Individualized Instruction on Students' Engagement and Learning Outcomes

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Abstract

The aim of this study was to examine the effects of personalized instruction on student engagement and learning outcomes in Technology and Livelihood Education (TLE) among Grade 10 students at Pacita Complex National High School. Specifically, The study also aimed to determine the status of level of utilization of individualized instruction, level of student engagement and learning outcomes in terms of practical and written test. In addition to that, this study assessed the statistical significance of individualized instruction on student engagement and learning outcomes.

Using quantitative research design, students experienced individualized instruction while studying cookery knowledge and skills that includes customary schedule, flexible scheduling of task and buzz group. The researcher designed a questionnaire and have it validated by three (3) experts in the field of Technology and Livelihood Education from the different schools in San Pedro, Laguna. This research involved one hundred fifty (150) Grade 10 students from Pacita Complex National High School in San Pedro City, Laguna.

It was found out that students showed high level utilization with high level of engagement in terms of student responsiveness, curiosity, learning discovery and task completion. This suggests a strong engagement level with personalized instruction, as this teaching method caters to individual learner needs and characteristics. Furthermore, highly engaged students demonstrated outstanding academic performance, as reflected in the scores on both written and practical tests. Based on the results, individualized instruction specifically flexible scheduling of task significantly influenced student engagement. On the other hand, individualized instruction did not significantly affect learning outcomes in practical and written tests. This implies that individualized instruction does not entirely cause the changes in the scores of the students but there are other factors that may influence their performance on written and practical test such teacher factor, subject matter mastery and learning environment.

The study revealed that flexible scheduling tasks significantly boost student engagement, fostering personalized progress and varied learning experiences. However, it does not significantly affect task completion, curiosity, or learning discovery and as well, learning outcomes. It showed no significant effect on learning outcomes for Grade 10 TLE students, highlighting the complexity of educational strategies in consistently impacting learning outcomes. These findings indicate that offering diverse activity options within individualized instruction encourages students to reflect on their learning processes. It is necessary to create an inclusive educational experience that caters to different learning styles and preferences, ultimately enhancing student engagement and learning outcomes.

Based on the results, the researcher recommends that further studies are necessary to explore other factors that contribute to enhancing the application of knowledge and skills in TLE. Future studies should focus on different ways to personalize instruction that can align with Grade 10 students' need. This can be done by adding in new strategies in individualized instruction suit students' specific learning needs.

Keywords: personalized instruction; student engagement; learning outcomes

1. Introduction

The teaching-learning process has significantly changed in the changing context of 21st-century education. The ability of both students and teachers to adjust to the constantly shifting economic, technological, and societal situations is what drives this evolution. Learners are not only encouraged but also expected to develop the skills and knowledge necessary to succeed in their chosen industries as the world become more connected. This change indicates a transition from traditional rote learning and towards a more comprehensive strategy that fosters creativity, problem-solving, and critical thinking role in preparing students for the challenges of the future (Aranda & Zamora, 2016)

To cope with the needs of the learners, the educators must be equipped with teaching strategies and appropriate approaches to attain learning outcomes. Mallilin et al. (2020, as cited by Lipayon, 2022) mentioned that it is necessary to include strategies such technology integration in the classroom to motivate students on learning. Applying technologies and other strategies ensures fulfillment of learner's needs and positive learning experiences. This type of approach leans towards the concept of adaptive teaching.

As part of the K-to 12 curriculum, Technology and Livelihood Education (TLE) is a subject that equips students with practical skills and knowledge related to various industries. It covers a wide range of topics, including agriculture, home economics, industrial arts, and ICT. The topic offers a special chance to foster creativity, critical thinking, and adaptability in students as they participate in hands-on activities and real-world problem-solving - all of which are crucial skills for success in today's fast changing global environment.

Hence, making use of individualized instruction in teaching TLE will be helpful in attaining the expected learning outcomes. In this study, the researcher aims to investigate the effectiveness of Individualized Instruction on student's engagement and learning outcomes in TLE 10.

1.1 Statement of the Problem

Specifically, it intends to answer the following questions:

1. What is the level of utilization of individualized instruction in terms of:
   a. Customary module;
   b. Flexible scheduling of task; and
   c. Buzz Group?
2. What is the status of student engagement in terms of:
   a. task completion;
   b. curiosity;
   c. learning discovery; and
   d. student responsiveness?
3. What is the level of Grade 10 students' learning outcomes in terms of:
   a. written test; and
   b. practical test?
4. Is there a significant effect of utilizing individualized instruction to the student's engagement?
5. Is there a significant effect of utilizing individualized instruction to the student's learning outcomes?

