Learning Style of Indonesian Generation Z in Higher Education

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Abstract. Generation Z, who was born along with technological developments, is entering the college phase now. This study aims to analyze the learning styles of generation Z students and determine the learning style recommendations for the learning process. Sampling was conducted using quota sampling with a questionnaire. Respondents consisted of 213 undergraduate students of IPB University in Bogor, Indonesia based on the class year 2015-2018. The analytical tool used is descriptive analysis and multiple linear regression with SPSS 23. The results showed that learning styles had a significant effect on learning achievement by 70.4%. Generation Z learning style is a visual learning style of 34.2%, kinesthetic by 20.2%, and auditory by 6.6% respectively. Learning recommendations are to improve the design of the learning system, evaluate the digital-based curriculum with e-learning method, improve practical learning, and optimize the use of technology as a learning information system.

Keywords: Generation Z, Learning Style, Multiple Linear Regression, Undergraduate Students, Higher Education

I. Introduction

The development of technology and information is growing rapidly today. Innovation is created along with the development of technology. This has an impact on individuals, including generation Z. Generation Z is also known as internet generation or net generation. The current technological developments also have an impact on behavior patterns, lifestyles, learning methods, and other characters. The following is a table of generations' names based on the year of birth [1].

ICoSMI 2020, September 14-16, Indonesia

DOI 10.4108/eai.14-9-2020.2304488

Table 1. Generations' Names Based on the Year of Birth

Year of Birth	Generations's Names
1965 – 1980	*X generation – Busters*
1981 – 1994	*Y generation – Millennials*
1995 – 2010	*Z generation – Digital Native*

Source: [1]

Table 1 shows that generation Z was born in 1995-2010. Generation Z has been influenced by innovative technology, namely smart phones, high speed internet, social media sites, online shopping, e-books and others that are connected to each other in daily life. Digital natives are those who are born in a digital environment and are familiar with computers, video games, the internet, and cell phones. This generation is able to carry out several activities at the same time and considers digital technology as an inseparable part of life [2], [3]. In addition, Generation Z also has the characteristics of being responsible, open thinking, wise, loyal, entrepreneurial, compassionate, interactive, not spontaneous, not conservative, unfocused, not competitive, not creative, peer critical, and afraid of losing [4]. Based on the behavior of Generation Z, educational institutions realize that they are currently faced with a different generation than before. Thus, special attention is needed in dealing with this generation to increase the existing potentials.

Higher education is a place of learning to prepare quality human resources (HR) in the era of the industrial revolution 4.0. In Republic of Indonesia Law no. 20 of 2003 explained that "Education is a conscious and planned effort to create an atmosphere of learning and the learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and skills needed by themselves and society. ". The relationship between the industrial revolution 4.0 is closely related to the world of education, namely following technological developments by utilizing technology and information as facilities to facilitate the learning process. The basic principle of the 4.0 industrial revolution is to combine machines, workflows and systems by implementing an intelligent network along the chain and production processes to control each other independently. Therefore, universities must prepare students to face and survive in the era of the industrial revolution 4.0 where the education

system in higher education must be evaluated and reflect a curriculum that is in accordance with the industrial revolution 4.0 [5].

In implementing the learning system, IPB University as one of the best public universities in Indonesia has taken advantage of existing developments, namely by implementing semester exams, online comprehensive examinations, and the use of the lecture management system (LMS) as a learning information system. However, the use of digital media and technology is not yet optimal because most of the lecturers are not familiar with using technology. An evaluation or improvement is required in the learning system and the use of technology. IPB University active students are part of the Z generation who were born in 1997-2001. This is a common challenge to adjust the appropriate learning methods for generation Z students so that it is hoped that the quality of HR will increase and be able to compete globally. One of the improvements in the quality of HR in higher education is influenced by learning styles including auditory, visual, and kinesthetic learning styles [6]. Meanwhile, learning achievement can be measured through an evaluation process of learning outcomes which consists of (Norm-Referenced Assessment and Criterion-Referenced Assessment [7].

