom activities for

diverse students is suggested based on 21st century skills learning. The concept of 21st century skills was developed in the United States in 2007 as an attempt to improve educational outcomes in order to prepare citizens of the United States for the demands of the twenty-first century workplace. The introduction of these skills has resulted in a fundamental shift in education's goals. As a result, numerous curriculum development plans and programs have been developed and implemented with the goal of integrating these skills (Saleh, 2019). However, some teachers have yet to fully grasp this concept and have chosen to continue teaching using outdated methods that do not benefit students (Tan Xin Yu, 2019). Critical thinking, communication, collaboration, and creativity are the four Cs skills that students need to fully participate in today's global community and put into classroom practice (Sohaya, 2020). All four of these items are required in a 21st-century classroom (Cooper, 2021).

The concept of critical thinking originated in the West, but it is now recognized as a necessary skill for 21st-century education worldwide. Critical thinking skills are important not only for professional success, but also for academic success. Critical thinking is a mental activity that involves formulating or solving problems, making decisions, understanding certain concepts, finding answers to questions, and finding relevant answers (Sohaya, 2020). Students who learn critical thinking develop other skills such as increased concentration, deeper analytical abilities, and better thought processing. Critical thinking abilities are a type of higher-order thinking ability. Students will become effective communicators, critical and dynamic thinkers, competent problem solvers, and experts in their fields as a result of gaining knowledge and demonstrating performance.

Collaboration is the second 21st century skill that has received a lot of attention in recent pedagogical theories and educational reforms. It implies a spirit of collaboration as well as a willingness to share responsibility and accountability. In the context of teaching and learning, it refers to students working together to achieve a common goal when each member has a role to play in completing tasks toward that goal (Saleh, 2019). Individual accountability is another important factor for successful collaboration. Every member should be personally responsible for performing his share and for helping others in completing their tasks. Promoting positive interaction among the members of the group through estimating each member's effort and praising achievements. This interaction can develop social skills of participating in discussions, challenging others' reasoning and conclusions and supporting and motivating others.

Since language is fundamentally a means of communication, and the primary goal of teaching and learning a language is to enable the learner to communicate in it, EFL classes have long been recognized as one of the most effective environments for enhancing students' communication skills. Communication in the context of 21st century skills, on the other hand, has a more complex dimension than it did in the 20th century. According to Miller (1996), communication remains the social glue that holds nations, corporations, scientific disciplines, and families together in the twenty-first century, and some aspects of communication, both oral and written, have not changed. Nonetheless, the growing adoption of new technologies such as video conferencing, multimedia, and internet technologies has dramatically altered communication in the twenty-first century. Communication is still defined as the ability to share ideas, as it was in the previous era (Pardede, 2020).

Another of the four Cs is creativity, in the classroom can mean a variety of things. Different learning styles are well-known to many teachers. Therefore, educators must be aware of these differences and implement a variety of activity types in the classroom in order to foster student creativity. Allowing students to be creative requires teachers to be adaptable and to provide students with options whenever possible. Finally, problem-solving activities in the classroom help to naturally develop creativity. Students are challenged to solve complex problems, and they are given the opportunity to think about the problem in novel and creative ways (Halvorsen, 2018).

4Cs which require students to share ideas, work with others, think systematically, and develop ideas using imagination or flexibility, respectively. As a result, assigning tasks that require students to work in groups or individually could be one way to serve students with different learning styles who have different preferences or characteristics while learning. While learning, different preferences or characteristics may emerge.

**Research methodology.** This study was conducted by diagnosing the learning style of the undergraduate 41 second-year students studying ESP at Mandakh University with a VAK test which is commonly used to classify learners' three aspects as visual, auditory, and kinesthetic. Students may not be able to fully agree with the final result, as all three answers to the VAK test can sometimes be chosen, and the teacher advised them to choose the most appropriate answer, noting that there are mixed versions of the VAK test. The students were divided into five groups A1, V1, and K1, K2, K3 with similar learning styles. Within the framework of the Professional English-2 course, a

video lesson with short text with instructor's explanation, listening, vocabulary and comprehension exercises, were posted in the Moodle training system. In order to complete this task, the teams were reminded to work as a team in the process of preparing a presentation on a given topic individually or as a group, seeking and processing the information from other sources, improving target language knowledge and skills, designing a presentation and deliver-

ing it. The performance of these 5 groups was assessed on a scale of 1 to 5 based on the criteria of working with information according to the 4C model, to measure how students differed in their creative, critical, collaborative, and communicative skills.

**Main results.** The table (1) shows that the students' responses: 19.5% Visual, 17% Auditory and 58.5% kinesthetic/tactile.

