TPM Vol. 32, No. 4, 2025
ISSN: 1972-6325
https://www.tpmap.org/

EFFECT OF ONLINE TRAINING ON PROFESSIONAL AND TECHNICAL COMPETENCE DEVELOPMENT IN SCHOOL PRINCIPALS IN OMAN

AMAL KHAMIS ABDULLAH AL-HANDHALI[1], ABU DARDAA BIN MOHAMAD[2], HASANAH ABD. KHAFIDZ[3]

[1]PHD CANDIDATE AT UNIVERSITI KEBANGSAAN MALAYSIA AND A SCHOOL PRINCIPAL AT THE MINISTRY OF EDUCATION, OMAN, EMAIL: p127352@siswa.ukm.edu.my
[2]SENIOR LECTURER AT THE FACULTY OF ISLAMIC STUDIES AND A FELLOW OF INSTITUT ISLAM HADHARI, UNIVERSITI KEBANGSAAN MALAYSIA (EMAIL: dardaa@ukm.edu.my)
[3]SENIOR LECTURER AT THE FACULTY OF ISLAMIC STUDIES, UNIVERSITI KEBANGSAAN MALAYSIA EMAIL: hasanah@ukm.edu.my.

Abstract

The aim of this study was to examine the impact of e-training within the School Leadership Program on the development of leadership competencies among school leaders in Oman. This was conducted through a field study involving 192 principals and assistant principals who participated in the training program. The researcher employed a quantitative methodology using survey design. A questionnaire comprising 3 domains (10 items per domain) was developed, with a high reliability coefficient of Cronbach Alpha is equal to 0.973, based on a survey sample of 40 participants.

Additionally, the results showed a statistically significant strong positive correlation between the level of e-training practice and the development of leadership competencies ($r = 0.92$, $\alpha = 0.01$), indicating a substantial impact of e-training. The coefficient of determination (R^2) was found to be (0.858), which means that the training accounted for 85.8% of the variance in leadership competencies. The strongest correlation was observed with professional competencies ($r = 0.886$)

The analysis revealed no statistically significant differences attributed to gender, educational qualification, or governorate. However, significant differences appeared in job title and years of experience, favoring leaders with less or more than ten years of experience. This underscores the influence of experience on the effectiveness of e-training. The researcher recommends integrating e-training into strategic professional development plans for school leadership.

Keywords: E-training; school leadership; professional and technical competencies; Oman.

INTRODUCTION

Educational institutions are pioneers in implementing technology for professional training purposes following the rise of online training as a potent tool for leadership development. This is especially evident in school principals, who are deemed the pillar of the education continuum, and the in-charge of leading and goal-achieving in the educational institution (Hamza, 2009; Al Dosari, 2011). Integration of leadership qualities whether technical, educational, humanitarian, or administrative is a prominent indicator of school progress, and has major impact in enhancing both learning environments and outcomes (Ishaq, 2018; Al Hinai, 2021; Al Odwan, 2023). Many studies demonstrated the role of online training in improving leadership qualities and enhancing their efficiency in learning environments. (Adams & Morgan, 2007) for instance, showed the impact of online training in leadership and decision-making. Likewise, it was shown in the study of (Al Fadhli & Al Ajeeb, 2017) that online training played a vital role in enhancing school leadership specifically. The study of (Al Dughaim, 2008; Al Dosary 2011) focused on its positive improvement of professional competences. Moreover, in the works of (Parak, 2004; Cicirelli, et al. ,2005) it was stated that online training has generated multiple opportunities for expertise exchange, and actual knowledge application in professional settings, which eventually increased the willingness for self-education and continuous training among the staff.

It is noteworthy that Sultanate of Oman has been one of the countries that granted generous attention to recruiting digital platforms for training school personnel through courses that incorporate synchronous and non-synchronous training approaches. One of the most prominent among these local training programs was the School Leadership program that was conducted in the Specialized Institute for Professional Teacher Training (SIPTT), which serves as a center for leadership development in alignment with modern-life necessities (Ministry of Education, 2018; Al Kimyani, 2021). The School Leadership program focuses mainly on leadership skills including educational, technical, professional skills, technology recruitment and management of change. The course was delivered via an interactive platform specializing for training purposes that combine theoretical and practical preparation. Also, this platform is flexible in terms of fulfilling the individualized needs of each trainee

and it exceeds the borders of time and place because of its virtual nature; therefore, fostering an increased engagement and outcome quality (Ministry of Education, 2018).
Studies like in the works of (Al Harrasi ,2017; Al Hinai, 2019) stated that School Leadership program contributed enormously in developing leadership competences through face-to-face attendance; however, to the best of researchers' knowledge, there is almost scarce if not absent published literature that investigate the effect of online training in this program for principals of secondary schools exclusively. Thus, creating a research gap that our study aims to bridge. With this argument being established, the significance of our study lies in filling the scientific void with the aid of a statistical analysis of School Leadership program's components and a comprehensive measurement of its efficacy. Our study adopts a qualitative approach and utilizes the suitable statistical scales to establish a theoretical and practical framework to improve online training programs directed to school principals and enhance the potential of educational policies to keep abreast with the accelerated orientation towards technology.

LITERATURE GAP

Educational institutions in Oman are striving for leadership development, whether professional or technical, and precisely for school principals. This is achieved through compliance with the modern requirements imposed by the technical advancement in the contemporary time, and by recruitment of online platforms, represented in training programs. Among these programs, as previously stated, is the School Leadership program, which was launched in the academic year of 2017/2016, and is based on 30%, 20% and 50% of direct or face-to-face training, online training and workplace management respectively. It is an online interactive platform that was established in order to enhance competence attainment. Previous studies, like in the works of: (Al Dhafiri, 2014; Amr & Al Awawdah, 2016; Sharaf & Al Furaihi ;2019 Al Hararshah & Al Dhiyabat ,2021; Al Anzi, 2022) have thoroughly demonstrated the vital role of on online training in competence development and managerial qualities enhancement. In spite of that, studies that researched the impact of online training in School Leadership program in Oman are still regarded limited in number, ringing the bell for a study in measured impact of this program's efficacy in improving leadership professional and technical qualities in school principals.

