



# Teachers' Perception of Competencies Required for the Utilization of Learning Management System for Teaching and Learning Technical Drawing

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## Abstract

The study examined teachers' perception of competencies required for the utilisation of the learning management system for teaching and learning technical drawing. A descriptive survey research design was employed. Four research questions were answered. The population of the study comprised 197 technical teachers at secondary schools and state-owned technical colleges. Data were obtained using a structured questionnaire. The reliability coefficient of the instrument yield  $\alpha = .89$ . Using Cronbach Alpha reliability tests. Data were analysed using means, standard deviation and ANOVA. Findings revealed that teachers lack the required competencies to use LMS for teaching drawing. With LMS learners can create, own and manage learning, and connect to a variety of resources and systems, all within a space. It recommended that Government through institutions should focus investment in the provision of essential tools such as administrative tools, course development, content access and technological devices to support the use of LMS in the curriculum implementation process.

**Keywords:** Competence, Learning Management System, Quality, Technical Drawing and Teacher

## Introduction

Quality education is fundamental in preparing and improving the quality and competence of human resource development which is an asset for global economic competition. Due to global competition, a nation's competitive advantages lie much in the high quality and competence of its manpower which is a result of quality education. Technical Vocational Education and Training (TVET) is an educational system that provides courses and training programmes related to employment to enable the transition from school to work for students and supply the labour market with competent graduates (Olabiyi & Chinedu, 2018). For graduates within the TVET occupation to remain relevant, they need to develop capacities to learn continuously through thinking and reasoning, problem-solving, decision making and interpersonal competence. TVET institutions need to anticipate and respond to skill changes for successful careers in industrial economies. The technical drawing is one of the TVET subjects offered as vocational in senior secondary schools.

Curriculum Research and Development Division (CRDD, 2010) defined technical drawing as a universal language for effective communication in the manufacturing industries such as architecture and engineering. Technical drawing is a form of language in its own right with rules and signs. Just as it applies to any language, certain rules (or standards) must be followed in producing any drawing. These rules/standards define how shapes and positions of objects should be represented; for instance, the order of orthographic views and different line types has rules and specific positions in

order to fully describe such objects (Olabiyi, Jimoh & Okeowo, 2018) Drawing particularly is a universal graphic language of lines used to cover concepts and ideas that are not limited to any national language which everyone can interpret without confusion (Chen, Lim & Tan, 2010; Elem, 2014). The existing curriculum of technical drawing in senior secondary schools serves as a pathway to the accomplishment of the objectives related to future work in the engineering and construction industries.

The objectives of teaching technical drawing have been defined to include: the provision of an understanding of the theoretical basis that will facilitate visual communication of ideas in the construction and production industries, introduce modern drawing studio practice, laying a foundation for technological development in building and engineering, stimulating, developing and enhancing entrepreneurship skills in the diverse areas of drawing studio practice (Nigeria Educational Research Development Council (NERDC), 2014; Oviawe, 2016, Abraham & Otuga, 2017) The main objective of Technical drawing is to communicate to engineers, machinists, surveyors, architects and builders among others. Giving all of the information needed to make the product and being accurate in that information is the main goal. Engineers are very particular and careful about their drawings and must pay attention to detail.

Technical drawing should prepare secondary school students for their future offering essential skills in many areas, courses, and professions, in such a way that it imbibes a heavy load of recent technologies (Hew & Leoing, 2011; Russano, 2021)

Hew and Leoing (2011) stressed further that technical drawing helps students to develop imaginative and drawing skills and spatial ability, it helps students to be creative and to use acquired imaginative and spatial intelligence to solve many social, economic and professional problems that need designs before production. In recent times, a large number of TVET institutions around the world are equipped with Learning Management Systems (LMS) to help in providing space for the rich online learning environment, and to utilize its tools and functionalities to improve pedagogy and increase the quality of learning and teaching. To teach technical drawing effectively, the teacher must be competent in the utilization of teaching skills to drive the lesson for effective learning to take place and one of the best teaching pedagogies to adopt in this era of technology age is Learning Management System (LMS).

