# A REVIEW OF SEATING ARRANGEMENTS TOWARDS THE 21st CENTURY CLASSROOM APPROACH IN SCHOOLS

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## ABSTRACT

*This article articulates a framework suitable to use when making a decision about student seating arrangement in the classroom at school level as a research aim. The decision makers should establish what are the potential types of seating arrangement? Then evaluate them in terms of its contribution, significance, and impact to the student learning development. The problem of a seating arrangement is usually related to the seating student position selection that is usually decided by teachers or students that can freely choose their own seating. There are three (3) objectives covered in this article; objective 1: to justify the main factors influencing classroom seating arrangement at school building, objective 2: to identify the common patterns of seating arrangement applied for school level and objective 3; to determine the best practice of seating arrangement for 21st century classroom approach at school building. The article articulates a theory of seating arrangement in reference to five (5) common forms of seat arrangement, namely Traditional (columns and rows), Cluster, U-shaped, Stadium, and Runaway. The performance of students might drop especially weak students who are sitting at the back of the classroom if the students are not judiciously arranged. Thus, seating arrangements should be set*

*properly to ensure optimal quality of learning in a classroom. The technique of comparative analysis was used in this study. The findings had shown that cluster seating arrangement is relevant with the 21st century learning approach, which provides more availability of collaborative learning, where it contributes to student-centred learning in a classroom.*

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**Keywords**: *Classroom, Seating Arrangement, Student-centred Learning, 21st Century Approach*



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## INTRODUCTION

Nowadays, in schools the number of students with challenging behaviour is rising. Based on the data from the National Centre for Education Statistics (2013), about 40% teachers in public schools reported facing students with challenging behaviour. The learning process of students is adversely affected by challenging behaviour. Behaviour, which is not compatible with good classroom learning, is known as disruptive or challenging behaviour. An example of disruptive behaviour is making noises with students tapping and kicking on desks or chairs. Other examples include vandalism and damaging school property. Disruptive behaviours interrupt the learning process and in the long term, it will impede academic success if it is not controlled (Robichaux, 2016).

Management of the classroom is correlated with student achievement and learning (James, 1999), (Kamisah & Lilia, 2010) and (Nurul et al., 2013). The process of learning is achieved by cooperative motives and cooperative behaviour. Cooperative motives focus on team participation whereas cooperative behaviour discusses the individual energies in the classroom. The physical quality in the classroom is an essential factor for having a fruitful learning process. Student achievement and behaviour will adversely be affected by an unsatisfactory learning process. Similarly, decreasing classroom quality will also affect health of the student. Illnesses such as discomfort, sensitive skin, and headaches may arise. Other than that, poor mental health is also caused by students' discomfort and failed classroom management (Marlow et al., 2015). According to Denton (1992), classroom is really significant to develop students' behaviour, whereas it depends on seating arrangements that can lead to better classroom management at school level or other institutions.

The physical elements with seating arrangement are the most significant aspect of a classroom environment. James (2016) stated that the environment of classroom is able to improve student achievement, particularly with actual interaction between the teacher and students, resulting in more enjoyable learning. A new seating paradigm should be sought against the traditional one. Other than that, different patterns of seating arrangement will lead to good interaction between students and teachers during the teaching and learning process (Denton, 1992).



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In the learning process, the seating arrangement pattern in the classroom plays a significant role. Inappropriate arrangement of seating would affect students' motivation. At the same time, it can lower teacher's efficiency and student achievement. Students might not be motivated to attend class due to inappropriate seating arrangement. However, students require some variation of seating arrangement that leads to high concentration, motivation, and participation (Hammang, 2012).

In order to have an effective communication in the classroom, a judicious seating arrangement must be applied. To develop a positive classroom environment, a successful arrangement is the major factor of performance. In addition, students would be encouraged for the involvement in the learning process via right arrangement of furniture, chairs, and desks in a classroom (Laterra Wilson, 2012).