Research Questions

1 From secondary school principals' perspective to what extent online training in School Leadership program conducted in the Specialized Institute for Professional Teacher Training (SIPTT) has been used to improve leadership qualities?
2. From secondary school principals' perspective, how has online training in the School Leadership program in SIPTT impacted leadership qualities?
3. Are there any statistically significant differences that highlight the importance of online training in the School Leadership program in SIPTT in developing leadership qualities and enhancing technical and professional competences of secondary school principals, that are directly linked to study's variables (gender, academic degree, years of professional expertise, position, or Governorate)?

Research Aims

This study aims to achieve the following objectives:
1. Providing a measured overview of online training's impact in improving technical and professional qualities/ competences in secondary school principals in Oman.
2. Exploring the different levels of competences attained by study's population by analyzing the survey-based collected data, in order to evaluate the efficacy of this program for skill development.
3. Presenting evidence-based recommendations that contribute in refining the current plans and regulations with regards to training in the Ministry of Education, Oman, with the aim of engaging online training within future professional training planning.

Research Significance

Our study provides significant insights due to the following:
1. It investigates the extent to which online training in School Leadership program in SIPTT is practiced, based on trainees' feedback.
2. It analyzes the effect of online training in SIPTT School Leadership program in developing leadership qualities and competences, also based on trainees' feedback.
3. It analyzes trainees' feedback and investigates the correlation between the content shared in online training in SPITT School Leadership program with the variables of the study: gender, academic degree, years of professional expertise, position, and Governorate.

Research Limitations

Despite the valuable significance of our study, there are number of limitations to be addressed:
Scope-related Limitations: The study is restricted to investigating the effect of online training and its impact on leadership competences development in secondary school principals in Oman.

Location-related Limitations: The study is also restricted to secondary schools (grades 50-10) in Governorates of Muscat, Al Dhakhiliyah, and Al Batinah North.
Time-related Limitations: The study is restricted to the academic year of (2024/2025).
Population-related Limitations: The study has selected principals of secondary school principals in Oman for 5-10 grades, who have been trained by SPITT in Muscat, Al Dakhiliyah, and Al Batinah North in Oman.
Research Terminology and Operational Definitions
Impact, as defined by (Allam, 2018) is: **The ability to meet a set of objectives in order to attain the best expected results possible.**
It is operationally defined as: **The degree of change imposed by online training on leadership competences development in school principals after undergoing the School Leadership training program.**
Online training, as defined by (Al Juhani, 2016) is: The process in which an interactive, and rich computer-based applications are created to enable the faculty member to achieve the practical aims of the training, mainly by the effective engagement with the resources in the shortest period of time, with least efforts, and with best quality, without imposing any limitations of time and place.
it is operationally defined as: The training process that aims at presenting training content via websites and technology-powered applications that are affiliated with the Ministry of Education, Oman, which targets developing leadership competences of the staff to improve work quality.
School Leadership Program: A two-year program that aims at providing leadership training school principals and their deputies in Omani schools (SPITT Guide, 2016).
it is operationally defined as: A training program that is specialized in developing leadership competences and management qualities in school principals and their deputies, which contributes to bettering work-quality in school environments in Oman.
professional Competences The ability to practice strategic planning, team management, evidence-based decision making, and problem solving in educational settings (Al Qarni, 2019).
it is operationally defined as: The knowledge, capabilities, skills, and values of planning, evaluation, motivation, technology, human and non-human resources management, that lead to the enhancement of teaching and learning processes in Omani schools.
Technical Competences Leader's ability to utilize technology in education management, including proper interaction with learning management system, creation of virtual classes, and analysis of digitized data of students and teachers (Ghavifekr & Rosdy, 2019).
The researcher herewith defines it as: Competences that involve skills of organization and analysis, which help school principals in improving their schools as institutions.
school principals as defined by Al Ghamdi & Al Hasani, 2018 are: A group of individuals who oversee the management of multi-leveled schools and are responsible for the continuous enhancement of their institutions and possess the appropriate skills and knowledge to enable them to influence their staff.
it is operationally defined as: School principals and their deputies in Omani secondary schools, who are commissioned to lead, manage and enhance work-flow.
Secondary Schools: **it is operationally defined as:** An educational stage in the ladder of basic education in Oman, which consists of three levels: Elementary level, which includes grades 1-4, then secondary schools that include grades 5-10, and lastly diploma level, which includes grades 11 and 12.
Published Literature
Below is a chronological review of published literature about the study:
Al Dhughaim's (2008) paper investigated the efficacy of a training program that is based on information systems and communicational technology in developing administrative competences for leaders in the educational sector in UAE's Ministry of Education. In his study, the population included 45 principals and 170 deputy principals and heads of department. The researcher here adopted the quantitative approach using a survey as a tool, and his findings showed differences in mean values between (1.55) and (4.07), in which training goal-achievement and funding scored high records. The need for training scored a mean of (4.43) with a standard deviation (SD) of (0.68). The results demonstrated a 100% agreement score for program efficacy from experts who participated in the study, with its feasibility scoring 90%. Al Dhghaim's study recommends establishing a center for information system-based leadership training; a concept that is partially aligned with the aims of the current study in terms of efficacy of online training in competences development.
Al Dosary (2011) examined the effect of synchronized and non-synchronized training on administrative skills and training perspectives of 40 principals in Al Dammam, KSA, by adopting an experimental approach. The findings in this research show that the efficacy of both training methods in administrative skills development and positive perspectives generation towards this sort of training. Similar to our study, Al Dosary's study shows resemblance in terms of online training but they diverge in population and methodology.
The study of Al Dhafiri (2014) aimed at exploring the impact of electronic learning environment in developing leadership skills by examining 43 female students in Kuwait University, by adopting a semi-experimental approach. The obtained results illustrated significant differences favouring the population of the experimental group, reflecting high influence of online training on leadership development. This study goes alongside with our study in terms of narrowing the scope into the leadership aspect but differs in the target audience.