2. Methodology

The study employed quantitative one group pretest-post-test design. A pre-test was administered at the beginning of the study to assess their performance and after the applying the individualized instruction,

their academic achievement and level engagement are evaluated. This quantitative research design is appropriate in this study since it determines its cause-and-effect relationship by measuring its effectiveness in terms of assessing learning outcomes.

3. Results and Discussion

This chapter shows the findings of the study that characterized the level of utilization of individualized instruction in terms of customary module, flexible scheduling of tasks, and buzz groups. It also assessed the level of the student's performance and engagement in TLE to associate the effects of utilization of individualized instructions on these variables.

Level of Utilization of Individualized Instruction

The level of utilization of individualized instruction in terms of customary module, flexible scheduling of task and buzz group, was treated statistically using mean and standard deviation.

Level of Utilization of Individualized Instruction in terms of Customary Module

Table 1 shows the level of utilization of individualized instruction in terms of customary module. Also shows the statements, mean, standard deviation and remarks.

The students strongly agrees that customary module of individualized instruction is interactive and enhances my learning experience. The mean (M = 4.45 and SD=0.51) suggests a high level of utilization of individualized instruction in terms of customary module. On the other hand, students also strongly agrees that customary module of individualized instruction contributed to better knowledge application in real world scenarios related to TLE. While the mean is slightly lower (M = 4.23 and SD=0.47), it still indicates a high level of utilization of individualized instruction in terms of customary module by the students.

Table 1 *Level of Utilization of Individualized Instruction in terms of Customary Module*

The customary module of individualized instruction…	MEAN	SD	REMARKS
…allows me to progress at my own pace and tailor the content to my specific learning style	4.35	0.57	Strongly Agree
…is interactive and enhances my learning experience	4.45	0.51	Strongly Agree
….contributed to better knowledge application in real world scenarios related to TLE	4.23	0.47	Strongly Agree
…positively influenced the understanding of the course content	4.34	0.50	Strongly Agree
…make the content easier to understand.	4.40	0.57	Strongly Agree
improved significantly to the ability to retain information	4.36	0.52	Strongly Agree
…gave me the autonomy to set and achieve personal learning goals	4.37	0.55	Strongly Agree
…unique and personalized learning experience	4.32	0.51	Strongly Agree
…makes the subject interesting	4.39	0.53	Strongly Agree
…contributes to a more engaging and fulfilling educational journey.	4.35	0.48	Strongly Agree
Weighted Mean	4.36		

SD	0.52
Verbal Interpretation	Very High

The level of utilization of individualized instruction in terms of customary attained a weighted mean score of 4.36 and a standard deviation of 0.52 and was verbally interpreted as *very high* among the respondents. This implies that high utilization of individualized instruction in customary modules indicates positive student responses, enhancing engagement, personalized learning experiences, flexibility, and empowerment.

Level of Utilization of Individualized Instruction in Terms of Flexible Scheduling of Task
Table 2shows the level of utilization of individualized instruction in terms of flexible scheduling of tasks. It also shows the statements, mean, standard deviation and remarks.

Table 2 *Level of Utilization of Individualized Instruction in Terms of Flexible Scheduling of Task*

The flexible scheduling of tasks of individualized instruction….	MEAN	SD	REMARKS
…promoting productivity and job satisfaction is important.	4.21	0.67	Strongly Agree
…contribute to a more collaborative and interactive learning environment	4.27	0.66	Strongly Agree
…helps reduce my study stress.	4.30	0.63	Strongly Agree
…balances my personal and academic life.	4.24	0.47	Strongly Agree
…increases my overall study satisfaction.	4.27	0.54	Strongly Agree
…allows me to study during my peak energy times.	4.19	0.65	Agree
…essential for individualized instruction.	4.31	0.58	Strongly Agree
…allows me to accommodate unforeseen commitments.	4.16	0.58	Agree
…makes study schedule easier to adjust.	4.19	0.62	Agree
…provided intuitive and easy to use tools	4.21	0.53	Strongly Agree

Weighted Mean	4.24
SD	0.59
Verbal Interpretation	Very High

The students strongly agrees that flexible scheduling of the task in individualized instruction is essential. The mean (M = 4.31 and SD=0.58) indicates a high level of utilization of individualized instruction in terms of customary module. On the other hand, students also agrees that flexible scheduling of tasks allows me to accommodate unforeseen commitments related to TLE. While the mean is slightly lower (M = 4.16 and SD=0.58), it still indicates a high level of utilization of individualized instruction in terms of flexible scheduling of tasks by the students.