Thus, the research aim focuses on the appropriate framework for classroom seating arrangement at school building based on their current approach. Therefore, there are three (3) research objectives, objective 1; to justify the main factors influencing classroom seating arrangement at school building, objective 2; to identify the common patterns of seating arrangement applied for school level and objective 3; to determine the best practice of seating arrangement for 21st century classroom approach at school building. Comparative analysis technique becomes the main method to produce the research findings for this conceptual paper. The suitable selection of seating arrangement can be adapted for classroom at school buildings that is relevant to current learning approach as the expected findings in conducting this research.

## LITERATURE REVIEW

### Seating Arrangement

The profession as a teacher focuses on academic achievement that requires specialized skills and knowledge to ensure effective student learning, where one factor associated in the improvement of student achievement among students, specifically in the school level, is based on position at which they sit or being allocated in a classroom (Ngware et al., 2013).



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It can be shown that students who sit in front or near the chalkboard have good performance, where the interaction between students and teacher is more likely effective compared to those who sit at the back (Benedict& Hoag, 2004). It is supported by the author who raised that seating closer to teacher in the classroom during the teaching and learning process may create more interaction, which motivates the students indirectly, then improves their performance and achievement (Adams & Biddle, 1970). According to Victor Alberto et al.(2010), the position of students in classroom is correlated with their academic performance, where most students who sit in the front position have motivation for learning. Therefore, changing students' seating arrangement in the classroom should be accompanied with increasing their motivation, which is likely to improve school performance.

The previous literature clarified that the personality and behaviour of students also influence their choice of seat in a classroom either in the front, middle, or at the back (Weinstein, 1985) and (Grump, 1987). Seating at the back of the classroom has been associated with students with problem behaviour and attitude as well as reducing their grades (Perkins & Wieman, 2005). Besides, previous studies have also shown that seating arrangement in classroom has its potential to improve student learning as teachers tend to direct more questions to the students sitting in the front rows compared to students who sit at the back of the classroom; this may improve the student knowledge and critical thinking during the lesson (Juhary, 2012). Therefore, when students are always seated at the back, it minimizes their opportunity to learn because there are more interactions among students compared to discussing topics related to study purpose (Ngware et al., 2013).

## Factors Influencing Classroom Seating Arrangement

Students' success within the classroom can be influenced by their individual learning styles that consist of contribution of activities conducted in the lesson. The connection of student performance and learning styles depend on the physical arrangement factors that are significant with classroom as the main learning space for educational building such as schools (Minchen, 2007). The physical arrangement for most classrooms reveals many things about the learning process in order to have successful achievement for the institution and students themselves. The participation of students during the learning process has shown that more convenient classrooms are provided at the school building (Juhary, 2012).



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The main factors influencing seating arrangement specifically for secondary school building include capacity classroom, course conducted, student behaviour, student achievement, learning activities, and student difficulties.

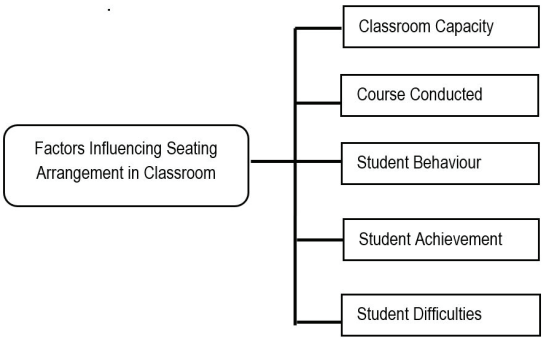


**Figure 1: Factors Influencing the Selection of Seating Arrangement in Classroom**
(Source: Ramli et al, 2013, Ngware et al., 2013 and Mushtaq & Khan, 2012)

## Classroom Capacity

Classroom capacity, which is also known as class size is defined as the number of students allocated in a classroom either in school or other institutions. Large capacity of classroom is one of the problems of developing nations and this reduces the capability of teachers to control the students in a classroom. At the same time, it also affects student performance that usually needs conducive learning space for effective teaching and learning activities (Yelkpieri et al., 2012).

