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Effect of Training Platform on Interest and Academic Performance in Technical Education among Technical College Students in Ondo-State, Nigeria

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Abstract: Training platform is closely associated to e-learning. Training platforms are primarily focused on the delivery of online learning. It serves as a platform for a variety of uses, including asynchronous and synchronous methods of teaching and learning. This study investigated the effect of training platform instruction on students' interest and academic performance in technical education among technical college students. The study was conducted in Ondo State and applied a quasi-experimental methodology. The study involved 284 participants, including 232 male and 52 female students from two technical colleges in Ondo State. For effective investigation, training technical education interest rating (TEIR) and technical education academic performance (TEAP) instrument were faces verified by 3 experts. To analyze the null hypotheses that served as the study guiding principles and to provide answers to the research questions, the collected data were analyzed using the mean and analysis of variance (ANOVA). The results showed that students' interest and academic performance are enhanced when technical education is taught using a training platform method than the conventional instructional method. The study also finds a significant variation in the academic performance of the students who were taught technical education via the training platform instructional method. Based on these findings, the study concluded that the training platform instructional approach improves students' academic performance and interest more than the traditional approach in technical education. Also, male students had a stronger interest in technical education than female students who are taught technical education using the training platform instructional approach, and female students in technical institutions outperformed male students academically when utilizing the training platform. The study therefore recommended that technical colleges should take into consideration the use of training platform as an addition to the conventional instructional practices to enhance the quality of learning and teaching.

Keywords: Training Platform, Interest, Academic Performance, Technical Education, Technical Colleges

INTRODUCTION

Lately, new designs and concepts are introduced into the educational system. The application of technological tools in the educational system is rising swiftly in the 21st century, along with the increasing technological developments (Rahmawati et al., 2021). Training platforms (TP) have become one of the technology tools used in educational programs, especially for teaching and learning. A training platform (TP) is such a system, used by educational systems, especially higher education institutions across the globe. The advent of technological resources and the internet of things (IoT) could be attributed to the emergence of a training platform (TP). Virtual classes, teaching management systems, and computerized learning environments are all terms used to describe training platforms. A training platform (TP) is a program that operates in cyberspace and may be opened via a portal from anywhere as long as the user has internet access (Edebatu et al., 2019).

This implies that a training platform (TP) could be a bundled software package that can be operated to plan, execute, and appraise processes of teaching and learning. TP is adopted for online learning and usually consists of two components, that is, the internet that provides the basic operations and the end user such as the students, instructors, and administrative personnel. TP is a type of learning that takes place between students or between students and teachers or between teachers and members through a browser-based platform over the internet. Training platforms are designed to manage courses virtually, course material distribution, and teamwork between students and teachers.

The training platform established in some higher institutions globally helps connect students and teachers without the confines of the traditional classroom. A training platform gives instructors the ability to engage and educate remotely while students use a range of learning methods (Carrillo & Flores, 2020). All educational institutions utilize training platforms to not exclusively build students-centered education but to also promote enclosures that enhance the economy (Kpolovie & Lale, 2017; Smith, 2016). TPs are online software that is considered to manage and deliver educational content and resources to students, enables teachers and students to interact outside the classroom and easily share classroom materials, and have discussions through forums to save time spent learning in the classroom. TP empowers the web-based distribution of educational materials, library materials, course notes, and textbooks and also integrates learning events with administrative activities. TP provides the opportunity to manage learning, admin, pursuing, and broadcasting functions (Sejzi & Arisa, 2013). TP is a support system for most eLearning activities. A training platform includes using the internet to access information and expertise without respect to place or time (Al-adwaw et al., 2022). TP aids in the delivery of learning content to students and the assessment of students to determine their learning outcomes (Kulshrestha & Kant, 2013). TP features include unified and automotive administration, a self-service portal, and the ability to quickly compose and deliver learning content, integrate training programs on an accessible internet platform, support conveniences, quality, and personal content and enable knowledge reuse (Sejzi & Arisa, 2013) TPs often allows an instructor or teacher to produce and deliver lessons, monitor student participation, and appraise student performance. TPs give students the freedom to study whenever and wherever they want. TP allows educators to manage all aspects of the curriculum, from student registration, and storage of results, as well as permitting assignments to be accepted digitally and providing feedback to the students. TPs may be used in the educational system to facilitate learners' interests.