The level of utilization of individualized instruction in terms of flexible scheduling of tasks attained a weighted mean score of 4.24 and a standard deviation of 0.59 and was verbally interpreted as *very high* among the respondents. This explains that high utilization of individualized instruction in flexible scheduling of task receives positive outcomes, enhances productivity and learning satisfaction. Allowing students to learn at their own pace optimize the potential of the students' productivity and well-being.

Level of Utilization of Individualized Instruction in Terms of Buzz Group
Table 3 shows the level of utilization of individualized instruction in terms of buzz group. It also shows the statements, mean, standard deviation and remarks.

Table 3 *Level of Utilization of Individualized Instruction in Terms of Buzz Group*

The buzz group of individualized instruction…	MEAN	SD	REMARKS
…deepens my understanding of the content.	4.24	0.64	Strongly Agree
…stimulate my critical thinking.	4.26	0.64	Strongly Agree
…make me comfortable sharing my opinions.	4.37	0.67	Strongly Agree
…conducive to effective discussion.	4.16	0.65	Agree
...shows more engaging than traditional discussions.	4.19	0.61	Agree
…enhance my learning.	4.23	0.60	Strongly Agree
…provide diverse perspectives on the content.	4.27	0.58	Strongly Agree
…exhibited well-structured and organized discussions.	4.29	0.60	Strongly Agree
…complement the individualized module approach effectively.	4.23	0.61	Strongly Agree
…recommend approach for discussions in other subjects.	4.30	0.55	Strongly Agree

Weighted Mean	4.25
SD	0.61
Verbal Interpretation	Very High

The students strongly agrees that buzz group in individualized instruction make sharing opinions comfortable. The mean (M = 4.37 and SD=0.67) implies a high level of utilization of individualized instruction in terms of buzz group. On the other hand, students also agrees that buzz group conducive to effective discussion. While the mean is slightly lower (M = 4.16 and SD=0.65), it still indicates a high level of utilization of individualized instruction in terms of buzz group by the students.

The level of utilization of individualized instruction in terms of buzz group attained a weighted mean score of 4.25 and a standard deviation of 0.61 and was verbally interpreted as *very high* among the respondents.

Students' Engagement

The status of grade 10 students' engagement in terms of task completion, curiosity, learning discovery and student responsiveness, was treated statistically using mean and standard deviation.

Students' Engagement in Terms of Task Completion

Table 4 shows the level of students' engagement in terms of task completion. It also shows the statements, mean, standard deviation and remarks.

Table 4 *Students' Engagement in Terms of Task Completion*

I…	MEAN	SD	REMARKS
…maintain the motivation throughout the process	4.38	0.64	Strongly Agree
…am eager to complete the tasks assigned to me on time.	4.31	0.58	Strongly Agree
…have adequate time to complete the tasks.	4.31	0.62	Strongly Agree
...find the tasks appropriate level for me.	4.31	0.61	Strongly Agree
…submit high-quality work	4.17	0.70	Agree

Weighted Mean	4.30
SD	0.63
Verbal Interpretation	Very High

The students strongly agree that individual instruction maintain the motivation throughout the process of task completion. The mean (M = 4.38 and SD=0.64) implies a high level of student engagement instruction in terms of completion. On the other hand, students also agree that they submit high quality of work during individualized instruction. While the mean is slightly lower (M = 4.17 and SD=0.70), it still indicates a high level of students' engagement in terms of task completion.

The level of students' engagement in terms of task completion attained a weighted mean score of 4.30 and a standard deviation of 0.63 and was verbally interpreted as *very high* among the respondents. This shows that individualized instruction helps the students maintain the students' engagement while attaining the goal of completing the tasks.

Students' Engagement in Terms of Curiosity

Table 5 shows the level of students' engagement in terms of task curiosity. It also shows the statements, mean, standard deviation and remarks.