In order to improve the achievement of generation Z students, researchers conducted an analysis of the learning styles possessed by students. Therefore, research on the effect of learning styles on the achievement of Generation Z students in higher education, especially the undergraduate level at IPB University, was carried out, with the aim of: (1) identifying the characteristics of generation Z students, (2) analyzing the influence of learning styles on the achievement of generation Z students, and (3) learning recommendations for Undergraduate Programs in Higher Education.

II. Materials and Method

A. Sample and Data Collection

The research was conducted at IPB University by taking the object of research for active students of the Department of Management, Faculty of Economics and Management, class year 2015-2018. The research data is collected

from April 2019 to May 2019. The number of samples was determined using Probability Sampling method with the Quota sampling technique. The number of samples taken in this study using the Slovin formula, as follows:

$$n = \frac{N}{1+Ne^2} \quad \text{.....(1)}$$

Information:
n = Number of Samples
N = Population Size (454 active students)
e = Margin Error (5%)

In the Slovin formula, the tolerance limit is 5% or 0.0025. Then the sample of respondents is obtained from the calculation of the Slovin formula as follows:

$$n = \frac{454}{(1 + 454x0{,}0025^2)} = 212{,}6 \sim 213$$

Based on the calculation of the Slovin formula, 212.6 respondents were rounded up to 213 respondents. Data collection was carried out by distributing questionnaires on a Likert scale. The distribution of respondents in this study can be seen in Table 2.

Table 2. Recapitulation of respondents' distribution

Class year	Population	Percentage (%)	Number of Students
2015	102	22,4	48
2016	112	24,7	52
2017	121	26,7	57
2018	119	26,2	56
Total	454	100	213

Source: Processed Data (2019)

B. Data Analysis

1. Descriptive Analysis. Descriptive analysis is used to determine the characteristics of the respondents with the percentage of tabulated answers and to identify the characteristics of the respondents that affect the research variables, namely learning styles and achievement.

2. Validity and Reliability Test. The validity test aims to determine the validity level of the questionnaire. After the measuring instrument (questionnaire) is declared valid, then the reliability of the measuring instrument is tested. Reliability shows consistency of measurement results [8].
3. Multiple Linear Regression Analysis. Multiple linear regression testing was conducted to see the effect of student learning styles on visual (x_1), auditory (x_2), and kinesthetic (x_3) with the dependent variable, namely student achievement of generation Z [9], [10].

The research framework can be seen in Figure 1. It begins with technology and information changes in education. Furthermore, the results will become recommendations for improvement in higher education.