The factor of capacity classroom is widely known around the world, where suitability amount of students allocated in a classroom plays the main role of successful classroom management (Chingos, 2013). Therefore, according to Malaysia Economic Planning Unit (2015),the classroom capacity for secondary school buildings should be minimum 15 students per classroom and maximum 30 students per classroom. This clearly shows that the standard classroom capacity has considered the positive and negative impacts of its implementation.



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The relationship between the classroom capacity and student achievement is particularly comprehensive in order to produce quality students especially from the secondary level. In reference to the previous study, it was found that small classroom capacity has a better effect on their achievement compared to large classroom capacity. Classroom capacity is a sensitive question because small or large classroom capacity usually matches the students' ability and average annual achievement. However, common achievement of students can be evaluated from the examination results and individual evaluation conducted by subject teachers in the classroom (Glass et al., 2016). Table 1 below shows the classroom capacity average that is applicable and suitable for the population in the related countries at the secondary school level.

**Table 1: Classroom Capacity Average for Different Countries (2012-2016) for Secondary School Level**

| Item. | Country | Classroom Capacity Average (students) |
|---|---|---|
| 1. | Australia | 22.9 |
| 2. | Canada | 25.8 |
| 3. | Chile | 30.5 |
| 4. | Czech Republic | 21.6 |
| 5. | Finland | 19.7 |
| 6. | France | 25.3 |
| 7. | Germany | 24.1 |
| 8. | Greece | 20.7 |
| 9. | Indonesia | 28.6 |
| 10. | Italy | 21.2 |
| 11. | Japan | 32.4 |
| 12. | Korea | 30.0 |
| 13. | Malaysia | 28.5 |
| 14. | Mexico | 28.0 |
| 15. | Russia | 19.0 |
| 16. | Sweden | 20.9 |
| 17. | Turkey | 33.6 |
| 18. | United Kingdom | 19.0 |
| 19. | United States | 26.7 |

Sources: School Management Division (31st January 2016)
: National centre for Education Statistics (2012)
: Organization for Economic Cooperation and Development (2015)



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## Course Conducted

The investigation from previous studies found that the courses taken may influence the types of seating arrangement in a classroom, by which the classroom environment is associated with the learning activities conducted in that level. Besides, an accurate selection of seating arrangement based on the student course produces better academic performance (Mlambo, 2011).

Schools have no worth without student. Students are the most essential assets for educational development in relation to country development that is linked with responsibility towards country's economic and social development (Mushtaq& Khan, 2012). The course offered in the school institution should be matched with the students' choice and capability; thus, classrooms need to be provided with the suitable learning activities whether technical, science, or literature courses. Several courses offered for school level needs suitable classroom environment for teaching and learning (Idayu et al., 2016); if there are many difficulties to provide conducive environment for learning, at least the seating arrangement approach needs to be applied for each classroom as the first step of awareness in the physical environmental aspects of a classroom (Burgess, 2007).

## Student Behaviour

Hannah (2013) mentioned that classroom environment gives an impact to student learning because proper management of classroom, usually from the physical aspect, really helps the motivation of students to learn. Seating arrangement is one factor contributing to physical classroom environment but previous studies agreed that it is still not enough to produce good students in terms of behaviour (Leung& Fung, 2006).

However, some studies then identified that seating arrangement is a significant practice to be implemented because it improves students' good attitude and behaviour in the classroom during teaching and learning (John, 1999) and (Wannarka & Ruhl, 2008).

## Student Achievement

Seating arrangement is basically based on the teacher's instruction or students arrange themselves, which can normally be an issue in the



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selection of seats in a classroom. Students sitting in front of the classroom will have more benefits compared to the students who always sit at the back, where it reflects student achievement (Hammang, 2012). The selection of student position in a classroom does not directly affect student achievement; however, it can contribute to the quality of learning such as reducing effectiveness of interaction or communication between teacher and students. Besides, different types of seating arrangement, for example the row, cluster, and U-shaped will allow the possibility for students to be closer with teacher, thus improving their confidence level to succeed more in their achievement (Peter et al., 2015).

