INTERNATIONAL

JOURNAL OF ADMINISTRATION AND EDUCATION

Volume 3, Number 2, 2026

ASHA PUBLISHING

E-ISSN: 3046-7632
International Journal of Administration and Education (IJAE)
https://journal.ashapublishing.co.id/index.php/ijae/hm

Learning Concentration of Generation Z Students in the Industrial Era 4.0 in the MPLB Department of SMKS YPKK Limbung, Gowa Regency

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ABSTRACT

Learning concentration is an important factor that determines students' success in understanding the material and achieving learning objectives. A good level of concentration will support effectiveness in learning, while low concentration can cause difficulties in understanding lessons and reduce academic achievement. In practice, learning concentration is influenced by various factors, both internal and external, such as interest in material, the learning environment, and the use of digital media. Generation Z, who grew up as a digital native, has unique characteristics, one of which is the tendency to be easily distracted by gadgets and social media. This condition makes their learning concentration vulnerable to disruption if not managed properly, so appropriate learning strategies are needed to maintain focus during the learning process. This study aims to describe the learning concentration of Generation Z students in the industrial era 4.0 in the Office Management and Business Services Department of SMKS YPKK Limbung, Gowa Regency. The study used a descriptive research type with a qualitative approach. Data was collected through observation, interviews, and documentation, then analyzed descriptively qualitatively. The results showed that students' learning concentration was generally at a fairly good level. From a sensory perspective, students focus better when material is presented visually or verbally with engaging delivery methods, and supported by a conducive learning environment. Obstacles still encountered include noise and inappropriate lighting. In terms of concentration, students are able to pay full attention, especially when the material aligns with their interests and is presented in a fun way, although distractions such as boredom, peer interaction, and cell phone use remain. Strategies implemented by teachers and homeroom teachers include personal guidance, communication with parents, and interactive learning to maintain student focus.

Keywords: concentration on learning, five senses, concentration of thought

INTRODUCTION

The Industrial Revolution 4.0 has brought significant changes to various aspects of life, including education. The development of digital technology has led to the emergence of more flexible, interactive, and collaborative learning systems. On the other hand, digitalization also presents new challenges, especially for students growing up amidst the rapid flow of information and social media. Concentration in learning is a crucial aspect of educational success because it is related to attention, understanding of material, and achieving learning objectives. Poor concentration can impact learning effectiveness, difficulty understanding material, and even reduce students' readiness for the world of work.

Generation Z, known as digital natives, is a group of students closely connected to technology. Fast and instant access to information has made this generation accustomed to a practical mindset, but they are also vulnerable to distractions. Social media notifications, games, and the habit of watching short videos often disrupt learning focus. The phenomenon of multitasking, such as opening digital applications while listening to a teacher's explanation, also reduces the effectiveness of attention in learning.

In addition to technological factors, the learning environment also significantly influences student concentration. A comfortable classroom atmosphere, adequate lighting, a clean room,

and a variety of teaching methods can improve learning focus. On the other hand, noise, limited facilities, and monotonous teaching methods can reduce concentration levels.

In the context of education, teachers play an important role in creating effective learning. (Aldalur & Perez, 2023; Guardia et al., 2019; Mathur et al., 2024) emphasizes that "a learning model is a design or framework that can be used to develop a curriculum or teaching materials, while also guiding teachers in determining appropriate teaching materials and directing learning steps." In line with that, (Al-Sabayleh & Sakarneh, 2023; Bobe, 2020; De Bruijn-Smolders & Prinsen, 2024) explain that "each student has unique characteristics, so teachers need to design appropriate learning strategies to manage the class and adapt the approach to the needs of each student." These two views demonstrate the importance of teachers' ability to adapt learning strategies to the needs and characteristics of Generation Z.

The learning system in the Industrial Revolution 4.0 era demands critical thinking, creativity, collaboration, communication, and character skills. This indicates that learning success depends not only on mastery of material but also on students' ability to focus and process information in depth. Without concentration, these 21st-century skills will struggle to develop optimally. In other words, concentration in learning is not only crucial for understanding course material but also serves as the foundation for developing soft skills needed in the workplace.