Interest and academic performance are mutually beneficial. Without interest, academic performance is not achievable. The philosophy of interest is significant in teaching and learning. Interest involves the activity or thing a person is concerned about or dislikes. Interest in learning is the psychological aspect of a person that manifests as urge, zeal, and desire, through various activities embracing the pursuit of knowledge and experience (Azaliah & Fadhilah, 2017). Interest centers on the sense organs to give attention to individual activity, situation, or object. (Essien et al., 2015). Interest is an individual's mental state toward a particular thing or situation, which defines the individual inclination toward it (Ezike, 2018). A lack of interest in a subject may lead to poor academic performance. Consequently, the extension and sustainability of the interest of students in technical education require a practical pedagogical approach that motivates students to study their courses for better academic performance.

Academic performance on the other hand is a measure of student achievement. Academic performance is a measure proven on a predetermined yardstick that shows how well a student has achieved the objective in the course of study (Ifeanyi & Chukwuere, 2018). Academic performance shows the student's ability to display their progressive behavior resulting from their learning effects (Mahuro & Hungii, 2016). Academic performance is the extent of success in a particular field of study (Adeniji et al., 2018). TPs have become part of learning activities as they allow teachers to access innovation and contribute to the academic performance of students (Avidov-Ungar et al., 2020). Academic performance can be improved when new technologies are integrated into the educational system (Onyia, 2019). Thus, the instructional techniques employed by instructors during the learning and teaching process may have a significant effect on the learning outcomes for students in technical

education. TPs are supplementary and supporting tools for improving students' interests and academic performance. TPs could help in facilitating teachers' work and improving the academic performance of students by making it more organized, structured, and easier. Hence, the need for adopting TP for teaching-learning to stimulate the interest of learners and boost their academic performance in technical education.

Technical education is a section of vocational and technical education programs consists of some interrelated units and programs with the principal objective of preparation for gainful employment. Technical education as an education that focuses on the qualitative growth of high-tech personnel and aims to develop skilled and self-reliant instructors and craftsmen (Okoye & Arimonu, 2016). Technical education which includes building, electrical/electronics, auto/metal, and woodwork technological courses contributes so much to sustainable livelihoods, personal empowerment, and social-economic development. Technical education is a special aspect of vocational education and practice-oriented and unique in content and method, thus it needs special attention in capturing students' interest because of its complexity and practicability. Vinay & Santosh (2018) noted that in technical education, TPs can provide learners with materials for self-study and collective learning, enhance teaching and other synchronous procedures of instruction and also provide extra learning hours, especially when learning time is limited but the course demand is high. Bergdahl (2022) in his study, noted that teachers require digital technologies to communicate verbally and non-verbally. Teachers can utilize various forms of technology to complement their teaching methods.