## Student Difficulties

Some students have their own difficulties especially those related to health problems such as vision and hearing, which need to be addressed in a classroom. An accurate selection of seating position for the students is able to prevent their health condition from becoming worse. Besides, it also influences their concentration, performance, and achievement (Ngware et al., 2013).

## Patterns of Seating Arrangement in the Classroom

Classrooms are valued, busy, and complex places that accommodate students to the learning process. A teacher needs the classroom to impart knowledge. The environment of the classroom must be purposeful, inviting, cheerful, and enjoyable. Students' attitudes are significantly influenced by the physical arrangement of a classroom (Denton 1992). The position at which the students sit in a classroom is known as seating arrangement. The theory is that students that sit in the front have a tendency to be more engaged and active and their scores are usually higher than the students sitting at the back of the classroom (Ngware et al., 2013).

Seating arrangements in a classroom must be appropriate for learning activities. Therefore, a seating arrangement needs to be decided before conducting related tasks (either individual or group task) to ensure an efficient learning process. Students continually exposed to the same seating arrangement usually develop negativity. Student learning, as well as teacher communication, are affected by the way seats are arranged in a classroom (Lotfy, 2012).



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The learner's effectiveness and teaching efficiency will be ensured by the setting of a classroom (Marlow et al., 2015). However, in a classroom, student seating arrangement is dependent on the arrangement of chairs and desks that seat students in proper positions. There are five main patterns of seating arrangement, namely Traditional (Rows and Columns), U-shaped, Cluster, Runaway, and Stadium.

Since the 1950s, the Traditional pattern has been predominant. It assumes students to be independent with the assumption that they would frequently ask questions. The interactions among students are actually limited in this pattern of seating. An alternative seating arrangement is U-Shaped seating. This allows students to be more participative during lessons. The attitude and behaviour of students can be influenced by different patterns of seating arrangement (Alexandra & Fuhrer, 2000).

In 2007, the environment of the classroom began to be exposed to various seating patterns including Traditional, U-Shaped, and Cluster seating. Today, the Traditional seating pattern can be considered as passive learning where the teacher speaks and students listen. Although the teacher has good eye-contact with all students, the students have very little eye-contact with each other (Tanahashi, 2007).

According to Wannarka & Ruhl (2008), the physical arrangement, especially of desks and chairs, has the potential to encourage desirable behaviour or students' misbehaviour in the classroom. Typically, teachers may control the seating arrangement because the teacher has the ability to change the seating pattern when it is needed. Some researchers prefer the Traditional arrangement because this pattern provides more opportunities for students to be independent and they are also able to manage their own tasks. This pattern is good for high ability students. Cluster seating, meanwhile, is more suitable for a small number of students. It utilizes an effective use of space (Lotfy, 2012).

There are three main seating patterns and they are Cluster, U-Shaped, and Traditional as according to Georgia Education Researcher (2015). All patterns have their pros and cons. The Cluster pattern has a usage of 42%, while the U-Shaped seating is at 33%. The Traditional seating is the lowest at 25%. Although the Cluster seating is susceptible to inappropriate chatting



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among students, it is extremely suitable for effective student communication especially group work. The U-Shaped and Traditional seating patterns are best for individual or independent work. A seating arrangement should not only be determined by student achievement but also student comfort and learning (Simmons et al., 2015).

Traditional seating allows for face-to-face interaction between students and teacher. A problem, however, arises when students struggle to see the teacher especially if taller students are sitting at the front row. Because of this, the U-Shaped and Cluster seating actually provide students with more effective conversations and small group discussions. Students should also be allowed some freedom to organize their seating positions, where a seating arrangement can be self-selected without any requirements (Kostouros & Oliver, 2014).