Furthermore, the use of technology in learning presents two opposing sides. Digital media can be used to increase learning interactivity, such as through educational games, online discussion forums, and collaborative projects. This approach has the potential to increase learning interest while honing students' social and critical thinking skills. However, on the other hand, digital distractions are also increasingly difficult to avoid, especially for Generation Z, who are familiar with social media and digital entertainment. This situation demonstrates that students' concentration in learning is not only determined by internal factors but is also greatly influenced by how technology is used in the learning process.

Concentration can be understood as the focus of attention reflected in the mastery of knowledge, attitudes, and skills. Low concentration has an impact on the decline in the quality of learning, triggers a less serious attitude, and makes it difficult for students to understand the material. (Karlina & Setiyadi, 2019; Mahyuddin, 2022; Tholibon et al., 2022) Aviana & Hidayah (2015, hlm. 30) . In the context of Generation Z, concentration challenges become more complex because they are accustomed to a fast, concise, and instant flow of information. Therefore, learning in the digital era requires specific strategies to maintain student concentration and ensure effective learning. The phenomenon of learning concentration is also influenced by psychological and social aspects. Generation Z tends to get bored easily, prefers instant things, and is accustomed to digital entertainment, thus requiring a creative learning approach.

Initial observations at the Office Management and Business Services (MPLB) Department of SMKS YPKK Limbung indicate significant learning distractions. Some students are still playing with their phones, watching videos, or chatting with friends during the learning process. This situation indicates a gap between the ideal expectations regarding the importance of concentration and the reality of what happens in the classroom. The urgency of this research is even stronger considering that the MPLB Department is a vocational program that prepares students for the world of work. The competencies required are not only technical skills, but also cognitive abilities that require high concentration. Low learning concentration can impact less than optimal understanding of the material and mastery of basic skills needed in the world of work. Therefore, research on the learning concentration of Generation Z in the digital era is crucial, especially in vocational schools oriented towards work readiness. This study is expected to provide an overview of the actual condition of student learning concentration as well as the supporting and inhibiting factors. Based on this description, this study aims to determine the learning concentration of Generation Z students in the era of

Industry 4.0 in the Office Management and Business Services Department of SMKS YPKK Limbung, Gowa Regency.

METHODS

This study employed a qualitative approach with a descriptive approach. This approach was chosen because it allows for an in-depth description of the phenomenon of learning concentration among Generation Z students in the context of classroom learning. Descriptive qualitative research allows researchers to uncover facts, symptoms, and obstacles experienced by students through the real-life experiences of informants, both students and teachers, resulting in more comprehensive data and relevant to field conditions. The research focused on two indicators of learning concentration: the five senses and concentration, both of which complement each other in explaining students' ability to maintain learning focus in the Industry 4.0 era.

The subjects of this study consisted of five key informants: three eleventh-grade students majoring in Office Management and Business Services, one productive teacher, and one homeroom teacher. Informants were selected purposively, considering that these informants were considered to have direct knowledge of students' learning concentration and were able to provide relevant information. Data were collected through three main techniques: in-depth interviews, direct observation, and documentation. In-depth interviews were conducted with each informant to obtain honest and detailed insights into factors that support and hinder learning concentration. Observations were conducted in the classroom during the learning process to clearly see how students' concentration was formed and disrupted. Meanwhile, documentation in the form of field notes, photographs of learning activities, and supporting files were used to supplement and strengthen the data from interviews and observations.

The research process was carried out through several stages: preparation, implementation, and data analysis. During the preparation stage, researchers developed interview guidelines, observation sheets, and prepared documentation. Next, the implementation stage involved going directly to the field to conduct observations and interviews with informants according to the agreed schedule. Primary data obtained from interviews and observations were then strengthened with secondary data from school documents and other relevant records. Data analysis was conducted using an interactive model consisting of three stages: data reduction, data presentation, and conclusion drawing. Data reduction was achieved by selecting important information from the interviews and observations and then presenting it in a systematic, descriptive narrative. From this data presentation, researchers drew preliminary conclusions, which were then continuously verified until valid final conclusions were reached.

To ensure data validity, this study employed source triangulation, technical triangulation, and time triangulation techniques. Source triangulation was conducted by comparing information from students, teachers, and homeroom teachers. Technical triangulation was carried out by combining the results of interviews, observations, and documentation. Temporal triangulation was carried out by repeating data collection on different occasions to ensure consistency of information. Additionally, a member check process was used, which involved reconfirming interview results with informants to ensure they align with the facts on the ground. This procedure ensures data validity, ensuring scientifically sound research results.