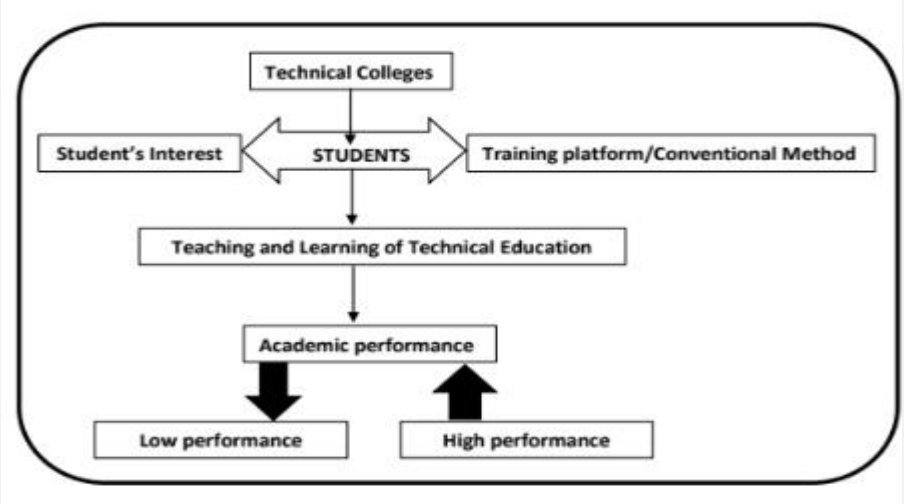

Figure 1. Hypothesis Theoretical Model

This hypothesized research model on Figure 1 shows a diagrammatical representation of the possible effect of training platform use on students' interest and academic performance in technical colleges. From the above diagram, one would see that if universities develop and or adopt training platforms which is capable of capturing students' interest and improving their performance, in the teaching and learning process. The application of training platform in technical colleges may affect the interest and academic performance of students positively (high performance), or negatively (low performance).

Traditional methods of teaching and learning have undergone a reform shift with the integration of TP tools. TP use has become the key supporting system in transforming education worldwide. TP is used to complement traditional learning methods, making course content accessible from the Internet to improve student productivity, enhance student academic performance and keep students actively engaged in the learning process. With the recent demand for educational

technology-driven frameworks, technical education teachers and students need to be adequate in the use and applications of TP to be able to perform their duties efficiently. Unfortunately, TP use by teachers and students in technical education and the current TP skills and operations required to develop the interest and academic performance of students in education in the 21st century seem to be lacking. The consequences of the above are poor interest, poor academic performance, and poor technological advancements in the educational system. Several studies have examined conventional methods of instruction and some training platforms such as Moodle, Blackboard, Google Classroom, Edmodo, and TalentLMS among others (Kraleva et al., 2019). Most of the existing studies that use training platform instruction assume that training platform ratings are constant across all levels.

However, there has not been any research done on canvas's potential usage for learning and teaching in technical education. In a bid to close the identified gaps in the literature, the current study aims at providing a broader and more realistic perspective by exploring the interest rating of students who were taught technical education utilizing training platform (canvas) and conventional methods of instruction; interest rating of both genders who were taught technical education utilizing the training platform (canvas) instructional method; academic performance of students who were taught technical education utilizing training platform (canvas) and conventional methods of instruction; and academic performance of both genders who were taught technical education utilizing the conventional instructional method.

In particular, this study supports the following hypotheses:

1) There is no significant difference between the interest rating of students who were taught technical education via training platform and conventional instructional methods
2) There is no significant difference between the interest ratings of students (male and female) who were taught technical education via training platform instructional method.
3) There is no significant difference between the mean academic performances of students who were taught technical education via training platform and conventional instructional methods.
4) There is no significant difference between the mean academic performances of students (male and female) who were taught technical education utilizing the conventional instructional method.

METHOD

The study used a quasi-experimental design with a non-equivalent control group that underwent pre- and post-testing. This design was deemed appropriate for this study because neither the conditions nor the participants were chosen at random. Ondo State is the study area. Ondo State is situated in Nigeria's South-west geopolitical region. There were 284 participants in the study, including 154 male and 130 female students drawn from 2 technical colleges in Ondo State. The population of the 284 students for the colleges was distributed as follows: 154 students comprising 121 males and 33 females from Federal Science and Technical College, Ikare Akoko, and 130 students comprising 111 males and 19 females from Government Technical College, Owo respectively. The study had no sample due to the moderately small population size. The entire population was used. Technical education interest rating (TEIR) and technical education academic performance (TEAP) instrument was used for the study. It was used for both pre and post-test for the two groups. The interest and achievement instrument contained multiple-choice items with 30 items and 5 points rating scale. These tools were developed by the researcher after an extensive review of existing literature on the training platform.