A learning management system is a web-based software platform that provides an interactive online learning environment and automates the administration, organisation, delivery and reporting of education content and learning outcomes. LMS is a web-based technology used to plan, implement, and assess a specific learning process. LMS registers user-tracker courses in a catalogue and records data from learners. Typically, an LMS provides the teacher with knowledge to create and deliver content, monitor student participation, reports to management and assess student performance online (Krumsvik, 2012). The LMS may also provide students with the ability to use interactive features such as threaded discussions, video conferencing, and discussion forums. It provides many benefits for the educational process. LMS is also called Course Management System (CMS).

LMS do more than store content and student information, it can be used to inform them of their obligations and to point them to appropriate learning resources. It tracks a student's progress, and his or her completion of tasks assigned and provides tools for collaborative work (Aydin & Sermerci, 2018). To accomplish teaching effectiveness in a vocational subject like technical drawing that will improve students' performance, enhance student learning, and get students to be active in the learning process, a learning style that will support and facilitate learners' interest must be opted for. In the 21st century, when teaching and learning are getting phase lift via a paradigm shift, it is important that teachers be well competent to utilise technologies (LMS) to meet the need of all students (Marzili, Delello & Marmion, 2014).

Competence according to Chan (2015) is a combination of practical and theoretical knowledge, cognitive skills, behaviour and values used to improve performance. Competence includes systems thinking and emotional intelligence, skills in influence and negotiation, regardless of training competency would grow through experiences and the extent of an individual's capacity to learn and adapt. Competence also refers to the standardized requirement for an individual to properly perform a specific job; the use of LMS can lead to the quality and competence improvement of teachers and students. According to Olabiyi (2014), to be competent means that a person has the ability or power, to demonstrate knowledge, skills and attitudes that are sufficiently required to perform a given job or task. Therefore, a competent technical drawing teacher is a person who is professionally qualified and trained to teach technical related subjects, has the necessary qualities or skills and shows adequate skills in the teaching process (Jorgen, 2017)). Other competencies required of teachers include knowledge of the subject matter, pedagogy, skill processes, resourcefulness, behaviour motivation, evaluation and classroom management (Ogbuanya, 2010)

In this age, it is a known fact that emerging technology tools are defining the competence of teachers and changing both the educational system and classroom structure. Technological development requires teachers to consider new ways to prepare, organise, deliver and assess courses and learning materials for online teaching (Ko & Rossen, 2017). Technical teachers should have e-learning experiences, as to reflect on current research on how people learn and design effective learning environment, incorporate instructional design practices that allow for individual decision making and accommodate differences among learners and their contexts, connect learners that emulates how technical drawing practices in the real world, promotes frequent interaction between teacher and learner to allow continuous monitoring and adjustment of a dynamic learning environment. (Derbel, 2016; Foulger, Graziano, Schmidt-Crawford & Slykhuis, 2017)

Perception is a process by which individuals organise and interpret their sensory impressions to give meaning to their environment (Gibson, 2014). perception is a subjective process; therefore, different people may perceive the same environment differently, based on what particular aspects of the situation they choose to selectively absorb, how they organise this information and the manner in which they interpret it to obtain a grasp of

the situation. Perception according to Olabiyi and Chinedu (2018) and Vioral (2013) refers to the manner in which one thinks about something and ones' idea of what that thing constitutes. It can also be described as the ability to understand the true nature of a subject especially as it affects our environment. Since learning is a process that is characterized by a series of changes in behaviour or a change in behaviour that result from an activity, training or observation. It is therefore expedient to explore the perceptions of teachers regarding the competency required for the utilisation of the learning management system for teaching and learning technical drawing.

### Statement of the Problem

Technical drawing is a vocational subject offered at senior secondary school and a trade-related course in technical college that must be studied by all students in the technical related areas for improved academic achievement. It has become worrisome that students have been performing slightly below average in technical drawing which is not good enough for technological development (WAEC, 2020). Many Technical Drawing teachers are accustomed to the traditional method of teaching using T-Square, Drawing Board, and Compass without recourse to the implementation of technology tools. They are alarming comfortable with and unwilling to make a shift from the traditional classroom they are used to. Therefore, it becomes imperative to improve teachers' competency with the use of LMS to adapt to the technological changes and competencies of 21st-century teachers, especially in times of crisis such as covid-19 pandemic (Olabiyi, Jimoh & Okeowo, 2018)

In order to arouse students' interest for better performance most of the topics that look abstract in Technical Drawing can be well understood if the teacher can leverage on utilisation of any reform based innovations e.g. online or virtual teaching, flexible learning or any other related learning platform like LMS for organising e-learning content in one location, easily tracks learners progress and performance and conveniently expands e-learning courses that lead to effective performance and it is on this backdrop that this study investigates teachers' perception of competencies required for the utilisation of learning management system for teaching and learning technical drawing.