Table 5 *Students' Engagement in Terms of Curiosity*

I	MEAN	SD	REMARKS
... ask personalized question to seek deeper understanding	4.19	0.74	Agree
... actively seek out additional personalized discussions or debates related to the tasks	4.29	0.55	Strongly Agree
... challenge my own assumptions and beliefs	4.33	0.62	Strongly Agree
... ask feedback to improve my understanding in the lesson	4.29	0.55	Strongly Agree
... often find and use other learning resources to supplement to improve my understanding about the subject.	4.29	0.62	Strongly Agree

Weighted Mean	4.28
SD	0.61
Verbal Interpretation	Very High

The students strongly agree that assumptions, beliefs, and knowledge are challenged after experiencing individualized instruction. The mean (M = 4.33 and SD=0.62) implies a high level of student engagement instruction in terms of curiosity. On the other hand, students also agree that they ask personalized question to seek deeper understanding during individualized instruction. While the mean is slightly lower (M = 4.19 and SD=0.74), it still indicates a high level of students' engagement in terms of task curiosity.

The level of students' engagement in terms of curiosity attained a weighted mean score of 4.28 and a standard deviation of 0.63 and was verbally interpreted as very *high* among the respondents. This explains that individualized instruction challenges and enhances students' perspectives and fostering a deep level of engagement in the learning process.

Students' Engagement in Terms of Learning Discovery

Table 6 shows the level of students' engagement in terms of learning discovery. It also shows the statements, mean, standard deviation and remarks.

Table 6 *Students' Engagement in Terms of Learning Discovery*

Learning Discovery ...	MEAN	SD	REMARKS
...discover new ways of understanding or solving problems	4.30	0.70	Strongly Agree

	MEAN	SD	REMARKS
...able to identify and focus on areas of interest within the subject.	*4.33*	*0.60*	*Strongly Agree*
...always seek out personalized opportunities for hands-on learning experiences.	*4.27*	*0.63*	*Strongly Agree*
...always engage in group discussion and collaborative learning to discover topics that I were previously unaware of or indifferent.	*4.00*	*0.70*	*Agree*
...find learning generally satisfying	*4.29*	*0.65*	*Strongly Agree*

Weighted Mean   *4.24*
SD   *0.66*
Verbal Interpretation   *Very High*

The students strongly agree that they were able identify and focus on areas of interest within the subject. The mean (M = 4.33 and SD=0.60) suggests a high level of student engagement instruction in terms of learning discovery. On the other hand, students also agree that they always engage in group discussion and collaborative learning to discover topics that I was previously unaware of or indifferent. While the mean is slightly lower (M = 4.00 and SD=0.70), it still indicates a high level of students' engagement in terms of learning discovery.

The level of students' engagement in terms of learning discovery attained a weighted mean score of 4.24 and a standard deviation of 0.66 and was verbally interpreted as *very high* among the respondents. The positive response of individualized instruction in terms of learning discovery implies that this strategy enables students to explore make learning satisfying the areas of interest and actively participate in collaborative learning.

Students' Engagement in Terms of Student Responsiveness

Table 7 shows the level of students' engagement in terms of student responsiveness. It also shows the statements, mean, standard deviation and remarks.

Table 7 *Students' Engagement in Terms of Student Responsiveness*

I...	MEAN	SD	REMARKS
...try to think of multiple solutions, when challenging problem arises.	*4.17*	*0.72*	*Agree*
...am able to identify problems that keep from my goals.	*4.27*	*0.58*	*Strongly Agree*
...always think of ways to solve the problem.	*4.19*	*0.64*	*Agree*
...identify what needs to be known about a problem or design task.	*4.25*	*0.58*	*Strongly Agree*
...use knowledge learned to solve new problems.	*4.18*	*0.65*	*Agree*

Weighted Mean   *4.21*
SD   *0.63*
Verbal Interpretation   *Very High*

The students strongly agree that they were able to identify problems that keep from my goals. The mean (M = 4.27 and SD=0.58) suggests a high level of student engagement instruction in terms of student responsiveness. On the other hand, students also agree that they try to think of multiple solutions, when challenging problem arises. While the mean is slightly lower (M = 4.17 and SD=0.72), it still indicates a high level of students' engagement in terms of student responsiveness.

The level of students' engagement in terms of student responsiveness. attained a weighted mean

score of 4.21 and a standard deviation of 0.63 and was verbally interpreted as *very high* among the respondents. These results showed high level of engagement which implies that individualized instruction can facilitate in critical thinking and problem-solving of the students as response on the learning.