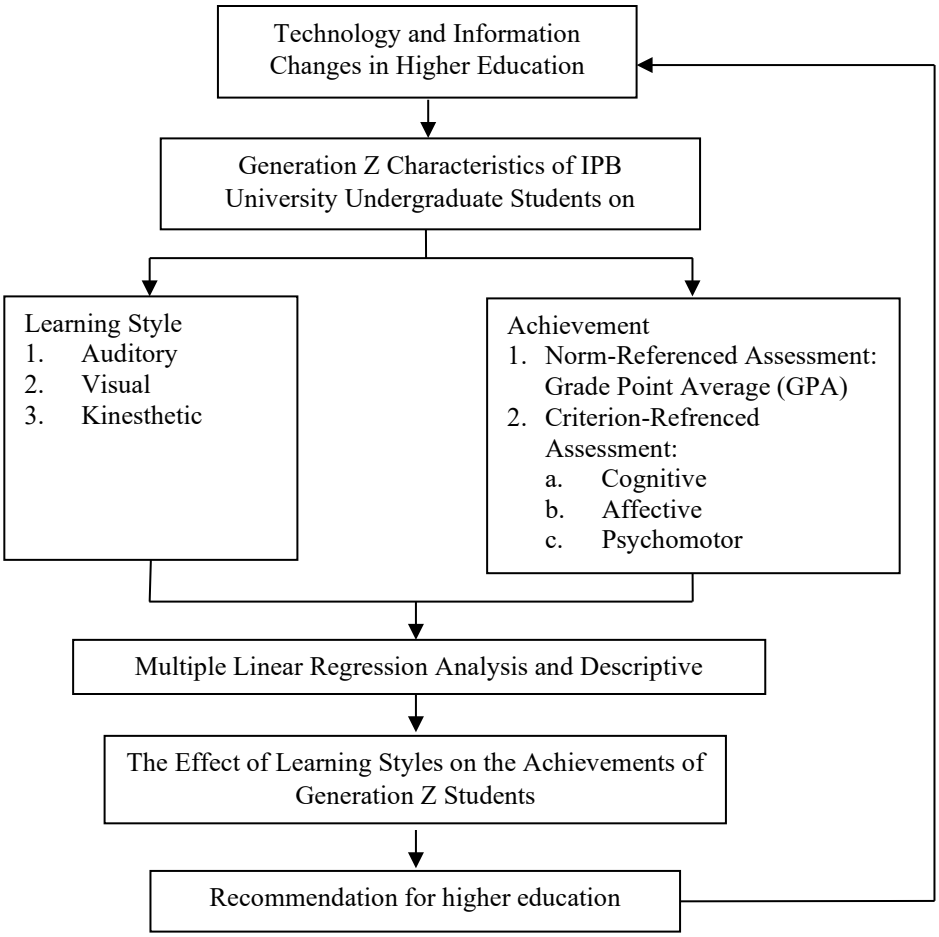

Figure 1. The research framework

III. Results

A. *Characteristics of Respondents*

The results respondents' characteristics can be seen in Table 3 below.

Table 3. Characteristics of Respondents

Characteristics	Category	Total (n)	Persentase (%)
Sex	Male	89	41.78%

	Female	124	58.21%
Subtotal		213	100%
GPA	< 2.00	4	1.88%
	>2.00 – 2.50	15	7.04%
	> 2.50 – 3.00	37	17.37%
	> 3.00 – 3.50	100	46.95%
	> 3.50 – 4.00	57	26.76%
Subtotal		213	100%
Age	18	25	11.74%
	19	55	25.82%
	20	60	28.17%
	21	53	24.88%
	22	20	9.39%
Subtotal		213	100%
Scholarships	Receive	80	37.56%
	Not receive	133	62.44%
		213	100%
Join organization	Actively	166	77.93%
	Not Actively	47	22.07%
Subtotal		213	100%
Achievement	Sport	11	5.16%
	Art	12	5.63%
	Academic	36	16.90%
	Others	4	1.88%
	Has no achievements	150	70.42%
Subtotal		213	100%

Source: Processed data (2019)

The respondents were dominated by female as many as 124 people with a percentage of 58.21%, while male were 89 people with a percentage of 41.78%. The majority of Department students as many as 100 people have academic achievements with a GPA of> 3.00–3.50 with a percentage of 46.95% dominated by 61 women. The smallest cumulative grade point average (GPA) is <2.00 as many as 4 people with a percentage of 1.88%. The student age is vulnerable in 18-22 years. As many as 80 students received scholarships with a percentage of 37.56%, while 133 students did not receive scholarships with a percentage of 62.44%. Most scholarship recipients were 44 students with a GPA> 3.00-3.50. Furthermore, cross tabulation was carried out between the characteristics of the GPA and organizational activeness as follows.

Table 4. Cross Tabulation of GPA and Organization

		Active Join Organization	Not active Join Organization	Total
GPA	< 2.00	2	2	4
	>2.00 – 2.50	4	7	11
	> 2.50 – 3.00	32	9	41
	> 3.00 – 3.50	48	11	59
	> 3.50 – 4.00	80	18	98
Total		166	47	213

Source: Processed data (2019)

Based on Table 4, it can be seen that the majority of students play an active role in participating in organizations as many as 166 people with a percentage of 77.93%, while those who are not actively participating in organizations are 47 people with a percentage of 22.07%. The majority of students who are active in organizations, namely those who have a GPA> 3.50-4.00 are 98 people. These data show that by being active in organizations, students are still able to maintain a good GPA [11]. The cross tabulation between GPA and achievement can also be seen in Table 5 below.

Table 5. Cross Tabulation of GPA and Achievement

		Academic	Art	Sport	Others	No achievement	Total
GPA	< 2.00	0	0	1	0	3	4
	>2.00–2.50	1	0	1	0	9	11
	>2.50–3.00	1	1	3	2	34	41
	>3.00–3.50	15	3	2	0	39	59
	>3.50–4.00	18	8	4	2	66	98
Total		35	12	11	4	151	213

Source: Processed data (2018)

Table 5 shows that students have achievements, both academic and non-academic. Students with a GPA of >3.50-4.00 have the highest achievements in the academic field by 18 students. This shows that students who have a high GPA tend to have an interest in participating in every competition activity to hone academic and non-academic skills.