The purpose of the study was to determine teachers' perception of competencies required for

the utilisation of the learning management system for teaching and learning technical drawing in Lagos State.

### Research Questions

- What are the perceptions of teachers regarding the competency required for the utilisation of learning management system for teaching and learning technical drawing?
- What are the perceptions of teachers regarding the benefits of a learning management system for teaching and learning technical drawing?
- Do technical teachers' perception of the competency required for the utilisation of a learning management system for teaching and learning technical drawing differs by computer experience and working experience?
- What are the strategies for improving competency required for the utilisation of a learning management system for teaching and learning technical drawing?

### Methods

This study employed a descriptive survey research design. Two hundred and one technical teacher in secondary schools and state-owned technical colleges in Lagos State, Nigeria were purposively selected to participate in the study using purposive sampling technique. The instrument for data collection was a structured questionnaire. The instrument for data collection was a structured questionnaire. The instrument had five sections A to E. Section A sought information on personal data of the respondents such as school, computer experience and working experience. Section B to E sought information on the four research questions. The questionnaire was subjected to face and content validation by three experts. The internal consistency of the instruments was determined using Cronbach Alpha, with an alpha value of  $\alpha = .88$ . The instrument was administered to the respondents through research assistants and personal contact. Out of 201 questionnaires administered, 197 were duly filled and returned to the researcher. These represented 96 % questionnaire retrieval rate. Data generated from the questionnaire were analysed using mean, standard deviation and ANOVA at 5% level of significance, through the Statistical Package for Social Sciences (SPSS) version 20.

### Results

**Table 1: Perception of teachers regarding the competency required of using LMS for teaching**



**and learning technical drawing. (N=197)**

S/N	Competency Required for Using Learning Management System	Mean	SD
1.	Competency to use various e-learning tools and equipment operations that are important to support learning and teaching technical drawing.	3.00	.50
2.	Ability to understand instruction on LMS platform and make right decision to ensure maximum benefits of the users	3.36	.50
3.	Ability to manipulate settings for all LMS tools such as forum and quiz for teaching technical drawing	3.32	.67
4.	Capacity to use URL tool to link websites on the LMS platform for teaching TD	3.16	.50
5.	Ability to comprehend the information and instruction presented by LMS	3.14	.71
6.	Competency to use security codes to restrict third parties access on LMS platform	3.17	.26
7.	Competent to teach and manage instructional time and space using LMS platform	3.33	.26
8.	Competent in digital skills and find starting point and decide on a direction regards technical drawing using LMS	3.12	.50
9.	Using LMS to explore the latest digital ideas and trends in teaching drawings	3.22	.57
10.	Ability to share files and content using simple tools on LMS for teaching drawing	3.23	.43
11.	Competent to recognise and understand the intricacies of different platform on LMS for teaching drawing	3.39	.49
12.	Skills in using search engine to find content on technical drawing on LMS platform	3.18	.50
13.	Skills in using technology tools to connect and influence students to understand the subject matter on LMS	3.27	.17
14.	knowledge of data analysis assists teacher to determine what students want to attract and retain their interest	3.26	.50
15.	Using LMS require understanding the importance of using blog, podcast to search relevant keywords to create content for technical drawing	3.32	.67
16.	Ability to store and recall different types of materials to be used in a particular projection on LMS	3.36	.50
17.	Ability to identify and analyse digital information relating to technical drawing on LMS	3.14	.71
Average mean		3.07	.26

Table 1 presents the mean and standard deviation of teachers' perception regards the competency required for the utilisation of a learning management system for teaching and learning technical drawing. The overall mean score of 3.07 indicated that the majority of teachers are not competent enough in using LMS for teaching and learning technical drawing. Among which include: competency to use various e-learning tools and equipment operations that are important to support learning and teaching technical drawing; ability to understand instruction on the LMS platform and make the right decision to ensure maximum benefits for the

users; ability to manipulate settings for all LMS tools such as forum and quiz for teaching technical drawing; capacity to use URL tool to link websites on the LMS platform for teaching TD; ability to store and recall different types of materials to be used in a particular projection on LMS and ability to identify and analyse digital information relating to TD on LMS. The items on the scale had mean values ranging from 3.00 to 3.36 which is below the cut-off point of 3.50 on the 5%point Likert scale. It was evident that teachers considered the utilisation of LMS pertinent to teaching and learning technical drawing.