Al Juhani's (2016) paper was oriented towards online training and its role in professional development for the faculty of King Saud University. Her survey was disseminated to 120 faculty members and the findings revealed major agreement on the efficacy of online learning in enhancing professional skills. She, on top of that, pointed to the need for awareness programs promoting the positive impact of online training. Her methodology and study tools are comparable to those of ours.

Al Mubarak (2019) investigated the impact of online training on professional competences in secondary school-Arabic teachers in Sudan. By disseminating a survey to a study population of 75 teachers, his findings showed scored averages between (2.26) and (2.81), with the participants confirming technology's efficiency in lesson creation and evaluation. Al Mubarak's study recommends developing training programs for teachers. Despite his study's conformity with ours in aims and methodology, it differs in terms of study population.

Sharaf & Al Furaihi (2019), however, aimed at measuring the role of information technology in administrative progress enhancement for secondary school principals in Al Qasim, KSA. The researchers adopted the descriptive approach, in which a survey was answered by 183 female principals. The findings displayed positive feedback regarding the impact of technology on their administrative progress. In terms of methodology and data collection tools, this study aligns with ours.

Al Tahir & Al Zahrani (2020) aimed at exploring the influence of interactive online training in leadership improvement in 120 students affiliated with University of Hael, KSA. The findings here have statistically significant differences in leadership qualities of the experimental group, which proves the efficacy of interactive learning environments. The study shows conformity with the current one in terms of its orientation towards measuring the impact of online training in leadership competences, despite the difference in terms of study population.

The works of Al Hararsha and Al Dhiyabat (2021) aimed at investigating the impact of technology in improving administrative progress in 70 leaders in Liwa Al Ramtha, Jordan. The statistics in this study showed increased impact of technology, precisely in workplaces involving teacher-student interactions. Despite that, there are no observed differences to be attributed to factors such as gender or academic degree or expertise, and it shows conformity with our study in terms of the descriptive approach but diverges in variables and methodology.

The aim of Al Hinai's (2021) paper was to evaluate the impact of School Leadership program on leadership competences development in 204 school principals and deputy principals in 5 Directorates in Oman, by adopting the descriptive approach in research and a survey as a mean for data collection. Findings illustrated huge positive impact on competences improvement, and this study is one of the most comparable published papers with the current study in terms of population and methodology.

Likewise, Al Saadi (2022) conducted a study on the aim of measuring the efficacy of School Leadership program in improving leadership qualities in 145 school leaders in Oman. Her findings concluded that the program was highly impactful, with the variable of inter-relationships scoring the highest average (4.27). However, no statistically significant differences were noticed relating to variables like gender or level of expertise. Her methodology and study tools are comparable to those of ours.

AL Anzi's (2022) paper, located in Kuwait, investigated the effect of adaptive online training on high school principals. The survey was disseminated to 217 principals and showed that adaptive training contributes positively in skill improvement, with mean values ranged between (2.21) and (2.86). This study resembles our study in terms of aim and data collection tool but is different when it comes to environment and planning.

LITERATURE REVIEW

As previously reviewed, it is clear that this study shows conformity with many other published papers, firstly in terms of its aim: measuring the impact of online training in leadership qualities, and secondly in the utilization of the quantitative approach and surveys as tools for data collection (Al Dughaim, 2008; Al Juhani, 2016; Al Mubarak, 2019). However, major discrepancies were observed when it comes to other research aspects like the population of the study, as many papers shed the light on language teachers (Al Mubarak, 2019) and university students (Al Dhufairi, 2014). Our study, in contrast, selected secondary school principals, and adopted a comprehensive surveillance design. It has also a higher number of population (192), and included a pentagonally-aspected themes for competencies, compared with the limited themes of evaluation in some of the previous studies (Sharaf & Al Furaihi, 2019; Al Hararsha & Al Dhayabat, 2021).

METHODS

Research Methodology

Our study adopted the quantitative approach and surveillance design as a fitting methodology to achieve the assigned aims.

Research Population

The population of our study is composed of all school principals and deputy principals in government schools that are affiliated with Directorates of Education of Muscat, Al Dakhiliyah, and Al Batinah (North), Ministry of Education, Oman for the academic year of (2024/2025). According to published statistics of academic years of (2024/2025), the total number of participants reached 380, of which are 93 and 102 (male and female

respectively) school principals, and 91 & 94 (male and female respectively) deputy principals (Ministry of Education, 2024). The above-mentioned governorates were selected because of their high population, thus a higher number of schools to be studied, and more governmental institutions to regulate these regions. This wider landscape paves the way for the researcher to achieve the desired percentage of study population, which is 192 principal and deputy principal out of the total population in the selected locations.

Data Collection Instrument

Our study selected the usage of a survey as a research instrument to collect the data. We have relied on previous studies to build survey's sections and statements (Al Dughaim, 2008; Al Dosary, 2011; Al Dhafairi, 2014; Al Juhani, 2016; Sharaf & Al Furaihi, 2019; Al Tahir & Al Zahrani, 2020; Al Hararshah & Al Dhiyabat, 2021; Al Anzi, 2022). The study analyzed also the content of the online training part in the School Leadership program, SPITT.

The final version of the survey is divided into two sections:

1. Section 1: this section involves demographic data collection of the population, these data are classified into: gender, position, academic degree, Governorate, and years of professional expertise.

2. Section 2: this section contains the five statements of Likert scale, which included the use of alternative choices of response: (Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree). Through this scale, participants' responses on online training's efficacy were collected and measured. The survey is divided into three themes: (School principals' evaluation of online training settings and environments, and their perspectives on professional and educational competences).

Instrument's Validity

Validity of survey as a research instrument in this study was ensured through two means: face validity (reviewers' validity), and Consistency (reliability).

1. Face Validity (Reviewers' Validity): to ascertain face validity of the primary version of our survey, it was, with its 50 statements, reviewed by a number of specialized reviewers, who are affiliated with the Ministry of Education and other universities. They evaluated the statements according to a set of standards such as their conformity with the overall aims of the study and their correspondence to the assigned theme/ aspect. Moreover, the reviewers were assigned and privileged to add, omit, or change any of survey's statements. In light of their feedback, the statements were adjusted with the overall aims and objectives of the study.