The research instrument was face verified by 3 experts. Each validator was required to review the relevance, clarity, and overall coverage of the questionnaire items. Their remarks and submissions were incorporated into the instrument's final draft. The test-retest method was used to determine the instrument reliability, and the data generated were analyzed using the KUDER Richardson formula 20 (K-R20), which established the instrument stability of TEIR at 0.85 and TEAP at 0.85 as well. This showed that the instrument used was reliable. The researchers distributed the pre-test TEIR and TEAP instrument to all the 284 students in terms of interest and academic performance in

technical education. A week after the pretest, the researchers introduced the training platform (Canvas) instructional method which contained the Login page and Menu bar (dashboard, profile, courses, calendar, inbox, history, and the help menu). The Canvas log in page and the menu bar can be seen in Figure 2.

Group A was exposed to a training platform (Canvas) and the process is as follows: Using an LCD projector, the instructor displayed the training platform (Canvas) on the screen; the teacher trained the students via the canvas website and they had the opportunity to respond to the teacher using the canvas training platform; the students pay attention to the teacher through the canvas training platform and were able to form good notes; the teacher allows student-teacher interaction based on questions and answers; and following the class presentation, students had the opportunity to interact with the training platform (canvas) by clicking on the next and previous icons using desktop computers at their convenience.

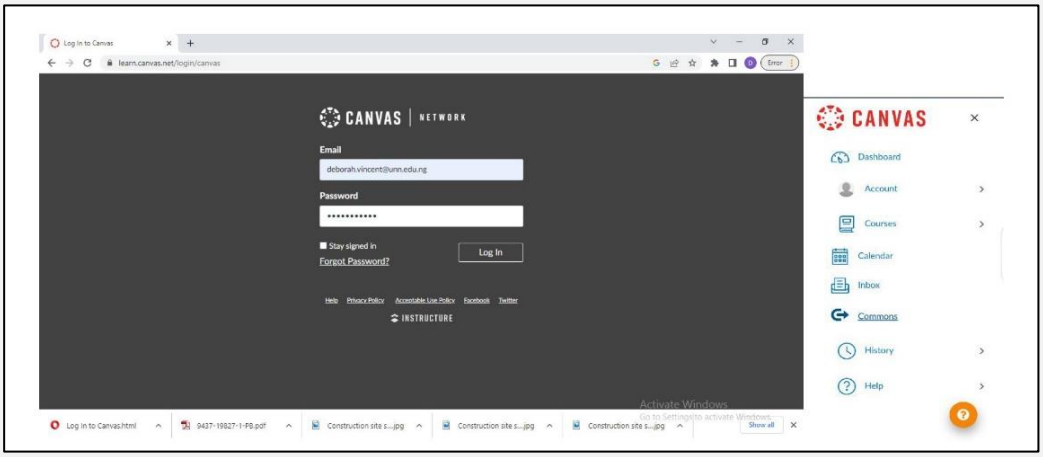

Figure 2. The Canvas Log in Page and the Menu Bar Containing Various Tools Such as The Dashboard, Account and Courses for Navigation

Group B was exposed to the conventional chalk instructional method on the same topic. The students were given 30 TEIR and TEAP items to answer. The post-test had 30-point scores. The marking scheme prepared by the researcher was used to mark the tests to collect the scores. The two groups were made to cover the same learning contents of technical education. The treatment was for two meetings per week of one hour each. The study was divided into two major sessions.