**Table 2: Teachers perception regarding the benefits of using LMS for teaching and learning technical drawing. (N= 197)**

S/N	Benefits of Using Learning Management System	Mean	SD
1.	Monitoring student's performance in technical drawing classes through LMS is easier to manage.	3.76	.50



2	Develop the ability to solve technical problems from troubleshooting to solving more complex problems through LMS	3.92	.67
3.	Students pay more attention and show interest in learning technical drawing through LMS.	3.66	.50
4.	Keeping technical drawing students engaged through LMS is good and accurate.	3.84	.71
5.	Manage LMS provides a database that enables students to access uploaded materials on technical drawing for a longer period of time.	3.97	.26
6.	LMS enables proper attendance taking record-keeping and evaluation of students performance	3.63	.26
7	Develop skill in interacting, sharing, collaborating, and engaging technical drawing students through LMS	3.72	.50
8	Develop skills to modify, refine, improve and integrate simple items of new content and information to create new and original ones is easier	3.82	.57
9	Manage digital tools and resources to meet your needs and those of your learners	3.93	.43
10	Make use appropriate strategies that combine content, technologies, and teaching approaches that enhance teacher output	3.59	.49
<b>Average mean</b>		3.68	.50

Table 2 shows the mean responses of the perception of teachers' regarding the benefits of using the LMS for teaching and learning technical drawing. The benefits of using LMS for teaching and learning technical drawing identified through the study include: Monitoring student's performance in technical drawing classes through LMS is easier to manage; developing the ability to solve technical problems from troubleshooting to solving more complex problems through LMS; students pay more attention and show interest in learning technical drawing through LMS; manage LMS provides a database that enables students to access uploaded materials on technical drawing for a longer period of time, and Make use appropriate strategies that combine content, technologies, and teaching approaches that enhance teacher output. With means values ranging from 3.59 to 3.92 above the cut-off point of 3.50, it was evident that teachers considered the benefits of using a learning management system relevant for teaching and learning technical drawing.

#### **Technical teachers' perception of the competency required for the utilisation of LMS for teaching and learning technical drawing by computer experience.**

To determine whether the responses of technical teachers regarding the competency required for the utilisation of LMS differ when their computer experience is used as criteria for estimating the difference, the Analysis of Variance (ANOVA) was used to ascertain that the difference between technical teachers' computer experience was classified into four groups: 0-3 year, 3-6 years, 6-9 years and 9 years and above. Conditions that satisfy

the use of ANOVA were maintained and adhered to. Hence, the result of the statistical analysis is presented below in Table 3.

**Table 3: ANOVA results of teachers' perception concerning competency required for the utilisation of LMS for teaching and learning technical drawing by computer experience (N=197)**

Computer Experience	N	Me an	SD	F	p-val
0- 3	35	3.56	.80	122.334	.000
3- 6	67	3.66	.89		
6- 9	51	3.72	.82		
9 yrs & above	44	3.97	.81		

Table 3 shows the result of ANOVA comparing the responses of teachers by computer experience. Results show that there was a statistically significant difference in teachers' perception of the competency required for the utilisation of LMS for teaching and learning technical drawing based on the computer experience ( $F=122.334, <.05$ ).

#### **Teachers' perception of the competency required for the utilisation of LMS for teaching and learning technical drawing by teaching experience.**

To find out whether the perception of teachers regards the competency required for the utilisation of LMS differs when their teaching experience is exploited as criteria for estimating the difference, a one-way Analysis of Variance (ANOVA) was computed to compare the mean scores of teachers' perception of competency required in the utilisation of LMS for teaching and learning technical

drawing using the teaching experience as a factor for estimating the difference. Teachers' teaching experience was divided into three groups: 0-5 years (group 1), 5-10 years (group 2), and 10 years. and above (group 3)). The output of the Analysis of Variance is summarized and presented in Table 4.