Table 1. Students Dominant Styles

Type of Learning Style	Students' Responses
Visual Learning Style	19.5%
Auditory Learning Style	17%
Kinesthetic/ tactile Learning Style	58.5%

On the scheduled day, 5 teams presented their presentations and scored 1-5 scales according to the criteria after 2 weeks studying individually and in groups according to their own learning styles. In addition, the results of the VAK test, which was used to test the information retrieval and processing attitudes of students in each of the three different learning styles, confirmed that their learning patterns were similar. For example, the following results were obtained from the list of actions to be taken when learning something. The table compares the selected actions from the list with the most frequency.

The figures in the table 3 below show that the V1 group received the highest scores for their creativity, A1 group for their collaboration and the K1, K2, and K3 groups for their creativity and collaboration skills. Interestingly, critical thinking was rated significantly lower in all five groups.

This research was qualitative research that aimed to find out how these forty-one participants inserted the value of 4C skills in learning ESP in Accounting and interviewed and observed to obtain data before being discussed in this study. From the findings, it is known that lecturers enter the 4C values in various ways. First, students understand the importance of critical thinking by employing problem-based learning methods in which the lecturer presents various scenarios for students to solve. Lecturers employ project-based learning to teach creative thinking abilities, which requires students to provide creative ideas during the project completion process. Students develop cooperation abilities by completing group or pair assignments that require them to work together on tasks. Finally, students emphasize the importance of communication in practically every meeting, from discussions in classroom forums to major role-playing tasks.

Table 2. Participants Characteristics of Learning Styles

A1 - Auditory Learning Style	V1 - Visual Learning Style	K1 - Kinesthetic Learning Style
<ul style="list-style-type: none"> <li>- Talk frequently, to self and to others</li> <li>- Prefer spoken directions</li> <li>- Have difficulty concentrating in noisy environments</li> <li>- Enjoy lectures and discussions</li> <li>- Remember names, not faces</li> <li>- Express emotion by tone and volume of voice</li> <li>- Musically minded</li> </ul>	<ul style="list-style-type: none"> <li>- Write things down /Taking notes</li> <li>- Copy what's on the board</li> <li>- Write key words / Make lists</li> <li>- Create visual reminders</li> <li>- Use mind maps to summarize</li> <li>- Watching videos</li> <li>- Using highlighters, underlining, flashcards</li> </ul>	<ul style="list-style-type: none"> <li>- Move around a lot</li> <li>- Prefer not to sit still</li> <li>- Move a lot while studying</li> <li>- Like to participate in learning</li> <li>- Like to do things rather than read about them</li> <li>- Do not prefer reading</li> <li>- Do not spell well</li> <li>- Enjoy problem solving by doing</li> <li>- Like to try new things</li> <li>- Talk with hands or gestures</li> <li>- Select clothes according to comfort</li> <li>- Like to touch objects</li> </ul>

Table 3. Students Dominant Styles

Group with similar learning style	Creativity	Critical Thinking	Collaboration	Communication
A1 - Auditory Learning Style	2.24	1.09	3.92	2.55
V1 - Visual Learning Style	3.56	1.15	3.12	2.0
K1 - Kinesthetic Learning Style	3.04	1.55	3.53	2.89
K2 - Kinesthetic Learning Style	3.07	1.71	2.96	2.44
K3 - Kinesthetic Learning Style	3.33	1.04	3.12	2.16
<b>Total</b>	<b>15.24 / 3.048</b>	<b>6.54 / 1.308</b>	<b>16.65 / 3.33</b>	<b>12.04 / 2.408</b>

The direct relationship between supportive and inhibiting factors in the implementation of the 4C skills was not investigated in this study. However, in order to elaborate further, the student's submitted information relevant to the criteria thought to be important. The findings of the study revealed three characteristics that encouraged students to participate in the classroom implementation of the 4C abilities. Mutual support among students, teachers' assistance to students, and teachers' understanding of the 4C skills concept were the variables. Those three variables, according to the students, considerably boosted the execution of the 4C skills in the ESP flipped classroom.

**Conclusion.** This paper reports our effort to empirically validate the effect of flipped classroom on student performance; and to investigate if student preferred learning style impact performance in flipped pedagogy. We conducted an experiment with a total of 41 students, 7 of whom with Visual Learning Style, 8 of whom with Auditory Learning Style and 24 of whom with Kinesthetic Learning Style the experiment group (flipped classroom). Although correlations

between learning style and type of assessment were statistically significant in some cases, they generally appeared to be weak, and in most assessments there was no correlation. Therefore the conclusions for this study is that overall academic performance is not influenced by learning style. Furthermore, the findings show that communication is linked to teamwork. Students' ability to interact can be boosted as much as feasible by allowing them to communicate both online and in person. In addition, critical thinking is linked to creativity since many activities involving critical thinking necessitate imagination in order to achieve the lesson's objectives. This is due to the type of the learning activities that the lecturer uses and designs. Finally, the data reveal that students demonstrated their 4Cs in both online and offline sessions, beginning with creativity, cooperation, critical thinking, and communication. The flipped classroom should be used in pre-service teachers' higher education since it is very advantageous in developing 21st-century abilities that will help them pursue their future careers as teachers and other professions.