RESULT AND DISCUSSION

The presentation of the results of this study is based on the stated objective, namely, to determine the learning concentration of Generation Z students in the Industry 4.0 era in the Office Management and Business Services (MPLB) Department at SMKS YPKK Limbung, Gowa Regency. Data were obtained through in-depth interviews with teachers, homeroom teachers, and three students, supported by direct observation and documentation. To facilitate analysis, the presentation of the results refers to the learning concentration indicator. five senses and concentration. These two indicators were chosen because they comprehensively describe how students utilize their sensory and cognitive abilities to maintain concentration throughout the learning process. (Aunurofiq & Setyasto, 2025; Keleş, 2025; Ponticorvo et al., 2018).

Five Senses

The five senses have been shown to significantly influence student concentration, particularly in visual and auditory functions. Research shows that students understand material more easily when teachers utilize visual media such as videos, images, and presentation slides accompanied by varying voice intonation. Teachers in the MPLB (Large-Scale Learning) department emphasized that computer labs tend to support student focus better than traditional classrooms because they are quieter, cooler, and protected from external distractions. This is reinforced by homeroom teachers who believe that classroom cleanliness, adjustable lighting, and well-maintained room conditions contribute to a comfortable environment for students to absorb the material. However, students also encounter external distractions such as noise from other classes, the sound of students playing outside, and the activity of people passing by the door, which often disrupt concentration.

Interviews with students indicate that visual media is considered effective in increasing interest and aiding comprehension. Students feel more focused when material is presented through videos or slide shows due to their concrete and easy-to-understand nature. However, lighting that is too bright or too dark is considered less conducive to concentration. Similarly, a classroom atmosphere that is too noisy often distracts students even though they try to stay focused by looking at the board or listening to the teacher's voice. Observations also show that students pay attention to the content on the presentation screen, take notes on important points, and listen carefully to the teacher's explanation. A conducive classroom environment, adequate lighting, and a cool room temperature greatly help students stay alert and focused. From these findings, it can be understood that external stimuli in the form of learning media, the teacher's voice, lighting, and classroom atmosphere are the main factors received by the five senses in supporting student learning concentration.

The five senses play a crucial role in supporting students' learning processes. Through their senses of sight, hearing, smell, touch, and taste, students receive and process various stimuli from their surroundings. Optimal use of the five senses allows for clearer information acquisition, thereby maintaining attention and focus. In the context of classroom learning, the readiness of the five senses is a fundamental factor in determining how well students understand material presented by teachers and presented through learning media.

Research findings indicate that the five senses play a crucial role in influencing the concentration of students majoring in Office Management and Business Services (MPLB) at SMKS YPKK Limbung. According to one teacher, the use of visual and audio-based learning media, such as presentation slides and learning videos, can improve student focus. The homeroom teacher also emphasized that cleanliness, lighting, and a conducive room temperature contribute to students' sensory readiness to receive learning materials. Most

students reported that they found it easier to concentrate when material was presented visually appealing and in a quiet classroom environment.

However, various obstacles were still encountered, including sounds from outside the classroom, conversations between students, and distractions due to the use of gadgets. (David, 2025; Karlina & Setiyadi, 2019; Mahyuddin, 2022) explains that "students who experience concentration problems tend to have difficulty receiving information and instructions from teachers." The focus of attention, which should be on the learning material, is instead diverted to things outside the lesson, thus limiting the opportunity to understand the material. This condition indicates that the suboptimal function of the five senses in absorbing learning stimuli influences low levels of concentration. (Damayanti, 2021; Ley Leyva & Espinoza Freire, 2021; Maba, 2022) added that "noise in the learning environment, such as the sound of vehicles, televisions, or conversations at home or school, has the potential to reduce students' concentration levels." Limited learning space facilities, such as inadequate lighting and less-than-ideal room temperatures, can also reduce learning productivity. Furthermore, interruptions from family members or peers often hinder students from optimally understanding the material.

Concentration of Thought

In addition to the five senses, concentration in learning is also determined by students' ability to focus. Homeroom teachers assessed that students were generally able to direct their attention after the teacher explained the material, although some easily lost concentration due to peer influence. Productive teachers added that classroom management strategies, providing simple rewards, and incorporating icebreakers were effective measures in maintaining student concentration, especially during long learning sessions. Teachers also provided flexibility in seating arrangements and study groups to make students feel more comfortable. This strategy was considered crucial considering that students could only maintain full concentration for the first 10–15 minutes of a lesson, after which it was prone to decline due to boredom or fatigue.