**Table 4: Difference in Teachers' Perception regards competency required for the utilisation of LMS for teaching and learning technical drawing by teaching experience (N=197)**

Teaching Experience	N	Mean	SD	F	p-val
0- 5	45	3.64	.75		
5- 10	67	3.72	.82	104.368	.000

10 yrs & above	85	3.84	.78
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Table 4 shows the result of the ANOVA for teachers' perception of competency required for the utilisation of LMS for teaching and learning technical drawing by teaching experience. Results indicated that there was a significant difference between the perception of teachers' regarding the competency required for using LMS for teaching and learning technical drawing when teaching experience is used as a factor in estimating the difference ( $F=104.368$ ,  $<.05$ ). The results showed that teaching experience influenced teachers' perception of competency required for the utilisation of LMS for teaching and learning technical drawing.

**Table 5: Strategy for improving competence required of teacher in using LMS for teaching and learning technical drawing (N= 197)**

S/N	Strategy for improving teachers quality and competence in using LMS	Mean	SD
1.	Teachers should develop appropriate skills and confidence towards effective use of LMS to support learning and teaching technical drawing	3.64	.50
2.	Proper training should be given to teachers to ensure that LMS is a central consideration in all areas of technical drawing curriculum and assessment delivery	3.78	.46
3.	Teachers should be empowered to drive innovation and investment in LMS for learning and teaching technical drawing	3.83	.47
4.	Teachers should be encouraged to share innovative and effective practice both face-to-face and through LMS platforms for teaching and learning technical drawing.	3.98	.50
5	Ensure that students and teachers are sufficiently supported with the provision of appropriate tools and equipment for use on LMS platform for teaching technical drawing.	3.92	.49
6	Teachers should give students opportunities to use LMS platform in order to develop required skills in learning technical drawing.	3.73	.47
7	Provision of financial assistance should be made available for teachers to ensure that appropriate professional learning opportunities are offered to use LMS	3.64	.47
8	Enabling environments should be provided for students and teachers to enhance effective use of LMS towards teaching technical drawing.	3.65	.48
9	Seminars and workshops should be organized for teachers and students on effective use of LMS for teaching and learning technical drawing.	3.69	.50
10	Ministry of education should support educational institutions in identifying how LMS can be used to enhance learning and teaching technical drawing curriculum.	3.72	.42
11	Educational institutions should ensure professional standards for registration and for career long professional learning reflect the importance of LMS and skills required.	3.81	.50
12	Ensure that faculties and colleges of education instil the benefits of using LMS to enhance learning and teaching technical drawing .	3.66	.69
13	School should encourage teachers to upload notes, assignments and other relevant information on LMS platform for students to enhance learning technical drawing.	3.73	.69
Overall mean of strategy to improve technical teachers quality and competence		3.69	.26

Table 4 shows the responses of respondents on strategies for improving competence required of teachers for utilisation of LMS for teaching and learning technical drawing. The overall strategy for improving competence required for using LMS mean score of (3.69) shows that teachers agreed that the identified strategies for improving competence required of teacher for using LMS can enhance teaching and learning TD, some of which are: Teachers should develop appropriate skills and confidence towards effective use of LMS to support learning and teaching technical drawing; proper training should be given to teachers to ensure that LMS is a central consideration in all areas of technical drawing curriculum and assessment delivery. The items on the scale had mean scores ranging from 3.64 to 3.98. none of the strategies received a mean score less than 3.50 and was therefore regarded as strategies for improving the competence required of technical teachers in using LMS for teaching and learning technical drawing.

### Discussion

Determining teachers' perception regarding the competency required for utilisation of LMS, benefits of utilisation of LMS and strategies for improving competence required for utilisation of LMS for teaching and learning technical drawing was the main goal of the study. Findings from the results presented in Table 1, revealed that technical teachers are deficient in the competency required in using the learning management system for teaching and learning technical drawing in Nigeria. They emphasised that the majority of respondents have not adequately prepared to use LMS and the development of its associated skills to satisfy the needs of the Nigerian technical drawing students. This finding is consistent with the perception of Chigoke-Okum and Oddi (2018) who believed that teachers are not exposed to the most recent LMS and even that the educational system does not adequately support the adoption of technologically advanced methods. LMS Majority of teachers are not interested in the use of LMS and are alarming comfortable with and are unwilling to make a shift from the traditional classroom they are used to. Again the findings is in agreement with Tang (2019) who observed that there are not enough provision of platforms and resources for the development of competency required of technical teachers in the use of LMS. The author added that even when such provisions are made, they are usually centred on time-worm technologies. The findings further

support the perception of Arkoful and Abaidoo (2014) who emphasised that the majority of technical teachers do have complete knowledge about tools and equipment that are available for delivering LMS. The implication of these findings is that there is an urgent demand for government at all levels and educational institutions that train teachers to step up efforts to upgrade the quality of training programmes given to teachers and teachers must develop competency to understand the relevance and use of LMS in teaching and learning drawing.