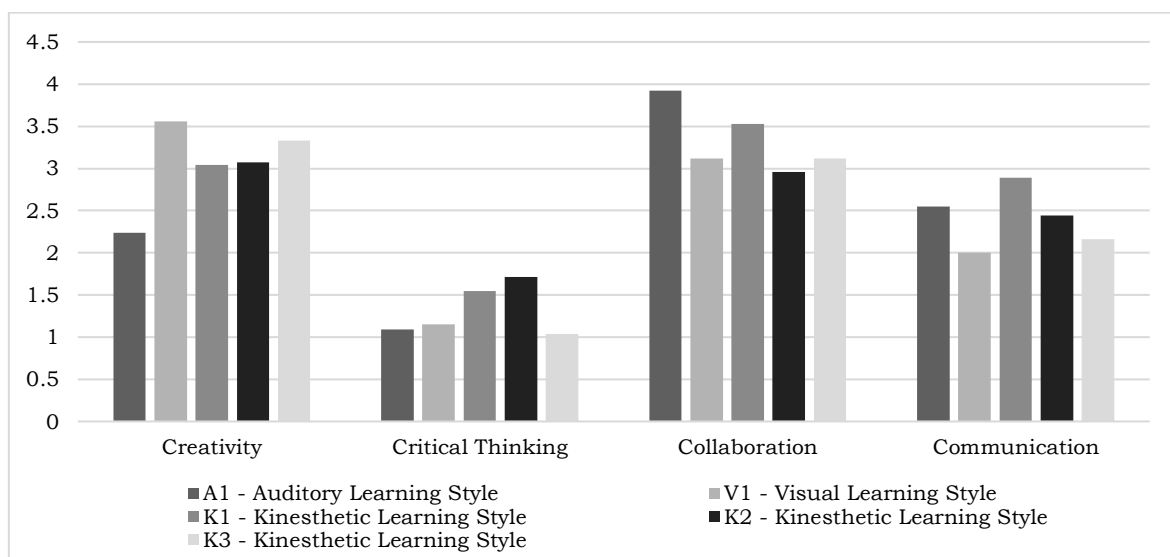


Fig. 1. Factors of 4Cs Skills Implementation

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### **ПРОБЛЕМИ СТИЛІВ НАВЧАННЯ В КОНТЕКСТІ УСПІШНОСТІ СТУДЕНТА В ПЕРЕВЕРНУТОМУ КЛАСІ**

Багато дослідників зазначають, що в контексті цифрового переходу, який швидко впроваджує всі сектори суспільства, перевернута класна кімната є необхідним методом впровадження навчальної програми, орієнтованої на результати, на вищому рівні для підготовки майбутніх професіоналів, які відповідають потребам роботодавців. Тому ми вважаємо, що основою успішного впровадження навчання є, по-перше, діагностика стилю навчання учня, по-друге, визначення результату навчання учня в XXI столітті на основі 4Cs; будучи досвідченими комунікаторами, творцями, критичними мислителями та співавторами. Таким чином, 41 студент другого курсу з двох різних груп, які вивчають бізнес-адміністрування в університеті Мандах, були обрані не випадковим чином і розділені на три групи на основі їхніх стилів навчання. Виконання завдань учнів EFL оцінюється за критеріями (інформація та відкриття, дизайн ідеї, інновація, виступ з усною презентацією, участь у бесідах та дискусіях) на основі принципів 4Cs як змінних. Згідно з даними, домінуючими є критичне мислення візуальних учнів, креативність кінестетичних учнів та комунікативні навички аудіо учнів. Загалом ми очікуємо, що потреба в нових педагогічних підходах у класах англійської мови для вдосконалення основних навичок учнів у 21 столітті, підхід до перевернутого навчання, коли пряме навчання під час уроків і домашнє завдання змінюються, нещодавно привернули значну увагу багатьох мов вчителів, вихователів та дослідників. У сучасному академічному світі одним із середовищ навчання, які отримали визнання, є система управління навчанням і викладанням. Система керування навчанням, також відома як віртуальне навчальне середовище, система керування курсами або навчальна платформа, — це набір програмних інструментів і веб-технологій, які підтримують організацію, адміністрування, надання, моніторинг і управління онлайн-освітою та навчанням. програми, а також оцінювання окремих процесів навчання.

**Ключові слова:** візуальний учень, аудіо учень, кінестетичний учень, 4Cs, менеджмент освіти, залучення учнів до перевернутого навчання.

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