Learning Outcomes

The status of learning outcomes in terms of written test and practical test was treated statistically using the mean and standard deviation.

The table 8 shows the level of students' performance in terms of written test. Also it shows the scores, frequency, percentage remarks.

Table 8 *Learning Outcomes in Terms of Written Test*

Scores	Frequency	Percentage	Remarks
1-5	0	0.00%	Did Not Meet Expectations
6-10	0	0.00%	Fairly Satisfactory
11-15	0	0.00%	Satisfactory
16-20	47	31.33%	Very Satisfactory
21-25	103	68.67%	Outstanding
Total	150	100%	

Out of 150 respondents, the scores "21-25" received the highest frequency, with one hundred three (103) respondents, accounting for 68.67% of the total sample population. This was followed by the scores "16-20," with a frequency of forty-seven (47) respondents, comprising 31.33% of the total sample population. Meanwhile, the other scores received zero (0) respondent, making up 0.00% of the total sample population.

Table 9 *Learning Outcomes in Terms of Practical Test I*

Criteria	Mean	SD	Remarks
Accuracy	*4.64*	*0.77*	*Excellent*
Workmanship	*4.63*	*0.78*	*Excellent*
Safety and Sanitation	*4.37*	*0.93*	*Excellent*
Proper Handling of Tools	*4.37*	*0.93*	*Excellent*
Speed	*4.13*	*0.99*	*Proficient*
Overall	*4.43*	*0.88*	*Excellent*

The table 10 shows the level of students' performance in terms of practical test.

In terms of *accuracy*, more than half of the respondents got scores of five (5), "All steps have been correctly followed," with a mean of 4.64 and a standard deviation of 0.77 and were remarked as *excellent*. Secondly, in terms of *workmanship*, most of the respondents got scores of five (5), "Flesh of the fish is intact" with a mean of 4.63 and a standard deviation of 0.78, and were remarked as *excellent*. Third, in terms of *safety and sanitation*, the respondents got scores of five (5), "No injury and accident happened during the activity" with a mean of 4.37 and a standard deviation of 0.93 and were remarked as *excellent*. Fourth, in terms of *proper handling of tools*, more than half of the respondents got scores of five (5), "All tools have been properly manipulated" with a mean of 4.37 and a standard deviation of 0.93 and were remarked as *excellent*. Lastly, in terms of *speed*, the respondents got scores of five (5), "Finished right on time" with a mean of 4.13 and a standard deviation of 0.99 and were remarked as *proficient*.

Overall, the level of students' performance in terms of practical test attained the weighted

mean of 4.43 and standard deviation of 0.88 and was remarked as *excellent* among respondents.

Table 10 *Learning Outcomes in Terms of Practical Test II*

Criteria	Mean	SD	Remarks
Use of Tools and Equipment	4.04	1.00	Proficient
Application of Procedures	5.00	0.00	Excellent
Safety Work Habits	4.61	0.79	Excellent
Time Management	4.16	0.99	Proficient
Final Output	4.95	0.32	Excellent
Overall	4.55	0.62	Excellent

The table shows the level of students' performance in terms of practical test II. Also it shows the mean, standard deviation and remarks.

In terms of *use of tools and equipment*, the respondents got scores of five (5), "Uses tools and equipment correctly and confidently at all times" with a mean of 4.04 and a standard deviation of 1.00 and were remarked as *proficient*. Secondly, in terms of *application of procedures*, all of the respondents got scores of five (5), "Works independently with ease and confidence at all times" with a mean of 5.00 and a standard deviation of 0.00, and were remarked as *excellent*. Third, in terms of *safety work habits*, more than half of the respondents got scores of five (5), "Observes safety precautions at all times" with a mean of 4.61 and a standard deviation of 0.79, and were remarked as *excellent*. Fourth, in terms of *time management*, the respondents got scores of five (5), "Work completed ahead of time" with a mean of 4.16 and a standard deviation of 0.99, and were remarked as *proficient*. Lastly, in terms of *final output*, more than half of the respondents got scores of five (5), "Output is very presentable, and taste exceeds the standard." with a mean of 4.95 and a standard deviation of 0.32, and were remarked as *excellent*.