2. Instrument's Consistency/ Reliability: to ensure the internal consistency and reliability of the terms included in the survey, a primary population of 40 principals and a deputy principals was selected and requested to fill the survey out. Pearson correlation rate was calculated of all themes. Table (1) demonstrates that correlation rate range of each statement's score is (0.444 - 0.732). The table also shows that overall score of intertextual consistency reached (0.997). It is noteworthy to mention that all results are statistically significant at (a= 0.01), which proves suitable reliability and consistency to achieve the aims and objectives set for the study, and correlation between each theme and the overall score. All values represent medium to strong correlation. No weak or negative values are found, which further support the well-established consistency of the statements.

3.

Table (1): Range of correlation rates between survey's statements and themes

Theme	Lowest (r) value	Highest (r) value
Online Training	0.444	0.686
Technical Competences	0.569	0.732
Professional Competences	0.512	.677 0

Table (2): Correlation rates between survey's themes and overall score

Correlation Rate	Overall Score
Theme 1: Online Training	**0. 952
Theme 2: Leadership Competences	**0. 997

** Statistically significant value at (a= 0.01)

Table (2) illustrates high correlation rates between each theme in the survey and the overall score. The results are statistically significant at (a= 0.01), which proves its high consistency and feasibility.

Data Consistency

To evaluate the consistency, alpha Cronbach's rate was calculated in all the themes of the primary study, which was disseminated initially to a sub-group of 40 principals and deputy principals who have completed the assigned training program. Table (3) shows the consistency rate for the whole survey, which reached (0.973), pointing to a high-level internal consistency.

Table (3): Alpha Cronbach rate of the survey

Consistency Rate

Alpha Cronbach	Number of Statements
0.973	50

Research Planning

Following verification of survey's validity and consistency and finalization of the usable version, the survey was disseminated electronically through a Google Forms link. To achieve that the following was accomplished:

1. Analysis of the literature published on Online Training's effect on competence development.
2. Review of previous studies that investigated the efficacy of online training on competence development, such as: (Al Dughaim, 2008; Al Dosary, 2011; Al Dhafairi, 2014; Al Juhani, 2016; Sharaf & Furaihi, 2019; Al Tahir & Al Zahrani, 2020; Al Hararshah & Al Dhiyabat, 2021; Al Anzi, 2022)
3. Review and analysis of published evidence issued by Ministry of Education, Oman, which are: Guide of School Leadership (SPITT and MOE), Guide of School Principal's Job Assignments.
4. Analysis of the content of the online training provided as part of School Leadership training program through Teams (Microsoft), in order to synthesize the themes of our survey.
5. Composition of survey's themes and statements that have been reviewed by program's trainers. The statements reached 50 in number.
6. Final peer-review of the survey by reviewers who have profound expertise and specialty in the field of this study.
7. Amendment of survey's statements in light of reviewers' feedback and recommendations. This included re-writing some statements, editing wording and sentences, and changing some statements to more suitable corresponding themes.
8. Darfting the final version of the survey.

Research Variables

The variables in our study are as follows:

The Independent Variable: the effect of online training of School Leadership program.

The Dependent Variable: leadership competences development in principals and deputy principals of Omani secondary schools.

Results, Discussion, and Recommendations

The study set the objective to investigate the impact of online training in the School Leadership program in developing leadership competences of school principals and deputy principals in Oman. The instrument of the study helped provide answers to the following research questions:

Question 1: to what extent is online training in the School Leadership program in SPITT improves leadership competences, both technical and professional, from the perspectives of Omani secondary schools' principals and deputy principals?

To answer it, Null Hypothesis (H01) was constructed following the down-mentioned steps: Online training in SPITT School Leadership program is poorly practiced to improve leadership competences, as per study population's (Omani secondary schools principals and deputy principals) feedback. A judgment criterion was established to evaluate the levels of practice, accordingly, as shown in Table (4).

Table (4): Judgement Criterion for Question 1

Level	Level of involving/ practicing online training
1.00 –1.79	Very Low
2.59 –1.80	Low
3.39 –2.60	Medium
4.19 –3.40	High
5.00 –4.20	Very High

Table (5): Statistical mean and standard deviation values of the statements subordinating the theme of Online Training in mean-based descending order.

Rank	Number	Statements	Mean	Standard Deviation (SD)	Level of practice
1	2	The platform allows access to comprehensive training content the conforms with leadership needs of school principals and deputy principals.	4.11	0.69	High

2	9	Online tests and evaluations reflect trainee's progress and level of objective achievement.	4.09	0.55	High
3	1	The platform of online training is a learning environment that is easy to use and supports easy-access learning.	4.08	0.74	High
4	6	Online Training allows access to technical support and quick-response tools when technical challenges arise while in the training.	4.06	0.53	High
5	8	Online Training experience is comfortable in terms of managing different content online and easy reach to the desired content.	4.04	0.62	High
6	7	Online training increases opportunities for in-class engagement and discussion between trainers and trainees via online platforms or face-to-face sessions.	4.02	0.65	High
7	5	Online training is effectively mediated in terms of content distribution, interactive sessions organization, and level-based evaluations.	4.01	0.63	High
8	4	Time intervals specified for each training unit help comprehend the content without overwhelming the trainees.	3.94	0.62	High
9	10	Organization of virtual training sessions facilitates learning and helps attaining the objectives.	3.92	0.70	High
10	3	Online training materials like videos, articles, or activities are delivered to trainees in a manner that is clear and easy to understand and apply.	3.91	0.67	High
Overall Average			4.01	0.43	High

Findings, as illustrated in Table (5), show high practice of online training within the School Leadership Program with a mean of (4.01) and SD (0.43). Statement (1) topped the list (M= 4.08) (SD= 0.69), followed by statement (9) (M=4.09), then statement (1) (M= 4.08), and lastly statement (3), which was at the bottom line (M= 3.91). Therefore, the previously established null hypothesis (H01) was rejected, proving program's efficacy. These results are attributed to principals' awareness of the importance of online training in developing leadership competences and their understanding of the necessity to create and design training content that is consistent with the reality of the educational sector in Oman. Literature by: (Al Dhughaim, 2008; Al Dosary, 2011; Sharaf & Al Furaihi, 2019; Al Hinai, 2021; aL Saadi, 2022) asserted on online training's effecacy in leadership quality development.