Figure 3. FSTC, Ikare Akoko students with the researcher during the training platform session

Figure 4. GTC, Owo students with the researcher during the training platform session

Figure 5. FSTC, Ikare Akoko students during the conventional session

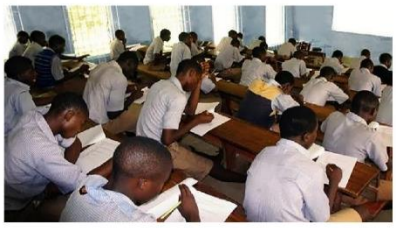

Figure 6. GTC, Owo students during the conventional session

Descriptive statistics were used to examine the data to answer the research questions, and inferential statistics, namely, the Analysis of Covariance (ANCOVA), were used to test the null hypothesis at the 0.05 significance level. This serves to compare the means of the groups investigated through the experimental procedure as well as to control the errors of initial non-equivalence caused by using intact classes as study subjects. The Statistical Package for Social Sciences (SPSS) version 26 was used to prepare the data calculations.

RESULT AND DISCUSSION

Result

Table 1 data reveal that at the pre-test, the training platform group mean interest rating was 25.47, and the standard deviation was 1.82 while the conventional group mean interest rating was 22.11 and the standard deviation was 1.23 with a difference of 3.36. In the post-test, the training platform group mean rating was 34.59 and the standard deviation was 2.93 while the conventional group mean interest rating was 26.36 and the standard deviation was 1.85 with a mean difference of 8.23. This indicated that the training platform instructional method increases interest more than the conventional instructional method in technical education in technical colleges.

Table 1. Mean and standard deviation of interest rating of students who were taught technical education utilizing training platform and conventional instructional methods

Test	Pre-Test			Post-Test			
Group A	N	Mean	SD	N	Mean	SD	Mean Gain
Training Platform	150	25.47	1.82	150	34.59	2.93	9.12
Group B							
Conventional	134	22.11	1.23	134	26.36	1.85	4.25
Mean Difference		3.36			8.23		
Total	284			284			

Hypothesis 1: There is no significant difference between the interest rating of students who were taught technical education via training platform and conventional instructional methods

Table 2. Analysis of Covariance (ANCOVA) of interest rating of students who were taught technical education utilizing training platform and conventional methods of instruction

Source	Type 111 Sum of Squares	DF	Mean Square	F	Sig.

Corrected Model	20.458[a]	2	10.229	6.527	.018*
Intercept	26.675	1	26.675	17.023	.000*
Pretest	10.085	1	10.085	6.435	.003*
Group	14.366	1	14.366	9.167	.001*
Error	440.402	281	1.567		
Total	511.986	284			
Corrected Total	64500	283			

*Significant at .05 level of significance

Table 2 shows a p-value of .001 which is less than the alpha value of <0.05. As a result, the hypothesis of no significant difference was rejected. This indicated that the difference in the mean interest rating of students who were taught technical education via training platform and conventional instructional methods is statistically significant. The use of training platform and conventional instructional method in technical education resulted in a higher mean interest rating of students during the period of study.

The information in Table 3 indicated that the pre-test male interest rating was 26.52 and the standard deviation was 1.32 while the female mean interest rating was 23.50 and the standard deviation was 1.01 with a mean difference score of 3.02. In the post-test, mean interest rating for male students was 36.53 and the standard deviation was 1.43 while the female interest rating was 30.94 and the standard deviation was 1.11 with a mean difference of 5.59 respectively, which implies the training platform instructional method increases the interest of male students more than the female students taught technical education in technical colleges.

Table 3. Mean and standard deviation of male and female students who were taught technical education utilizing training platform instructional method

Test	Pre-Test			Post-Test			
Sex	N	Mean	SD	N	Mean	SD	Mean Gain
Male	98	26.52	1.13	98	36.53	1.43	10.01
Female	52	23.50		52	30.94	1.11	7.44
Mean Difference		3.02			5.59		
Total	150			284			

Hypothesis 2: There is no significant difference between the interest ratings of students (male and female) who were taught technical education via training platform instructional method.