Table 11 *Learning Outcomes in Terms of Practical Test III*

Criteria	Mean	SD	Remarks
Proper Balance	4.75	0.67	Excellent
Use of Color	4.64	0.77	Excellent
Shape	4.60	0.80	Excellent
Use of Garnish	4.55	0.84	Excellent
Overall Product Presentation	4.89	0.45	Excellent
Overall	4.69	0.71	Excellent

The table shows the level of students' performance in terms of practical test III. Also, it shows the mean, standard deviation and remarks.

In terms of *proper balance*, more than half of the respondents got scores of five (5), "Plating is balanced with even eye appealing flow" with a mean of 4.75 and a standard deviation of 0.67, and were remarked as *excellent*. Secondly, in terms of *use of color*, more than half of the respondents got scores of five (5), "Color is complimentary and eye appealing" with a mean of 4.64 and a standard deviation of 0.77, and were remarked as *excellent*. Third, in terms of *shape*, more than half of the respondents got scores of five (5), "Incorporates variety of eye appealing shapes" with a mean of 4.60 and a standard deviation of 0.80, and were remarked as *excellent*. Fourth, in terms of *use of garnish*, more than half of the respondents got scores of five (5), "Appropriate for food items" with a mean of 4.55 and a standard deviation of 0.84 and were remarked as *excellent*. Lastly, in terms of *overall product presentation*, more than half of the respondents got scores of five

(5), "Presentation is attractively displayed shows creativity" with a mean of 4.89 and a standard deviation of 0.45, and were remarked as *excellent*.

Overall, the level of students' performance in terms of practical test was remarked as excellent with a weighted mean of 4.69 and standard deviation of 0.71.

Test of Significant Effect of Utilizing Individualized Instruction on Students Engagement

To test the significant effect of utilizing individualized instruction on the student's engagement in terms of task completion, curiosity, learning discovery and student responsiveness was treated statistically using Minitab v.16 using the regression analysis.

Test of Effect on Utilizing Individualized Instruction on Students Engagement in Terms of Task Completion

The table 12 showed the unstandardized coefficients, standardized coefficients, t-values, and p-values for each predictor variable. The analysis included three predictor variables: customary module, flexible scheduling of task and buzz group.

Table 12 *Test of Effect on Utilizing Individualized Instruction on Students Engagement in Terms of Task Completion*

	Unstandardized Coefficients		Standardized Coefficients		
	B	*Std. Error*	*Beta*	*t*	*Sig.*
(Constant)	*1.852*	*0.472*		*3.926*	*<.001*
Customary Module	*-0.027*	*0.106*	*-0.021*	*-0.257*	*0.798*
Flexible scheduling of Task	*0.283*	*0.092*	*0.263*	*3.074*	*0.003*
Buzz Group	*0.321*	*0.098*	*0.289*	*3.265*	*0.001*

$R = .467; R^2 = .218; Adj. R^2 = 0.202$
$F(3, 146) = 13.6; p<.001$

The results further showed that 21.80% of the variance is explained by the three predictors, F (3, 146) =13.6, *p*.<.001. Specially, flexible scheduling of task *(B=.263, t=3.07, p.003)* and Buzz Group *(B=.289, t=3.27, p.001)* are both positively affect with students' engagement in terms of task completion.

On the other hand, customary module *(B=-.02 t=-0.26, p.798)* is not significantly affected the outcome variable. This explains that customary module is not important factor that contribute to the student's engagement. Also, this implies that customary modules offer potential to enhance student engagement and task completion, but their effectiveness may be limited by contextual variations, lack of alignment, implementation challenges, and assessment practices. To maximize their benefits, it is essential to tailor these modules to the specific needs of the learners.

Test of Effect on Utilizing Individualized Instruction on Students Engagement in Terms of Curiosity

The table 13 showed the unstandardized coefficients, standardized coefficients, t-values, and p-values for each predictor variable. The analysis included three predictor variables: customary module, flexible scheduling of task and buzz group.