Question 2: Is there any statistically significant correlation between the level of the actual practice of online training and leadership competences development for secondary school principals and deputy principals in Oman from participants' perspectives?

In light of this question, the second null hypothesis (H02) was established: There is no statistically significant correlation between the level of the actual practice of online training and leadership competences development for secondary school principals in Oman from participants' perspectives. To validate this hypothesis, Pearson Correlation Coefficient was used. Table (6) illustrates the correlation between online training practice and leadership competences development.

Table (6): Pearson Correlation Coefficient: the correlation between online training practice and competences development.

Variable	Leadership Competences Development			
	Correlation Rate	Technical Competences	Professional Competences	Overall
Online Training Practice	Pearson Correlation	.84**	.88**	0.92**
	Statistical Significance	0.00	0.00	0.00
	Level of Correlation	Strong	Strong	Very Strong

** Statistically significant value at (a= 0.01)

Results in Table (6) show strong direct correlation between the actual practice of online training and leadership competences development, as the general correlation rate is (r= 0.92***) at statistical significance of (a= 0.01), which marks an increasing practice of online training matched by notable improvement in leadership competences. Pearson correlation rates showed also positive statistical significance in all themes that are focusing

on professional and technical competences, and it ranged between (r= 0.84) and (r= 0.88). Figure (1) shows a scatter plot of this correlation.

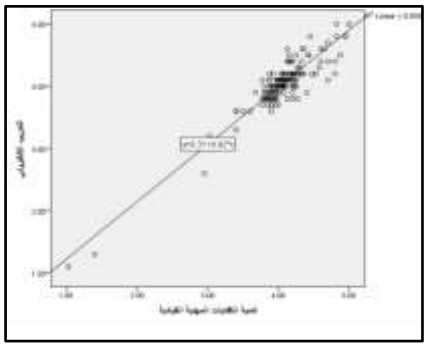

Figure (1): Correlation between online training practice and leadership competences development.

Using Pearson correlation rate uncovered the veil of a strong, direct and statistically significant relationship between online training and leadership competences development. With these findings, the established null hypothesis (H02) was rejected. The researcher attributes the findings to the wholistic nature of program's content, with regards to themes of competences, and also its design that have been tailored to fulfill trainees' needs. All these characteristics enhanced the correlation of the program with the actual professional practice and allowed for a technologically supported training environment. Moreover, the trainee-friendly online platform contributed in enhancing the culture of self-learning and encouraged application of these competences in real school settings. This goes alongside with the academic works of: (Al Hinai, 2021; Al Saadi, 2022; Al Anzi, 2022), which validated the importance of training customization with the Omani context of school leadership.

Question 3: what is the effect of Online Training on technical and technical competence development in secondary school principals in Oman. To answer it, the following null hypothesis (H03) was established:

No statistically significant effect is present in technical competences development. Table (7) demonstrates that value (sig= 0.00) is less than (0.05), denoting a significant statistical value; this evidence is supported by the F value of (F= 477.344), which is statistically significant at (a= 0.05). On this foundation, the null hypothesis (H03) is rejected and alternative hypothesis that validates the effect of online training on technical competences development is accepted.

Table (7): The effect of online training in School Leadership program on technical competences development.

Table (7): Regression Variance Analysis

	Sum of Squares	Degrees of Freedom	Average of Squares	(F) Value	Statistical Significance
Regression	30.778	1	30.778	477.344	000.
Residuals	12.251	190	064.0		
Total	43.028	191			

Table (8): Regression Variance Analysis (Correlation and Beta)

Independent Variable	Regression Rate	Standard Error	(R) Rate	(R^2) Square	Explained Discrepancies	Beta (B) Rate	(T) Value	Statistical Significance
(Consistent)	398.	172.					2.310	022.
Online training and technical competences	932.	43.	846.	715.	714.	846.	21.848	000.

Table (8) demonstrates positive correlation between the effect of online training on technical competences of study's participants, as the regression rate was (932), correlation rate (r= 0.846), and coneffcient of determination is (R^2= 0.715), which explains (71.5%) of variance.

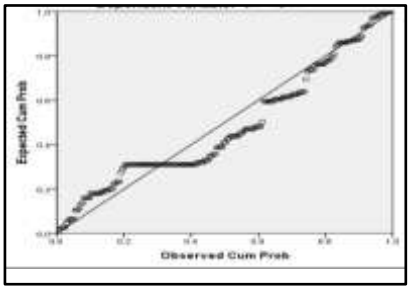

Figure (2): Linear Regression Analysis

Figure (2) illustrates a direct, strong and positive correlation between online training and technical competences development, this resembles the results of: (Al Dhafairi, 2014; Al Tahir & Al Zahrani, 2020). This effect is attributed to the customization of training content to be in consistency with the actual technical competences being practiced in real school settings, and also because of its conformity with Oman 2040 Vision, a national plan that takes human resources development into serios consideration. The continuous evaluations and following up by the personnel in charge contributed hugely in enhancing the implementation of the attained competences in school settings.

Question 4: Is there a statistically significant effect of online training on developing leadership competences of school principals and deputy principals in Omani secondary schools from participants' perspectives?

To answer this questions, the following null hypothesis (H04) was established: There is no statistically significant effect of online training in Leadership School program on developing leadership competences in Omani secondary school principals. Table (9): Effect of online training in School Leadership program on the development of technical competences.

Table (9): Regression Variance Analysis

	Sum of Squares	Degrees of Freedom	Average of Squares	(F) Value	Statistical Significance
Regression	31.445	1	31.445	691.062	.000
Residuals	8.645	190	.046		
Total	40.090	191			

Results illustrated on Table (9) show a statistically proven effect of online training on professional competences development in school principals in Oman, as significance level is (sig = 0.000 < 0.05) and F value is (F= 691.062), denoting a strong influence.