From the students' perspective, concentration was considered highly dependent on a calm classroom environment, varied material delivery, and engaging teacher interactions. They admitted to trying to ignore distractions from device notifications, peer chats, and loud noises by focusing on the teacher. However, devices remained a major challenge, as message notifications and entertainment apps often distracted them. Some students admitted to simply refraining from opening messages until the lesson was over, while others sometimes lost control, resulting in decreased concentration. Field observations showed that the majority of students actively listened to explanations, took notes on key points, and engaged in discussions, although some were still seen daydreaming, occasionally joking around, or checking their phones. This demonstrates that students' concentration was progressing quite well, although internal factors such as boredom, drowsiness, and wandering thoughts remained obstacles.

In general, the findings of this study indicate that the concentration of Generation Z students in the MPLB Department of SMKS YPKK Limbung was influenced by a combination of external factors: classroom atmosphere, learning media, noise, lighting, and technology utilization; and internal factors: motivation, interest, boredom, and gadget use habits. Teachers' efforts to create interactive and varied learning environments and provide simple rewards were important strategies in helping students focus. Meanwhile, from the students' perspective, personal awareness to ignore distractions, use technology wisely, and remain focused on the teacher's explanations also played a role in maintaining concentration. Thus, it can be concluded that the five senses and concentration indicators complement each other in

supporting student learning concentration, although both are still influenced by various challenges, both internal and external to the student.

Concentration is a crucial aspect of learning concentration, related to the student's ability to direct and sustain attention to learning material. Maintained focus allows students to understand information more deeply and minimize distractions, both internal and external. In the context of classroom learning activities, concentration is the foundation that determines the extent to which students can absorb teacher explanations and utilize the learning media used.

Cultivating interest in learning in students is very important, because this interest can increase concentration, create a sense of enjoyment during the learning process, and improve students' learning abilities. In other words, interest in learning acts as a driving factor that strengthens students' ability to maintain focus and active involvement during learning activities. (Arhas & Septian, 2023; Athirathan, S., 2025; Herpratiwi & Tohir, 2022).

The results of the study indicate that the concentration of students majoring in Office Management and Business Services (MPLB) at SMKS YPKK Limbung is generally quite good. Teachers and homeroom teachers assessed that most students were able to focus after the material was explained, although full concentration usually only lasted for the first 10–15 minutes of the lesson. From the student perspective, conducive environmental factors, clear material delivery, and teacher strategies such as providing appreciation, icebreakers, and personal guidance have been proven to help maintain focus. However, distractions still arise, both from external factors such as noise and friends' invitations, as well as from internal factors such as boredom, drowsiness, and easily distracted thoughts. Gadgets are also a major source of distraction because message notifications and entertainment applications often reduce students' attention.

This finding is in line with the opinion (Barron & Whitford, 2004; Shehu et al., 2025; Vetrivel et al., 2025)which confirms that the habit of repeatedly watching short videos can interfere with students' ability to maintain attention on tasks that require longer concentration. Generation Z tends to be accustomed to quick and concise information, making them susceptible to losing focus when faced with long study sessions. This reinforces the fact that although students can concentrate at the beginning of learning, their concentration easily decreases when distractions from devices or boredom set in. Thus, concentration is not only influenced by learning environment factors and teacher strategies but is also closely related to students' interaction patterns with the digital technology that has become part of their daily lives.

Supporting and Inhibiting Factors

a. Supporting Factors

The findings revealed that students' concentration was supported by a combination of environmental and instructional factors. Rather than operating independently, these factors appeared to create learning conditions that enabled students to maintain attention and remain engaged throughout classroom activities. The environmental factors were primarily associated with the physical conditions of the classroom, whereas the instructional factors were related to teachers' approaches to delivering learning materials and maintaining students' engagement.

A conducive physical classroom environment emerged as an important factor supporting students' concentration. Comfortable room temperature, adequate lighting, and classroom cleanliness helped minimize physical discomfort and environmental distractions during learning. These conditions allowed students to direct greater attention to instructional activities. The findings suggest that students were better able to maintain concentration when

the classroom environment provided sufficient physical comfort and did not expose them to unnecessary sensory disturbances.