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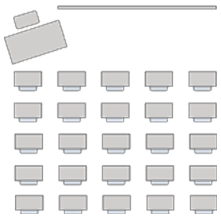
**Table 2: Comparison with Different Patterns of Seating Arrangement in Classroom**

| Type of Seating Arrangement | Advantage | Disadvantage | |
|---|---|---|---|
| Traditional (Rows and Columns) | Teachers can have a clear view of all the students in the classroom. | Convenient and simple, but not suitable for large classrooms because some students are sitting far away from the chalkboard or whiteboard. |  |
| | Suitable for large, medium, and small classrooms size. | Less availability for students to always see the teachers. | |
| | Maximum access that makes teachers to easily move around the classroom. | Distraction and noise pollution that is usually caused by students sitting at the back. | |
| | Teachers are able to maintain eye contact with the students during the learning session. | No effective interaction between students and teacher | |
| | Teachers working with the whole classroom because more effort needed to get attention from the students. | Less approach of group or team work activities. | |
| | Encourages individual work. | Students paying less attention and have difficulties to participate in class activities. | |



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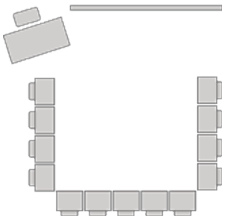
| | | | |
|---|---|---|---|
| | Improves confidence level during the learning process. | Students do not convey their own ideas or knowledge. | |
| | | Enhances passivity of students. | |
| U-shaped | This needs more effort on students for the learning activities, where the teacher's position in the classroom is less demanding. | Less approach of group or team work activities. |  |
| | Suitable for medium classroom size. | Students do not convey their own ideas or knowledge. | |
| | More opportunity for interaction between students and teacher. | | |
| | Improves confidence level during the learning process. | | |
| | More space for teachers' movement in the classroom during the teaching and learning process. | | |
| | Less distraction and noise pollution in the classroom. | | |



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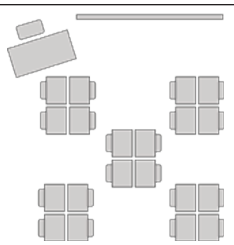
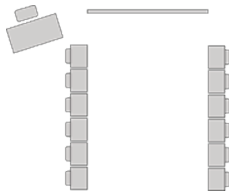
| | | | |
|---|---|---|---|
| Cluster | Focuses on centred-learning approach. | Some teachers are not familiar with real concept of student-centred learning approach in the teaching and learning activities |  |
| | Suitable for medium and small classrooms size. | | |
| | The opportunity to develop effective interaction between students and teacher. | | |
| | More approach of group or team work during the learning session. | | |
| | Gains more knowledge during the discussion related with learning activities. | | |
| | More cooperation during discussion. | | |
| Runaway | Suitable for small classroom. | Not suitable for large classroom capacity. |  |
| | It is significant to allocate small number of students in the classroom. | Difficult to conduct group or team work activities in this layout. | |
| | Teachers use the facing desks method to conduct the teaching and learning process in order to get more attention from students. | Less distraction and noise pollution in this layout. | |
| | This seating arrangement is relevant for discussion- and lecture-based. | | |



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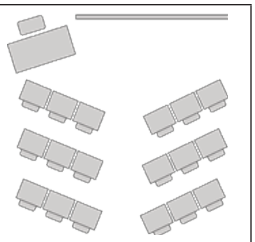
| | | | |
|---|---|---|---|
| Stadium | Variation of traditional seating arrangement but it is grouped in clusters. | Less distraction and noise pollution in this layout. |  |
| | Layout is a great choice for teacher-centric classes. | Less approach of group or team work activities. | |

## Seating Arrangement in the 21st Century Classroom

Classroom is synonym with effective learning space by which human development takes part in a formal way of education. In the mid-1990s, research on classroom environment only focused on one or two aspects associated with classroom environment from the perspective of teacher and students (Angela & Kathryn, 2011). However, Ing (2014) stated that classrooms can also be used informally, which is more significant for the concept of current learning that needs more collaboration, cooperation, and discussion among students.