B. Perceptions of Generation Z Students on Learning Styles

1. Visual Learning Style

Visual learning style is a form of learning style by way of seeing, looking at the object being studied. People who have a visual learning style like to see illustrations, pictures, shapes and very easily absorb information by looking [12], [13]. The results of descriptive analysis, the perceptions of generation Z students towards learning styles can be seen in Table 6.

Table 6. Student Perceptions of Visual Learning Styles

No	Statement	Mean	Category
1	I always want to look neat and organized in my clothes and presentations.	3.50	Strongly agree
2	I tend to speak in a fast tone.	2.85	Agree
3	I am a good long-term planner and organizer in everything.	2.90	Agree
4	When studying, I tend to remember seeing rather than listening.	3.00	Agree
5	I like to remember course material by connecting things I have seen in the field.	3.23	Agree
6	When the atmosphere around the class is noisy, I can still concentrate.	2.15	Disagree
7	When the lecturer explains the assignment orally, I often don't understand and ask for help to repeat it.	2.65	Agree
8	I am used to reading references (books, articles, journals, lecture materials) quickly and diligent.	2.23	Disagree
9	I often scribble meaninglessly in notebooks when the lecturer explains.	2.69	Agree
10	I often take notes when the lecturer explains.	2.88	Agree
11	I find it easier to understand powerpoint slides (table/ diagram).	2.59	Agree
	Total	2.78	Agree

Source: Processed data (2019)

Table 6 shows that students really pay attention to their appearance and performance in public. Students strongly agree in terms of dress and

presentation, always wanting to look neat and tidy. Individuals who have a visual learning style tend to pay attention to things in detail and rely on sight. They agree that remembering lessons tends to be easier by seeing and easily remembering course material by connecting everything that is seen in the field. This shows that current generation Z students easily accept lessons by looking at pictures, shapes, patterns, letters, numbers. Courses that are interspersed with videos, powerpoint slides, and graphics are a solution for students who have a visual learning style to more easily absorb the material during the lecture. Students who have a visual learning style when given an assignment by the lecturer orally often do not understand, so they ask for help from friends to repeat the explanation from the lecturer. In addition, students often write in notebooks when the lecturer explains the material, making it easier to recall the lecture material. In addition, students prefer a calm atmosphere so they can concentrate and receive lecture materials well.

2. Auditory Learning Style

Auditory learning style is a learning style by relying on hearing to receive information and remember lecture material. The following are the perceptions of generation Z students towards learning styles in Table 7.

Table 7. Students' Perceptions of Auditory Learning Styles

No	Statement	Mean	Category
1	When the class is noisy, I can't concentrate.	3.08	Agree
2	When reading references (books, articles, journals, lecture materials) I often move my lips following sentences.	2.89	Agree
3	I find it easier to understand what I read aloud	2.72	Agree
4	I find it easier to understand lecture material when the lecturer explains with a loud intonation	2.90	Agree
5	I prefer presentations to paper assignments	2.76	Agree
6	I always speak fluently and are not nervous in class	2.58	Agree
7	I like to talk, discuss, and explaining something at length	2.60	Agree
8	I find it easier to remember what the lecturer said by listening.	2.43	Disagree
Total		2.74	Agree

Source: Processed data (2019)

Table 7 shows that when the class is noisy, students who have an auditory learning style will be disturbed because in remembering the course material they rely on their hearing to understand the subject

material. Students agree when reading references (books, articles, journals, lecture materials) to follow sentences by moving their lips and reading aloud to make it easier to understand the material. They prefer to present, talk, and explain things at length, fluently and are not nervous during the discussion session [14]. Students also find it easier to understand the material when the lecturer explains in a clear intonation accompanied by the teaching material available on the slide powerpoint or on the board.

3. Kinesthetic learning style

Students who have a kinesthetic learning style tend to like learning systems that are physically oriented and have a lot of body movement, cannot stay still for a long time and use a lot of body cues so that they can receive the information conveyed by others [15]. Students' perceptions of kinesthetic learning styles can be seen in Table 8.