Table (10): Regression Variance Analysis (Correlation and Beta)

Independent Variable	Regression Rate	Standard Error	(R) Rate	(R^2) Square	Explained Discrepancies	Beta (B) Rate	(T) Value	Statistical Significance
(Consistent)	203.	145.					1.402	162.
Online Training	942.	036.	886.	784.	783.	886.	26.288	000.

Table (10) shows that online training affects professional competences development positively, with a regression rate of (0.942), and a strong correlation of (R=0.886), and variance percentage of (78.4%) (R^2 = 0.784). The remaining (21.6%) of variance is imposed by external factors. Figure (3) demonstrates the correlation between the two variants.

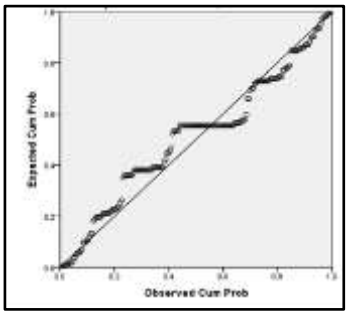

Figure (3): Results of Linear Regression Analysis

Figure (3) provides an insightful demonstration of a strong and direct correlation between online training and professional qualities development, which further validates the influence of online training. Thus, the null hypothesis of (H04) was rejected. Repeatedly, the influence of online training is marking adherence to the viosion of professional development and educational regulations and policies in Oman. This strong relationship can easily be attributed to the immense focus on effective leadership qualities development by the training experts. These insights are in conformity with the results of: (Al Dosary, 2011; Al Mubarak, 2019) on technology's role in developing leadership competences.

Question 5: is there any statistically significant differences on the effect of online training within the School Leadership program (SPITT) in improving professional and technical competences of School principals and deputy principals of Omani secondary schools, which are imposed by any of the variables of: gender, academic degree, years of professional expertise, position, and/or governorate?

The following null hypothesis was established: There are no statistically significant differences regarding the role of online training included in School Leadership program (SPITT) in improving professional and technical leadership qualities in Omani secondary school principals that are attributed to the variables of gender, academic degree, years of professional expertise, position, and governorate. To avoid effects of information asymmetry in the population of each group, a parallel sub-group of 44 individuals, to whom a T-test was applied for two independent samples to validate the statistical significance in both groups, with relevance to variables of gender, academic degree, and position, was created.

Variable of Gender (male/ female) Table (11) shows that all survey themes reached higher rates of statistical significance of more than (0.05), denoting the absence of major statistically significant differences in terms of responses received by sample's population with regards to gender. Thus, fostering comparable points of view on online training's impact on competences development. These results are in conformity with the conclusions of: (Al Juhani, 2016; Al Hararsha & Al Dhiyabat, 2021; Al Saadi, 2022), which also denote the absence of statistical evidence of any gender-based differences in online training's evaluations. This can be confidently attributed to the non-biased nature of the training program, and an evidence of equavelent opportunities to provide qualified training despite participants' gender. In addition, the comparable values of Mean and Standard Deviation (SD) reflects a homogenous training experience for all participants with respect to aspects like content, progress, and engagement, an important and positive indicator of program's quality and suitability for both genders.

Table (11): T-test results to investigate the statistically significant differences with respect to the variable of gender.

Themes	Gender	Number	Average	Standard Deviation (SD)	(T) Value	Statistical Significance
Online Training	Male	44	3.98	0.31	0.920	0.360
	Female	44	3.90	0.56		
Technical Competences	Male	44	4.10	0.31	0.064	0.949
	Female	44	4.09	0.63		
Professional Competences	Male	44	3.97	0.34	0.566	0.573
	Female	44	3.92	0.54		
	Female	44	4.03	0.61		
	Female	44	3.90	0.72		
	Female	Female	3.98	.57		

Variable of academic degree (Bachelor/ Higher studies) Table (11) shows that all survey themes recorded higher values of statistical significance (> 0.05), highlighting the absence of statistically significant differences between Mean values with regards to the variable of academic degree. This reflects comparability of perspectives between participants towards online training, in despite their academic levels. These results are in conformity

with the research of: (Al Hinai, 2021; Al Saadi, 2022) and were different when compared to the works of (Al Mubarak; 2019), as the latter recorded differences that favored participants with higher degrees. The results of our test herewith show that flexibility and graduality has not been taken into consideration when creating the training program, in a manner that is aware of the trainees' professional reality and encourages the implementation of a sustainable vision; a concept advocated for by the Ministry of Education. In an improved situation, the training environment is effective for all school principals and deputy principals, despite their status in academic rankings.

Table (12): T-test results to investigate the statistically significant differences with respect to the variable of education degree.

Theme	Level of Education	Number	Mean	Standard Deviation (SD)	(T) Value	Statistical Significance
Online Training	Bachelor	44	4.05	0.44	0.250	0.803
	Higher Studies	44	4.02	0.57		
Technical Competences	Bachelor	44	4.23	0.52	0.391	0.697
	Higher Studies	44	4.18	0.57		
Professional Competences	Bachelor	44	4.03	0.49	0.204	0.838
	Higher Studies	44	4.01	0.55		
	Higher Studies	44	3.98	0.73		

Variable of Position (Principal/ Deputy Principal) Table (12) marks no statistically significant differences between themes regarding participants' position or job title, with an exception of online training theme that has the value of (T= 0.072) at p value of (Sig = 0.041 < 0.05), in favour of deputy principals. This finding aligns with the results of Al Anzi, (2022), in which differences were attributed to the nature of the assigned tasks and responsibilities of principals and deputy principals. There was also a partial agreement with the work of Al Hararshah & Al Dhiyabat, (2021), and a disagreement with the paper of Al Dosary, (2011). These discrepancies in results are attributed to the non-biased nature of program design, in which equality of content delivery to all participants, and consideration of their different job responsibilities was not overlooked. This fostered in almost matched levels of training experience, and it's worth mentioning also that technological awareness of deputy principals enhanced their engagement with the online training, explaining their advancement compared with principals.

Table (13): T-test results to investigate the statistically significant differences with respect to the variable of position.