Table 4. Analysis of Covariance (ANCOVA) of interest rating of male and female students who were taught technical education utilizing training platform instructional method

Source	Type 111 Sum of Squares	DF	Mean Square	F	Sig.
Corrected Model	20.677[a]	2	10.339	1.522	.018*
Intercept	28.685	1	28.685	4.194	.000*
Pretest	15.095	1	15.095	2.207	.001*
Gender	22.021	1	22.021	3.220	.003*
Error	1005.323	147	6.838		
Total	1091.801	150			
Corrected Total	611.946				

*Significant at .05 level of significance

Table 4 shows a p-value of .003 which is less than the alpha value of <0.05. The hypothesis of no significant difference was therefore rejected. This implies that there is a statistically significant difference in the mean interest ratings of the students (male and female) who were taught technical education via training platform methods of instruction. Both male and female students rated their

mean levels of interest in technical education courses as being higher when the training platform instructional method was used.

Table 5. Mean and standard deviation of academic performance of students who were taught technical education utilizing training platform and conventional instructional methods

Test	Pre-Test			Post-Test			
	N	Mean	SD	N	Mean	SD	Mean Gain
Group A Training Platform	150	24.67	11.03	150	62.67	15.99	38
Group B Conventional	134	23.23	10.81	134	50.01	11.97	26.78
Mean Difference		1.44			12.66		
Total	284			284			

The information in Table 5 shows that the pre-test training platform group had mean academic performance of 24.67 with a standard deviation of 11.03 whereas the conventional group had an academic performance of 23.23 and a standard deviation of 10.81 and the mean difference between the two groups was 1.44. At the post-test. 3.36, the training platform group had a mean academic performance of 62.67 with a standard deviation of 15.9 and a mean difference score of 12.66 whereas the conventional instructional method had a mean academic performance of 50.01 and standard deviation score of 11.97 with a mean difference achievement score of 26.78. This shows that the training platform instructional method increases students' academic scores more than the conventional instructional method in technical education in technical colleges.

Hypothesis 3: There is no significant difference between the mean academic performances of students who were taught technical education via training platform and conventional instructional methods.

Table 6. Analysis of Covariance (ANCOVA) of academic performance of students who were taught technical education utilizing training platform and conventional methods of instruction

Source	Type 111 Sum of Squares	DF	Mean Square	F	Sig.
Corrected Model	32.390[a]	2	16.195	2.363	.006*
Intercept	1195.888	1	1195.888	17.499	.000*
Pretest	57.108	1	57.108	8.335	.005*
Group	14.798	1	14.798	2.159	.003*
Error	535.456	281	6.851		
Total	14150.00	284			
Corrected Total	6109.00	283			

*Significant at .05 level of significance

The p-value in Table 6 is .003, which is less than the alpha value of <0.05. The hypothesis of no significant difference was therefore rejected. This indicated that there is a statistically significant difference between the mean academic performance of students who were taught technical education through training platform and conventional methods of instruction. The training platform instructional method led to a higher mean academic performance in technical education.

Table 7. Mean and standard deviation of academic performance of male and female students who were taught technical education utilizing conventional instructional methods

Test	Pre-Test			Post-Test			
Sex	N	Mean	SD	N	Mean	SD	Mean Gain
Male	84	24.88	11.27	84	50.97	12.84	26.09

Female	50	22.46	10.36	50	48.40	10.27	25.94
Mean Difference		2.42			2.57		
Total	134			134			

According to the data in Table 7, at pre-test, male students' academic performance was 24.88 and the standard deviation was 11.27 while the female mean academic performance was 22.46 and the standard deviation was 10.36 with a mean difference score of 2.42. At the post-test, the male academic performance was 50.97 and the standard deviation was 12.84 while the female academic performance was 48.40 and the standard deviation was 10.27 with a mean difference of 2.57. This indicates that the male students' upturn in their academic performance than the female students who were taught technical education using conventional methods of instruction in technical colleges.