Instructional practices also played an important role in sustaining students' attention. An engaging teaching style encouraged positive teacher–student interactions and helped maintain students' involvement during the learning process. Students appeared more attentive when teachers presented the material in an interactive manner rather than relying predominantly on one-way explanations. This indicates that concentration was influenced not only by the physical environment but also by the way teachers managed classroom interaction and maintained students' engagement.

The use of visual learning media further supported students' concentration. Presentation slides, instructional videos, and illustrative images attracted students' attention and provided visual stimulation that complemented verbal explanations. Such media appeared to make the learning process more engaging and helped students remain focused on the material being presented. In addition, students demonstrated greater concentration when the learning material was aligned with their interests and preferred ways of learning. Relevant and engaging material appeared to encourage greater involvement in classroom activities, thereby supporting sustained attention during the learning process.

Overall, the findings indicate that students' concentration was strengthened when physical comfort was accompanied by engaging instructional practices. A conducive classroom environment provided the conditions necessary for attention, while interactive teaching, visual media, and relevant learning materials helped sustain that attention throughout the learning process.

b. Inhibiting Factors

The findings also identified several factors that interfered with students' ability to maintain concentration during learning. These factors originated from the physical environment, instructional practices, students' behavior, and their internal emotional conditions. The interaction of these factors suggests that loss of concentration cannot be attributed to a single source, as students' attention may be disrupted by both immediate classroom conditions and individual circumstances.

Environmental distractions were among the most apparent barriers to concentration. Noise originating from outside the classroom diverted students' attention from the teacher's explanations and interrupted their engagement with learning activities. Lighting conditions also influenced students' comfort. Excessively bright or glaring light caused visual discomfort, making it more difficult for some students to remain attentive. Physical discomfort associated with inappropriate or uncomfortable sitting positions similarly affected students' ability to sustain concentration, particularly during extended periods of classroom instruction.

Instructional factors also contributed to declining concentration. Monotonous teaching methods were associated with boredom and reduced student engagement. When classroom activities offered limited variation or interaction, students were more likely to lose interest in the learning process. This condition was closely associated with behavioral distractions. Students sometimes responded to boredom by checking their mobile phones or engaging in conversations with classmates, shifting their attention away from the learning activities. Thus, mobile phone use and peer conversations appeared not only as independent distractions but also as behavioral responses to declining engagement.

Uncontrolled gadget use represented a particularly important source of distraction. Frequent attention to mobile phones interrupted students' engagement with classroom activities and made it difficult for them to maintain continuous focus. The findings indicate that digital distraction became more pronounced when students experienced boredom or when instructional activities failed to sufficiently maintain their attention.

Internal conditions constituted another barrier to concentration. Personal problems and emotional stress carried into the classroom affected students' readiness to participate in learning. Students experiencing emotional concerns appeared to have greater difficulty directing and sustaining their attention toward instructional activities. This finding demonstrates that concentration is shaped not only by observable classroom conditions but also by students' psychological and emotional states.

Taken together, the findings show that students' concentration is influenced by an interplay between environmental, instructional, behavioral, and internal factors. Comfortable classroom conditions and engaging instructional practices support sustained attention, whereas environmental disturbances, physical discomfort, monotonous instruction, digital distractions, and emotional difficulties can progressively weaken students' ability to remain focused. These findings position concentration as a dynamic learning condition that emerges from the interaction between students and the learning environment rather than solely as an individual student characteristic.

CONCLUSION

Based on the research results, it can be concluded that the learning concentration of Generation Z students in the industry 4.0 era in the Office Management and Business Services Department of SMKS YPKK Limbung, Gowa Regency is generally in the fairly good category. This concentration is evident in the students' ability to respond to stimuli through their five senses and focus their thoughts during the learning process. From a sensory perspective, students find it easier to focus when material is presented visually and verbally with engaging methods, and supported by clean, cool, and adequately lit classrooms, although distractions from outside the classroom still occasionally hinder. Meanwhile, from a concentration perspective, students show full attention, especially when the material is in line with their interests and presented in a fun way, although distractions from peers, boredom, and the use of gadgets remain challenges. Thus, it can be concluded that the learning concentration of Generation Z students in the MPLB department is quite well managed, but interactive learning strategies and a more conducive learning environment are still needed to maintain optimal focus.

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