The condition of classroom environment needs to be comfortable, healthy, and safe, which are necessary to support academic activities. The supportive learning environment in a classroom at school makes the students feel more comfortable and able to concentrate on their academic activities (Mudassir & Norsuhaily, 2015). Thus, the 21st century learning environment reflects from educational transformation that focuses on several elements including student-centred learning, collaborative learning, high-level thinking, and teamwork. Therefore, the education institution should be balanced in order to adapt to the previous learning approach and the 21st century learning approach. Classroom is needed for transformation of the 21st century learning; thus, the 21st century classroom approach has to be introduced to ensure that all aspects of conducive classroom can be adapted gradually such as cleanliness, ventilation, lighting, and space (Abdul Mutalib, 2017). The implementation of the 21st century learning specifically related to cooperative and collaboration learning lead to a democratic classroom, which introduces the education system with the 21st century classroom approach that is a necessary aspect for advance learning (Rohani et al., 2017) .



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The 21st century classroom approach is basically needed to properly plan the space layout of a classroom, where the suitable types of seating arrangement whether row - column, cluster, U-shaped, runaway, or stadium are chosen. The setup of the classroom seating arrangement has to suit with its capacity, course, and behaviour of students in the classroom. Other than that, the classroom applying the 21st century learning should be accommodated based on the students' needs, besides to establish a conducive classroom environment for students and teacher (Idayu et al., 2016).

Classrooms applying the 21st century approach need to adapt with collaborative learning that is a main feature in educational transformation, thus the relevant seating arrangement is cluster because it encourages collaborative learning that consists of discussion within teamwork and teacher as the facilitator through student-centred learning (Idayu et al., 2016).

## METHODS

The approach of the paper is qualitative research which is well-suited for the study to recommend the suitable types of seating arrangement that can be used for 21st century classroom or standard classroom layout. This study was conducted based on literature, analysis content and comparative analysis technique in order to produce significant research findings.

## DISCUSSION

Based on the literature review, it shows that students and teachers need more varieties of seating arrangements to uplift the teaching and learning process. A positive classroom environment depends crucially on classroom management. Moreover, the physical arrangement of a classroom affects student behaviour and achievement.

### Comparative Analysis

There are several aspects that may encourage learning through the selection of different patterns of seating in classrooms.



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## Classroom Capacity

Space utilization in a classroom is important to ensure that students are comfortable during the teaching and learning process (Sagata 2011) and (Masran et al., 2013). Space utilization depends on classroom size whether it is large, medium, or small. The different sizes of classrooms or classroom capacity should accommodate a suitable number of students (Chingos, 2013), (Yelkpieri, 2012) and (Glass et al., 2016). This is done so as to improve levels of comfort during teaching and learning. A preferred seating arrangement usually needs a specific classroom size. The Traditional (rows and columns) pattern can be applied for large, medium, and small classrooms. The U-Shaped pattern suits medium-sized classrooms while the Cluster and Runaway seating are applicable for small-sized classrooms. The Stadium pattern is mostly relevant for large classrooms. Therefore, space in the classroom is more significant for various types of seating arrangements affecting student performance (Cheryan et al., 2014). Student achievement and performance are dependent on several factors, for example, the seating configurations. Student motivation could be influenced by getting suitable classroom layout and seating arrangement. These researchers recommend the Traditional, Cluster, and U-Shaped seating arrangement due to limited space (Haghighi& Jusan, 2014).

Every week, students in Malaysian schools are spending more than 25 hours in the classroom. For a 30 student classroom, The Public Works Department (PWD) standard provides a measurement of 30 feet by 24 feet area. In reality, the number of students in a classroom is more than that especially urban schools. In some schools, a classroom has up to 45 or 50 students (Ramli et al., 2012).