Hypothesis 4: There is no significant difference between the mean academic performances of students (male and female) who were taught technical education utilizing the conventional instructional method.

Table 8. Analysis of Covariance (ANCOVA) of academic performance of male and female students who were taught technical education utilizing the conventional instructional method

Source	Type 111 Sum of Squares	DF	Mean Square	F	Sig.
Corrected Model	16.095[a]	2	8.048	1.530	.004*
Intercept	29.557	1	29.557	5.647	.000*
Pretest	53.666	1	53.666	10.253	.003*
Group	15.629	1	15.629	2.986	.008*
Error	685.703	131	5.234		
Total	800.65	134			
Corrected Total	706.5225	133			

*Significant at .05 level of significance

Table 8 shows a p-value of .008 which is higher than the alpha value of <0.05. Thus, it was agreed that there was no significant difference. This infers that no significant difference in the mean academic performance of the students who were taught technical education via the conventional method of instruction. However, the male students outperformed the female students who were taught technical education in the conventional method of instruction.

Discussion

The study's findings revealed the mean interest ratings of students who were taught technical education via training platform and conventional methods of instruction, the Mean interest rating of students (male and female) who were taught technical education via training platform instructional method, the mean academic performance of students who were taught technical education via training platform and conventional instructional methods and the Mean academic performances of the students who were taught technical education via the conventional instructional method. These results are consistent with a study by Adeyemi & Adeyemi (2014) who described that the failure rate will increase, once students lose interest in their academics. The study conclusions indicate that gender has a noteworthy impact on students' academic performance. This is because the Mean academic performances of the students were different.

The view of Oriakhi & Ujiro (2015) supported the study that disparity exists between student's (male and female) performance in their courses. The findings are also in consonance with the study of Ifeanyi & Chukwuere (2018) who stated that the gender of an individual influence a lot of things in and around the individual. The instructional methods play a huge role in the level of students' interests, also gender affects the interests of students in technical education. This is evident

in the mean interest response of the males which are slightly higher than that of the female even when the same instructional method is used. Hence, the student's gender plays a leading role in how an individual perceives, accepts, and reacts to any educational program. These results are consistent with the study of Schmid et al. (2014), which revealed that learners who take online courses typically get comparable or marginally higher results than those who take their courses through the traditional form.

Yeh et al. (2019) in their experimental study recorded a high level of interest when the training platform was introduced into the teaching-learning instructional method thus, the training platform enhances the student's interest and performance. However, Asarta & Schmidt (2020) found that blended learning models often result in marginally greater student achievement effects than either direct or virtual courses taken separately. The study's findings also showed that there was a significant difference of 0.015 between the groups when they were compared on the immediate post-test and students' ability to retain and sustain the learning process increases with the use of the training platform. The finding supports Paul & Jefferson (2019) whose findings of their study revealed that the flexibility of online learning enhances students' retention and sustain their learning.

CONCLUSION AND RECOMMENDATION

Following the review of the data collected, it was established that the use of the training platform instructional method enhances students' interest and academic performance more than the conventional method in technical education. It was also revealed that male students have a higher interest in technical education than female students taught technical education using the training platform instructiSonal method and the female scholars performed well academically than the male scholars using the training platform in technical colleges. Consequently, in this contemporary world where information is disseminated quickly via the internet, the use of training platforms cannot be overemphasized.

Technical colleges should consider the use of TP as a complement to the conventional instructional method to increase the standard of learning and teaching and also to achieve the stated objective of technical education. The result of this study is based on data collected from technical colleges in Ondo state. This work could be extended to other technical colleges in other states in Nigeria. The study also focuses on investigating the effect of canvass training platform on student's interest and academic performance in technical education among technical college students. There might be other antecedents worth including in future research. Other potential may include using the relative approach employed in this study to examine training platform application in teaching and learning.

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