Theme	Position	Number	Mean	Standard Deviation (SD)	(T) Value	Statistical Significance
Online Training	School Principal	44	3.92	0.58	2.072	0.041
	Deputy School Principal	44	4.13	0.35		
Technical Competences	School Principal	44	4.09	0.61	1.608	0.111
	Deputy School Principal	44	4.27	0.45		
Professional Competences	School Principal	44	3.97	0.57	0.653	0.515
	Deputy School Principal	44	4.04	0.44		
	Deputy School Principal	44	4.10	0.53		

Variable of Governorate To validate the statistically significant differences between Mean values with regards to variant of governorate (Muscat, Al Dakhiliyah, Al Batinah (North)), Mean and SD values for this variable were obtained. Results are shown on Table (13).

Table (14): Mean and SD values of governorate variable.

Theme	Governorate	Number	Mean	Standard Deviation (SD)
Online Training	Muscat	48	4.07	0.20

	Al Dakhiliyah	84	3.96	0.46
	Al Batinah (North)	60	4.06	0.51
Technical Competences	Muscat	48	4.20	0.27
	Al Dakhiliyah	84	4.08	0.50
	Al Batinah (North)	60	4.19	0.55
Professional Competences	Muscat	48	4.05	0.26
	Al Dakhiliyah	84	3.91	0.48
	Al Batinah (North)	60	4.04	0.54

The previous table illustrates that Mean and SD values of governorates, when studied under the theme of online training show discrepancies in terms of training evaluation. To explore the statistical validity and significance, a one-way analysis of variance test (ANOVA) was used to measure the significance of Mean discrepancies, as shown in Table (15).

Table (15): On-way Analysis of Variance Test (ANOVA) of governorate variable.

Theme	Source	Sum of Squares	Degrees of Freedom	Average of Squares	(F) Value	Statistical Significance
Online Training	Between groups	0.803	2	0.402	1.932	0.148
	Within groups	39.287	189	0.208		
	Total	40.090	191			
Technical Competences	Between groups	0.274	2	0.137	0.624	0.537
	Within groups	41.485	189	0.219		
	Total	41.759	191			
Professional Competences	Between groups	0.528	2	0.264	1.431	0.242
	Within groups	34.911	189	0.185		
	Total	35.440	191			

Table (15) shows no statistically significant differences between participants' responses in terms of their residential governorate, as all survey themes had a statistical significance over (0.05), denoting comparability of evaluations among participants on online training and developing leadership competences. This result is aligning with the works of (Sharaf & Al Furaihi, 2019; and Al Hinai, 2021), which stated that the geographical location has no direct effect on online training. Our study , in this aspect however, has differed from the research conducted by (Al Dughaim, 2008), in which differences between participant' feedback were observed. This results can be attributed to the unified training content in all governorates, let alone the implementation of a central strategy for professional training by MOE, that ensures equal content availability and access for all trainees in the different Omani governorates.

Variable of professional expertise (years) To validate the statistical differences between Mean values of professional expertise as per the following scale: (1-5 years, 6-10 years, more than 10 years), all Mean and SD values for each annual interval were extracted, as shown in Table (16).

Theme	Source	Sum of Squares	Degrees of Freedom	Average of Squares	(F) Value	Statistical Significance
Online Training	Between groups	1.124	2	0.562	3.094	0.048
	Within groups	34.316	189	0.182		
	Total	35.440	191			
Technical Competences	Between groups	0.874	2	0.437	1.958	0.144
	Within groups	42.155	189	0.223		
	Total	43.028	191			
Professional Competences	Between groups	0.567	2	0.284	1.357	0.260
	Within groups	39.523	189	0.209		
	Total	40.090	191			

Table (16): Mean and SD values of professional expertise variable.

Theme	Professional expertise	Number	Mean	Standard Deviation (SD)
Online Training	1 to 5 years	62	4.08	0.28
	6 to 10 years	62	3.91	0.58
	More than 10 years	68	4.06	0.37
Technical Competences	1 to 5 years	62	4.21	0.34
	6 to 10 years	62	4.05	61. 0
	More than 10 years	68	4.16	0.43
Professional Competences	1 to 5 years	62	4.05	0.28
	6 to 10 years	62	3.91	59. 0
	More than 10 years	68	4.00	0.45

Table (16) shows that Mean and SD values of participants' professional expertise have major discrepancies between years of professional expertise. To validate the statistical significance, an analysis of variance (ANOVA) test was used to measure the significance of these discrepancies in mean values.

Table (17): On-way analysis of variance test (ANOVA) of professional expertise variable.

Table (17) shows that survey themes of technical and professional competences have recorded lower statistical significance (< 0.05), denoting no statistical significance among responses in terms of years of professional expertise. However, theme of online training had statistical significance that is lower than (0.05), marking statistically important differences. Post-Hoc (Lowest Statistical Difference - LSD) test was executed to indicate dual discrepancies between Mean values in the previously-mentioned themes, as shown in Table (18).

Table (18): Post Hoc LSD Comparisons

Theme	Professional expertise		Average Difference	Statistical Significance	Difference in Differences (DiD)
	1-5	10-6	0.17581*	0.023	1-5

Online Training	More than 10 years	10-6	0.14929*	0.047	More than 10 years

* Statistically significant value at (a= 0.05)

On-way Analysis of Variance Test (ANOVA) fostered statistically significant findings with regards to years of professional expertise among participants. The researcher observed differences between principals and deputy principals with (1-5) and (6-10) years of experience, favouring the former category. Other differences favouring participants with more than 10 years of professional expertise were observed, when compared with the middle category. This finding was evident in all themes concerning professional and technical competences. With that being stated, the fifth null hypothesis (H04) was rejected for variables of position and years of professional expertise, but was still accepted for the remaining variables of gender, academic degree, and Governorate. The results of this study in this regard is aligning with the research papers of Al Dhafairi, 2014; and Al Saadi, 2020, which demonstrated similar higher engagement with the training in participants with highest and lowest years of professional experience. In spite of that, the findings were on opposition with the results of Al Hararshah & Al Dhiyabat, 2021. This can be attributed to the high motivation of newly-accepted trainees in the program, and thus resulting in increased interaction with online training settings. While in the group of participants who have more than 10-year-professional expertise the rationale behind their outstanding performance was the professional maturity that effectively helped them to implement the information in real-life professional situations. As for the category of (6-10) years of professional expertise, participants were not as motivated because of the incompatibility between their advanced professional needs and training content.