The physical environment of a classroom requires a new layout and design for students' comfort. The current arrangement includes Cluster, U-Shaped, and Traditional seating. In Malaysian schools, the Cluster seating comes last at 12%, U-Shaped seating is recorded at 18%, and Traditional seating registers at 70%. Cluster seating is the favourite choice for teachers who prefer group work (Ramli, Ahmad & Masri, 2013).

Currently, teachers have begun to recognize that the way to improve student learning and participation is a conducive classroom arrangement.



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Teachers play an important role in deciding and arranging student seating. However, in Malaysia today, 99% of secondary schools use the Traditional pattern because it controls student behaviour easily. The Traditional seating arrangement does not actually facilitate teachers in the teaching and activities techniques. However, many techniques could be used in learning and teaching. Yet, the number of students and constraint of space are not giving teachers in the classroom to move over. In addition, the number of students enrolling every year keeps increasing (Ramli et al., 2014). In having this situation, the accurate patterns of seating arrangement in classroom should be properly managed for the students' comfort level.

## Course Conducted

Teaching and learning activities conducted in the classroom are usually based on the standard course or subject that is specifically provided for students. However, different course or subject should be delivered with different medium or methods to ensure effective learning among students. Teamwork assessment is one of the familiar and also efficient methods to train the students to be more independent, at the same time test their knowledge and critical thinking skills (Lotfy, 2012). Teamwork is more than group work. Teamwork promotes understanding, honesty, cooperation, and helpfulness. In terms of the seating arrangement issue, Cluster pattern encourages student involvement through effective teamwork on tasks and presentations. The Malaysia Education Development Plan (2013-2015) stated that learning for the 21st century needs to be applied by school institutions. However, many specialists agree that learning and teaching for the 21st century should match with improvements in the education field. Teachers should understand that new teaching techniques and technology are key drivers of future education. Currently, the major types of seating in Malaysian classrooms is the Traditional, Cluster, and U-Shaped to encourage teamwork activities among students (Sidek, 2012). Collaborative teamwork in classrooms may enhance the quality of learning because the students put in more effort  than the teachers and it will also educate students to be more independent and disciplined when conducting their learning task (Mclaughlin et al., 2014).



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## Student Behaviour

The seating in a classroom has the ability to shape proper student attitude. The right arrangement may encourage individual work, avoid passivity, generate communication, and provide focus (Lotfy, 2012). In general, the Traditional, U-shaped, and Stadium patterns influence students to be more focused during lessons. Student learning value will increase if they are able to be independent in doing tasks and assignments (Ngware et al., 2013). For this, the Traditional and Stadium patterns of seating work very well as they decrease instances of laziness and plagiarism.

Juhary (2012) stated that the oldest method of delivery in education is classroom learning. Classroom learning needs more effective seating arrangements to develop students' confidence and positive behaviour. Normally, a seating arrangement is fixed for the whole semester or school session. This is to ensure that the students feel comfortable. The researcher found that students become more independent when seated in the Traditional pattern than the Cluster seating. If the seating arrangement is assigned according to students' performance, this will reduce student motivation. However, according to Finch (2006), priority for extra guidance and attention from the teacher during the learning and teaching process should be given; weak students should be placed in the front rows.

The needs for special education should also be addressed. A special education classroom needs to have appropriate layouts. It should be comfortable, cheerful, and attractive for learning. The design of the classroom must be suitable with disabled students' needs. The Cluster seating fits this task. The teacher can discuss and address the students optimally. Students that have problems academically need to be given more focus (Hanafi et al., 2013).

## Student Achievement

Classroom management optimization such as selecting suitable patterns of seating arrangement is one strategy towards maximizing student achievement (Cheryan et al., 2014). Thus, different patterns of seating arrangement in the school classroom are related to the student's academic achievement because students deserve more attention during the teaching



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and learning process. According to Mustaq & Khan (2012) the seating arrangement normally depends on teachers' determination, however, if there is a need students may request their position. Ngware et al (2013) clarified that seating in the front row has a positive and significant effect on students' learning achievement, thus seating arrangement and classroom best practices have important implications on student achievement at school building. Therefore, managing students in different patterns of seating arrangement either traditional (rows and columns), cluster, u-shaped, runaway or stadium may improve the instructional knowledge delivery and effectiveness among students in specific classroom.