Table 8. Student Perceptions of Kinesthetic Learning Styles

No.	Statement	Mean	Category
1	I find it easier to understand explanations from lecturers when sitting in the front row	3.02	Agree
2	I prefer to understand subjects during direct response/practice	3.26	Sangat setuju
3	I find it easier to understand what I learn when moving my limbs	2.89	Agree
4	When reading I use my fingers to point to the words I read	2.25	Disagree
5	I'm bored when I stay in class for a long time	3.44	Strongly agree
6	I move my hands/feet/walk during a presentation	3.22	Agree
7	I like activities in class that require movement of limbs	2.88	Agree
8	I like the game/ice breaking sessions conducted by lecturers in class	3.17	Agree
Total		3.01	Agree

Source: Processed data (2019)

Based on Table 8, it can be seen that students who have a kinesthetic learning style are very bored when they do nothing in class. They like to make lots of body movements and it is easier to understand the material by moving [16]. During the presentation, for example, moving the limbs, walking, and moving the hands. This shows that by moving, students are more comfortable in the learning process. Students prefer the game/ice

breaking session conducted by the lecturer. The majority of students understand the material by taking part in field work or practicing doing questions. Lecturers can apply a learning system outside through field trip so that students understand the material well.

C. Students' Perceptions of Achievement

1. Norm-Referenced Assessment

In this assessment, learning achievement is measured by comparing the achievements between classmates. Norm-Referenced Assessment for students can be seen from the GPA results. Table 3 shows that 157 students have GPA> 3.00 and 56 students have GPA <3.00. This shows that academically, student achievement is quite good.

2. Criterion-Referenced Assessment

This assessment is a process of measuring learning achievement by comparing the achievement of a student with various well-defined domain behaviors as an absolute benchmark [17]. The behavioral domains consist of cognitive, affective, and psychomotor.

a. Cognitive

The cognitive domain is oriented towards thinking skills which include simple intellectual abilities such as remembering, understanding, applying, analyzing, synthesis, and evaluation. Students' perceptions of the cognitive can be seen in Table 9.

Table 9. Students' Perceptions of cognitive domain

No.	Statement	Mean	Category
1	During lecture, my knowledge increased.	3.17	Agree
2	During lecture, I was able to apply managerial concepts well.	2.95	Agree
3	During lecture I was able to analyze a problem both academically and non-academically well.	3.00	Agree
4	During lecture, I easily understood the material presented by the lecturer.	2.76	Agree
5	During lecture I was able to remember course material well.	2.62	Agree
6	I have good Bahasa skills	3.19	Agree
7	I have good English skills	2.60	Agree
8	I have good foreign language skills	1.89	Disagree
9	I have understanding inteaching online	3.03	Agree
10	I have multitasking skills	2.71	Agree

Total	2.79	Agree

Source: Processed data (2019)

Table 9 shows that students agree to the cognitive domain during lectures. They are able to apply managerial concepts, increase knowledge, increase achievement, and are able to analyze a problem both academic and non-academic.

Nowadays, students have good communication skills in Bahasa, but lack of foreign languages. In this industrial revolution 4.0 era, having the ability to speak English and foreign languages is important in order to compete globally [18]. Therefore, it is necessary to have an additional learning process using foreign languages so that students' abilities are getting better. Generation Z students also have abilities multitasking and it is easier to access lecture materials by online. Therefore, there is a need for innovation by the lecturers in using the internet to support student understanding of lecture materials.

b. Affective

The affective domain deals with attitudes and values that include behavioral traits, attitudes, interests, and emotions. The following are students' perceptions of the affective domain that can be seen in Table 10.