Table 13 *Test of Effect on Utilizing Individualized Instruction on Students Engagement in Terms of Curiosity*

	Unstandardized Coefficients		Standardized Coefficients		
	B	*Std. Error*	*Beta*	*T*	*Sig.*
(Constant)	*1.440*	*0.509*		*2.830*	*<.001*
Customary Module	*0.113*	*0.114*	*0.082*	*0.994*	*0.322*
Flexible scheduling of Task	*0.364*	*0.099*	*0.315*	*3.671*	*<.001*
Buzz Group	*0.188*	*0.106*	*0.158*	*1.776*	*0.078*

R = .458; R² = .210; Adj. R² = 0.193
F(3, 146) = 12.9; p<.001

The results further showed that 21.00% of the variance is explained by the three predictors, *F* (3, 146) =12.9, *p*<.001. Specially, flexible scheduling of task *(B=.32, t=3.67, p<.001)* is positively affect with students' engagement in terms of curiosity. On the other hand, customary module *(B=0.08 t=0.99, p.322)* and Buzz Group *(B=.158, t=1.78, p.078)* are not significantly affected the outcome variable.

On the contrary, customary modules and buzz groups have no significant effects on student engagement in terms of curiosity. Further research is needed to identify effective pedagogical practices that cultivate curiosity and enhance student engagement across diverse learning context.

Test of Effect on Utilizing Individualized Instruction on Students Engagement in Terms of Learning Discovery

The table 14 showed the unstandardized coefficients, standardized coefficients, t-values, and p-values for each predictor variable. The analysis included three predictor variables: customary module, flexible scheduling of task and buzz group.

Table 14 *Test of Effect on Utilizing Individualized Instruction on Students Engagement in Terms of Learning Discovery*

	Unstandardized Coefficients		Standardized Coefficients		
	B	*Std. Error*	*Beta*	*T*	*Sig.*
(Constant)	*1.807*	*0.470*		*3.849*	*<.001*
Customary Module	*-0.022*	*0.105*	*-0.017*	*-0.211*	*0.833*
Flexible scheduling of Task	*0.570*	*0.092*	*0.514*	*6.233*	*<.001*
Buzz Group	*0.027*	*0.098*	*0.023*	*0.273*	*0.786*

R = .520; R² = .271; Adj. R² = 0.256
F(3, 146) = 18.1; p<.001

The results further showed that 27.10% of the variance is explained by the three predictors, *F* (3, 146) =18.1, *p*<.001. Specially, flexible scheduling of task *(B=.51, t=6.23, p<.001)* is positively affect with students engagement in terms of learning discovery. On the other hand, customary module *(B=-02, t=-0.21, p.833)* and Buzz Group *(B=.02, t=0.27, p.786)* are not significantly affected the outcome variable.

Test of Effect on Utilizing Individualized Instruction on Students Engagement in Terms of Student

Responsiveness

Table 15 showed the unstandardized coefficients, standardized coefficients, t-values, and p-values for each predictor variable. The analysis included three predictor variables: customary module, flexible scheduling of task and buzz group.

Table 15 *Test of Effect on Utilizing Individualized Instruction on Students Engagement in Terms of Student Responsiveness*

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	0.203	0.452		0.449	<.001
Customary Module	0.216	0101	0.156	2.126	0.035
Flexible scheduling of Task	0.259	0.088	0.223	2.946	0.004
Buzz Group	0.463	0.094	0.386	4.916	<.001

$R = .619; R^2 = .384; Adj. R^2 = 0.371$

6    $F(3, 146) = 30.3; p < .001$

The results further showed that 38.40% of the variance is explained by the three predictors, F (3, 146) =30.3, $p < .001$. All predictor variables, customary module $(B=.16 \; t=2.13, \; p.035)$, flexible scheduling of task $(B=.22, \; t=2.95, \; p.004)$ and Buzz Group $(B=.39, \; t=4.92, \; p<.001)$ are all positively and was significantly affected the outcome variable in terms of student responsiveness.

Test of Significant Effect of Utilizing Individualized Instruction on Learning Outcomes

To test the significant effect of utilizing individualized instruction on the learning outcomes in terms of written and practical test was treated statistically using Minitab v.16 using the regression analysis.

Test of Effect on Utilizing Individualized Instruction on Learning Outcomes in Terms of Written Test

The table 16 showed the unstandardized coefficients, standardized coefficients, t-values, and p-values for each predictor variable. The analysis included three predictor variables: customary module, flexible scheduling of task and buzz group.