Recommendations

Based on the findings, the researcher recommends the following:

1. Utilization of online training as an essential training tool in the School Leadership program.
2. Implementation of a mutated and interactive application within the online part of School Leadership program to provide real-school settings.
3. Improvement of educational regulations and policies considering the findings of our study with regards to online training and adopting the results when establishing future plans in SPITT and MOE.

Future Research

1. Efficacy of online training strategies in developing leadership competences and their role in facilitating digital transformation of school principals in Omani schools.
2. The role of digital competences in enhancing the quality of professional progress in school principals of Omani schools.
3. Composition of a national vision to improve online training programs designed for school principals, considering the 21 century's requirements.

REFERENCES

1. Adams, J., & Morgan, K. (2007). The impact of e-training on school leadership skills. Journal of Educational Leadership, 15(2), 134–150 .
2. Al-Adwan, M. (2003). Leadership competencies of the school leader and their impact on educational development (1st ed.). Dar Al-Hamed for Publishing and Distribution.
3. Al-Dhafiri, Sh. (2014). A program based on an e-learning environment to develop basic leadership skills among students of the College of Education in Kuwait. Reading and Knowledge Journal, (149), 33–59.
4. Al-Dosari, N. (2011). The impact of synchronous and asynchronous training on developing administrative skills and attitudes toward training: A study conducted on public education female directors in Dammam, Kingdom of Saudi Arabia (Unpublished master's thesis). Arabian Gulf University.
5. Al-Dughaim, A. (2008). The effectiveness of an electronic training program in developing professional competencies among teachers. The Arab Journal of Education, 28(1), 55–78.
6. Al-Enazi, W. (2022). Requirements of adaptive e-training for secondary school principals in the State of Kuwait. Journal of the Faculty of Education, Mansoura University, (120), 1457–1482.
7. Al-Fadli, A., & Al-Ajeeb, M. (2017). The impact of using e-learning in developing professional competencies. Journal of Modern Education, 7(3), 45–67.
8. Al-Ghamdi, A., & Al-Hasani, A. (2018). The degree to which school leaders practice technical competencies in light of the public education development strategy in the Kingdom of Saudi Arabia. The Educational Journal, (51), 72–112.
9. Al-Hanai, A. (2021). The impact of the school leadership program at the Specialized Center for Teacher Professional Training on developing leadership skills among its graduates of school principals and their assistants. Journal of Educational Studies, 1(40), 256–281.
10. Al-Hanai, M. (2019). The effectiveness of the school leadership program in developing leadership and administrative practices of school principals in the Sultanate of Oman (Unpublished master's thesis). Sultan Qaboos University.

11. Al-Harashsheh, M., & Al-Dhiabat, A. (2021). The impact of information technology on improving the administrative performance of school principals in the Ramtha Directorate of Education. An-Najah University Journal for Research (Humanities), 35(4), 511–534.
12. Al-Harasi, A. (2017). The impact of the school leadership program on developing the leadership competencies of school principals in the Sultanate of Oman (Unpublished master's thesis). Sultan Qaboos University.
13. Al-Juhani, H. (2016). The impact of distance e-training on achieving the professional development of faculty members at the College of Education at King Saud University: A proposed framework. Journal of the College of Education, 2(171), 751–805.
14. Al-Kimaniyah, Sh. (2021). The school leadership program and its impact on leadership competencies. Ministry of Education.
15. Allam, R. (2018). Research methods in psychological and educational sciences. Dar Al-Nashr Lil-Gami'at.
16. Al-Mubarak, H. (2019). The role of using e-training in developing teachers' professional competencies: From the perspective of Arabic language teachers at the secondary stage, Gezira State, Tabat Administrative Unit. Journal of the Faculty of Education, 74(2), 252–276.
17. Al-Qarni, S. (2018). The impact of e-training on teachers' instructional performance. Arab Journal of Educational Technology, 10(2), 65–82.
18. Al-Saadi, H. (2022). The effectiveness of the school leadership program in developing the performance of Omani school leaders at the Specialized Center for Teacher Professional Training. University of Sharjah Journal for Humanities and Social Sciences, 19(2), 266–429.
19. Al-Tahir, H., & Al-Zahrani, A. (2020). Interactive e-training in developing leadership skills among students at the University of Hail. Journal of Arts, Literature, Humanities, and Sociology, (60), 203–230.
20. Amr, A., & Al-Awawdeh, Gh. (2016). The effectiveness of in-service educational leadership training programs in UNRWA in Jordan: An international study. Journal of Educational and Psychological Sciences, 17(12), 563–598.
21. Cicirelli, F., Furfaro, A., & Niglo, P. (2005). E-learning for professional development in education. International Journal of Educational Technology, 4(1), 55–69.
22. Ghavifekr, S., & Rosdy, W. A. W. (2019). Teaching and learning with technology: Effectiveness of ICT integration in schools. International Journal of Research in Education and Science, 5(1), 75–88.
23. Hamza, M. (2009). Online training and its impact on educational outcomes. International Review of Education, 55(3), 245–260.
24. Is'haq, A. (2018). The Role of the Educational Leader in Improving the Quality of Education. (1st ed.). Amman: Dar Al-Fikr.
25. Ministry of Education. (2018). Guide of the Specialized Center for Teacher Professional Training.
26. Ministry of Education. (2018). Procedural guide for the school leadership program.
27. Ministry of Education. (2024). Annual book of educational statistics.
28. Parak, M. (2004). E-training and leadership skills development. Educational Management Administration & Leadership, 32(4), 415–432.
29. Sharaf, A., & Al-Furaihi, S. (2019). The impact of information technology on developing administrative performance competence among female middle school principals in the Qassim region from their perspectives. International Journal of Educational and Psychological Studies, (3), 248–278.