Table 10. Students' Perceptions of affective domain

No.	Statement	Mean	Category
1	I am willing to accept criticism and suggestions from others during presentations.	3.42	Strongly agree
2	I participate in activities outside of lectures (such as seminars).	3.06	Agree
3	I often ask the lecturer when in class.	2.22	Disagree
4	I always attend lectures in class.	2.94	Agree
5	I participate in a competition activity.	2.34	Disagree
6	During the lecture, I listened to the lecturers' explanations carefully.	2.95	Agree
7	When solving a problem, I would apply the theory I had obtained.	2.83	Agree
8	I have the ability to lead well	2.90	Agree
	Total	2.83	Agree

Source: Processed data (2019)

Table 10 shows that students are willing to accept criticism and suggestions from others. Students are also active in activities outside that can increase understanding and insight. During the lecture, students also attended and listened to the lecturers' explanations well. In addition, students have the ability to lead and solve problems. However, students need to increase participation in participating in competition activities and take the initiative to actively ask questions related to material in class.

c. Psychomotor

The psychomotor domain relates to skills or the ability to act after receiving certain learning experiences. The following are students 'perceptions of the psychomotor domain that can be seen in Table 11.

Table 11. Students' Perceptions of Psychomotor domain

No.	Statement	Mean	Category
1	I have good skills in applying computers	3.03	Agree
2	I have the ability to process data well using Microsoft Office / SPSS / SEM / Mini Tab / similar	2.78	Agree
3	I can present presentation materials well	3.16	Agree
4	I can complete the task of making videos / posters / papers well	2.98	Agree
5	I am good at accessing information on the internet	3.41	Strongly agree
6	I am able to create a personal blog / personal email / similar applications (google drive, bit.ly, google maps) well	3.16	Agree
7	I am able to convey something verbally to other people well	3.01	Agree
8	I am able to convey something in writing to other people well	2.92	Agree
Total		3.05	Agree

Source: Processed data (2019)

From Table 11 it can be seen that students have the skills to apply computers and process data using applications/software. Students also proficient using the Internet and able to create a personal blog/email/similar applications well (google drive, bit.ly, google maps). This shows that generation Z are able to complete tasks using computers and internet. In the era of the industrial revolution 4.0, it is necessary to have expertise in using digital technology to improve the quality of human resources.

D. Discussion

The validity test using Microsoft Excel 2007 and SPSS 23 with a significance level of 5%. This test results in all indicators passing the validity test. The results of the reliability test are said to be reliable if the chonbach's alpha value is greater than 0.60 [Priyatno 2012]. The results of the learning style reliability test resulted in a chonbach's alpha value by 0.714 while the results of the achievement reliability test resulted in a chonbach's alpha value by 0.850, so all statement items were reliable.

Based on the normality test with the Kolmogorov-Smirnov Test, a significance value of 0.096 is greater than 0.05. So it can be concluded that the data is normally distributed. This research fulfills the normality test on the classical assumption test. The results of the heteroscedasticity test using Rank Spearman, it is known that the significance result on the visual indicator is 0.657, the auditory indicator is 0.625, and the kinesthetic indicator is 0.671. The significance value of this indicator is more than 0.05. So it concluded that the regression model has no symptoms of heteroscedasticity.

From the results of the multicollinearity test, the tolerance value on the visual indicator was 0.948, the auditory indicator was 0.710, and the kinesthetic indicator was 0.679. Meanwhile, the Variance Inflation Factor (VIF) value on the visual indicator is 1.055, the auditory indicator is 1.408, and the kinesthetic indicator is 1.472. So it can be concluded that there is no multicollinearity between indicators in the regression model.

The contribution of the independent variable to the dependent variable can be seen from the amount of Adjusted R Square. The R value obtained was 0.704 or equal to 70.4%. This shows that the kinesthetic, visual and auditory variables simultaneously (together) affect the achievement variable by 70.4% while the rest is influenced by variables that not examined in this study.

In the F test, it is found that Fcount is 79.353 with a significance level of 0.000. These results indicate that $F_{count} > F_{table}$ (79.353> 2.70) and significance (0.000 <0.050). Then H_0 is rejected and H_1 is accepted, which means that the visual, auditory, and kinesthetic learning styles simultaneously have an effect on achievement. This shows that the learning styles possessed by generation Z students must be honed in order to increase achievement.

Meanwhile, the significance level used in the t test is 5% (0.05) and the T_{table} is 1.984. Data processing regarding the t test can be seen in Table 12.