Regarding teachers' perceptions of the benefits of using the Learning Management System for teaching and learning technical drawing, technical teachers believe that LMS are beneficial in teaching and learning technical drawing. They note that LMS are instrumental in the educational process to support efficient teaching and learning. These findings are congruent with the opinion of Fathema, Shannon and Rose (2015) Mudasiru and Modupe (2015) who emphasised a variety of content can be provided by teachers via an LMS from a range of sources based in parts, on the need of students, and an overview of the lesson can be provided for a framework for learning and students can produce concepts maps as a summary activity after the lesson. Furthermore, the findings support the view of Folaranmi (2021) Røkenes and Krumsvik, (2014) who stressed that LMS involve students with real-world problems, model the analytical and thinking skill of teachers and other experts, which students then apply with appropriate feedback, to their own problems and constructs, work with authentic problems that reflect real context and characteristics. (Røkenes & Krumsvik, 2014) The implication of these findings is that there is an urgent demand for educational institutions in Nigeria to deploy and strengthen their commitment to training and producing capable technical drawing teachers that will meet the challenges of 21st-century workplace by integrating traditional approaches and avenues offered by new technologies such as LMS would be better placed to offer their students a more challenging, robust and rewarding learning experience.

Concerning teachers' perceptions of the strategies for improving competence required for utilisation of LMS for teaching and learning technical drawing. Table 5, revealed that technical teachers are satisfied with the strategies for improving competency required in using the learning management system for teaching and learning technical drawing in Nigeria identified in the study. These findings are in agreement with the opinion of

Krumsvik (2012) Russano (2021) and Kelz (2013) who stressed that technical teachers have to improve their e-management skills, adapt their teaching method to an online environment, learn to manage different types of discussion, offer students authentic structured online activities, design instructional materials which will be made available 24/7 to answer the e-students and give feedback for the student's assignment. The findings are also in line with the result of a study carried out by Gibson, Stringer, Cotton, Simoni, O'neal, & Howell-Moroney (2013) that found that for effective teaching and learning in a virtual environment, teachers need to develop competencies in course design, course communication, time management, and technical competence. These are essential for improving competencies required for utilisation of LMS for teaching and learning technical drawing. The findings are also in support of Folaranmi (2021) and Krumsvik (2011) who suggested that adequate training in computer skills, stable power supply, good internet connection, adequate technical support, knowledge sharing and teamwork are needed for improving the competence of technical teachers to make use of LMS.

### Conclusion

Technical drawing is considered a universal language for effective communication in the manufacturing industries such as architecture and engineering. This distinctive feature of technical drawing with the use of learning management tools as a mandatory component makes it more potent for improving teaching and learning in producing globally recognised personnel. The present study examines teachers' perception of competencies required for the utilisation of LMS for teaching and learning drawing. Based on the analysis presented in this paper, the paper draws its conclusion that LMS are globally recognised tools needed with the advent of new technologies and new inventions for teaching and learning, hence competent teachers are key to the successful implementation of LMS and teachers should develop appropriate competencies and experience to be vast in using LMS to enhance their productivity.

### Recommendations

Based on the findings, the subsequent discussion, and their implications, recommendations made include:

- a. Government through faculties of education, institutes and colleges of education should focus on the provision of LMS tools such as

automation of administrative tools, course development, content access, mobile capability and technological devices such as smartphones, computers, laptops and internet connectivity to support the use of LMS in the curriculum implementation process.

- b. Faculties of education, institutes and colleges of education should invest in the training of teachers in developing the necessary competency skills required to use LMS for teaching and learning by providing a supportive environment and technical help to encourage the use of LMS, this can provide wider availability of best practices and best course materials in teaching technical drawing.
- c. Technical teachers should develop the required sufficient competence in the use of ICT, pedagogical and social skills covering topics of utilising LMS, designing and managing online activities and integrating different teaching and learning styles in teaching technical drawing.

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