Table 16 *Test of Effect on Utilizing Individualized Instruction on Learning Outcomes in Terms of Written Test*

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
(Constant)	16.923	3.481		4.862	<.001
Customary module	0.903	0.781	0.107	1.157	0.249
Flexible scheduling of Task	0.153	0.678	0.022	0.226	0.822
Buzz Group	0.073	0.725	0.001	0.100	0.920

$R = .122; R^2 = .0148; Adj. R^2 = -0.0055$

$F(3, 146) = 2.09; p.536$

The results further showed that 1.48% of the variance is explained by the three predictors, *F* (3, 146) =2.09, *p*.536. All predictor variables, customary module *(B=*.12 *t*=1.16, *p*.249), flexible scheduling of task *(B=*.02, *t*=0.23, *p*.822) and Buzz Group *(B=*.001, *t*=0.10, *p*.920) are not significantly affected the outcome variable. Overall, while individualized instruction, customary modules, flexible scheduling of tasks, and Buzz Groups offer opportunities for personalized and collaborative learning experiences, their combined use may not always lead to significant improvements in learning outcomes as measured by written tests.

Test of Effect on Utilizing Individualized Instruction on Learning Outcomes in Terms of Practical Test

The table showed the unstandardized coefficients, standardized coefficients, t-values, and p-values for each predictor variable. The analysis included three predictor variables: customary module, flexible scheduling of task and buzz group.

Table 17 *Test of Effect on Utilizing Individualized Instruction on Learning Outcomes in Terms of Practical Test*

	Unstandardized Coefficients		Standardized Coefficients		
	B	*Std. Error*	*Beta*	*t*	*Sig.*
(Constant)	*26.144*	*2.302*		*11.356*	*<.001*
Customary module	*-0.906*	*0.516*	*-0.162*	*-1.755*	*0.081*
Flexible scheduling of Task	*-0.093*	*0.448*	*-0.020*	*-0.208*	*0.835*
Buzz Group	*0.247*	*0.480*	*0.051*	*0.515*	*0.608*

$R = .153; R^2 = .0233; Adj. R^2 = 0.0033$
$F(3, 146) = 1.16; p.326$

The results further showed that 2.33% of the variance is explained by the three predictors, *F* (3, 146) =1.16, *p*.326. All predictor variables, customary module *(B=*-0.16 *t*=-1.76, *p*.081), flexible scheduling of task *(B=*-0.02, *t*=-0.21, *p*.835) and Buzz Group *(B=*.05, *t*=0.52, *p*.608) are not significantly affected the outcome variable.

Despite that individualized instruction, customary modules, flexible task scheduling, and Buzz Groups offer opportunities for personalized and collaborative learning experiences, their combined use may not consistently lead to significant improvements in learning outcomes as measured by practical tests. Same with the scores on written tests, individualized instruction has no effect on the scores.

4. Conclusion and Recommendations

Based on the results, the following are the implications and inferences of the study:

1. It was shown that flexible scheduling tasks significantly affects the level of student's engagement since it rejects the null hypothesis. This explains that flexibility inherent in learning enables students to explore diverse opportunities, facilitating personalized progress and varied learning experiences. Furthermore, individualized instruction was found to positively influence student responsiveness in TLE. However, it did not yield significant effects on task completion, curiosity, or learning discovery. These implies that offering diverse activity options within individualized instruction encourages students to reflect on their learning processes.

2. Despite the positive responses and outcomes in student engagement and learning performance, it was found out that it failed to reject the null hypothesis. It showed that customary module, flexible scheduling, and buzz group have no significant effect on learning outcomes. This implies that these components of individualized instruction did not consistently influence the scores in written and practical test of Grades 10 students in TLE.

Based on the results gathered from the study, the following are being recommended:

1. When it comes to the utilization of individualized instruction, it is necessary to align instructional approaches in TLE to address specific challenges and opportunities associated with diverse backgrounds, considering the practical nature of this cookery subject. This suggests exploring other components of individualized instruction that may better align with the learning needs of Grade 10 students.

2. The materials used in individualized instruction made by the researcher are recommended to further utilization to enhance students' engagement in TLE.

3. It is necessary to perform further studies on how to enhance students' performance in TLE class. Further studies must be carried out to consider incorporating other assessment techniques beyond traditional written and practical tests to evaluate not only theoretical knowledge but also practical application in TLE subject.

Reference:

Aranda, M.R.R. & Zamora, J.L. (2016). Using Differentiated Instruction in Improving the Academic Performance of Students in Filipino Language. https://www.national-u.edu.ph/wp-content/uploads/2016/08/JSTAR-4_Aranda.pdf