Table 12. Result of t Test

Model	Coefficient Unstandard		Coefficient Standard	T	Sig.
	B	Std. Error	Beta		

(Constant)	1.218	.118		10.343	.000
Visual	.342	.035	.572	9.671	.000
Auditory	.066	.026	.154	2.560	.012
Kinesthetic	.202	.032	.407	6.397	.000

Source: Processed data (2019)

Based on test results, showing that the value of T_{count} learning stylesthirdis greater than the value of the T_{table} (1,984) and the significance value (0.000 <0.05), so that H0 rejected and H1 accepted. This indicates that the results of the t-test for the three variables significantly influence student achievement. From the results of data processing, the regression model is obtained as follows:

$$Y = 1.218 + 0.342X_1 + 0.066X_2 + 0.202X_3$$

Information:

Y = Achievement
X_1 = Visual Learning Style
X_2 = Auditory Learning Style
X_3 = Kinesthetic Learning Style

From the multiple linear regression equation, it can be concluded that visual, auditory, and kinesthetic learning styles have a significant positive effect on student achievement of Generation Z. Visual learning styles have a positive effect on student achievement by 0.342 or by 34.2%. Students who have a visual learning style rely on sight as an acceptable source of receiving information during the learning process. Students who have a visual learning style need to be provided with facilities in the form of an appropriate improvement in the teaching system in order to motivate and improve learning outcomes. As for the form of slidespower point, interactive videos, and props that support the learning process. Auditory learning style has a positive effect on student achievement by 0.066 or by 06.6%. Auditory learning styles are learning styles that rely on hearing to understand and remember lecture material. While the kinesthetic learning style has a positive effect on student achievement by 0.202 or by 20.2%. Students who have a kinesthetic learning style rely on body movements, touching something that provides information to make it easier to understand and remember lecture material.

Based on the three learning styles, it concluded that visual learning style is the most dominant and influences the achievement of generation Z students. This shows that visual learning styles have a higher influence than other learning styles in improving student learning outcomes.

There is a need for a curriculum evaluation in accordance with the characteristics of current generation Z. The method used is E-learning where students can optimize the internet as a search for learning information. The following are recommendations for institutions which can be seen in Table 13.

Table 13. Recommendations for Institutions

Stages	Activities	Action	Category
Input	Planning of teaching and learning activities	1. Evaluating the digital-based curriculum with e-learning method.	Visual
		2. Evaluating the teaching and learning system of the teaching and learning team.	Visual
Process	Teaching and learning activities	1. Providing facilities in the form of comfortable classes.	Auditory
		2. Providing games or ice breaking sessions, fieldtrip, and internship.	Kinesthetic
Output	Evaluation of teaching and learning activities	1. Facilitating the improvement of English language skills.	Cognitive
		2. Facilitating the improvement of foreign language skills.	Cognitive
		3. Optimizing technology and the use of LMS as a learning information system.	Visual
		4. Providing facilities in the form of training in the use of Microsoft Office/SPSS/Mini Tab/SEM.	Psychomotor
		5. Consistency of the teaching team to prepare teaching materials in the form of powerpoints, videos interactive, and visual.	Visual
		6. Provide seminar facilities both national and international to broaden students' insight and understanding.	Affective

Source: Processed data (2019)

These three learning styles can be developed become an enrichment learning program. The result of the research recommend that a larger portion for Generation Z is a combination of visual and kinesthetic learning styles. Generation Z prefers to learn something real and move a lot. Auditory learning styles have the smallest portion. This recommendation can be taken into consideration by stakeholders in determining for higher education policies.

IV. Conclusion

The generation Z of IPB University students class year 2015-2018 are dominated by 58.21% female, the highest GPA in the range >3.00-3.50 by 46.95% students, 37.56% of students receive scholarships, 77.93% of students actively participated in the organization, and 29,58% of students with good achievements.

The learning style that is most dominant and influences student achievement is the visual learning style. Visual learning styles by 34.2%, auditory by 6.6%, and kinesthetic by 20.2% have a significant positive effect on student achievement. All of these learning styles influence the achievement variable by 70.4%.

Learning recommendations are to improve the design of the learning system, evaluate the digital-based curriculum with e-learning method, improve practical learning (games or ice breaking sessions, fieldtrip, and internship), optimize technology and the use of LMS as a learning information system, and consistency of team teaching in preparing teaching materials.

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