## Student Difficulties

Communication is a critical aspect in achieving the objectives of teaching and learning and may also contribute to student difficulties. The best way of learning and knowledge transfer is by having effective communication. According to the various literature studied, the Cluster pattern allows most communication between classroom participants whereas the Stadium pattern is the least conducive to classroom communication (Finch, 2006). Effective interaction between students and teacher is achieved through the U-Shaped and Cluster patterns. In addition, the teacher can best evaluate the understanding of students in these patterns. All patterns except the Runaway pattern improve students' confidence especially when they share ideas in class.

In the learning and teaching process, communication is very important. Teachers should have good verbal and non-verbal communication skills in order to affect students to communicate among themselves. Furthermore, in Malaysian schools, the Cluster seating or group seating should not be based on ethnicity. They must be grouped together to help them integrate and increase their skills of communication (Hameed et al., 2014).

Figure 2 illustrates the framework of seating arrangement adaptation for the 21st century classroom approach in school building. There are many factors involved to influence student position in a classroom, which include classroom capacity, course conducted, student behaviour, student achievement, and student difficulties.



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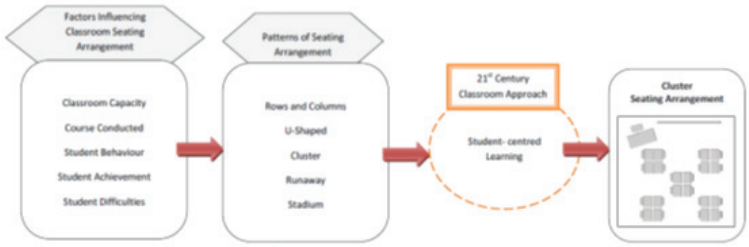


**Figure 2: Framework Adaptation of Seating Arrangement for the 21st Century Classroom Approach**

All these factors will determine which patterns of seating arrangement are suitable for the specific classroom; thus, the 21st century classroom approach has more emphasis on student-centred learning, hence it is agreed that cluster is the best classroom seating arrangement. The discussion have been produced through the analysis of literature review, however this is the initial findings towards next research.

## CONCLUSION

The seating arrangements reviewed in this paper consist of different patterns including Traditional (rows and columns), U-Shaped, Cluster, Runaway, and Stadium that are basically applied in school classrooms. Prudent management of seating arrangements suggests improvements in learning and student achievement (Idayu et al., 2016), (Denton, 1992), (Cheryan et al., 2014) & (Laterra, 2012). The various patterns of seating implemented in classrooms need further research to achieve successful educational outcomes. This review paper shows that the selection of student position in the classroom is significant for the students to concentrate more during the teaching and learning process. Besides, student motivation can also be enhanced when they are seated in a strategic position in the classroom. Seating arrangement provides the opportunity for students to improve their behaviour and performance when conducting learning activities.

The Traditional and Cluster patterns are the most prevalent types of classroom seating arrangements. However, based on current learning environment at school nowadays, Cluster and U-Shaped are the suitable



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types of seating arrangements because both of these seating patterns improve student comfort and focus during the learning process but it still depends on classroom area, capacity and learning approaches carried out at school. Therefore, in order to achieve basic requirement of the 21st century classroom approach based on the student-centred learning in ensuring that the students effectively communicate, collaborate, and cooperate during lessons, the Cluster pattern seating arrangement is the most suitable to be applied. Besides, traditional and U-Shaped seating arrangements also is applicable for several activities using classroom such as, examination; traditional (rows and columns) and presentation; U-Shaped seating arrangements in order to produce successful learning achievement. This should be an initial study for the next research in order to create classroom comfort at school buildings.

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