

**THE EFFECT OF ASYNCHRONOUS  
E-TRAINING COMMUNITY OF INQUIRY  
(COI) ON OMANI IN-SERVICE TEACHERS'  
PERFORMANCE, ENGAGEMENT,  
SATISFACTION AND INTERACTION**

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**UNIVERSITI SAINS MALAYSIA**

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PERFORMANCE, ENGAGEMENT,  
SATISFACTION AND INTERACTION**

by

**WADHHA ABDULLAH SUBAA AL SAADI**

**Thesis submitted in fulfilment of the requirements  
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## **LIST OF ABBREVIATIONS**

|       |                                                                 |
|-------|-----------------------------------------------------------------|
| AET   | Asynchronous e-training                                         |
| CBEL  | Content -Based E-learning                                       |
| COI   | Community of Inquiry                                            |
| CP    | Cognitive Presence                                              |
| F2F   | Face To Face                                                    |
| MOE   | Ministry of Education                                           |
| NTP   | New Teachers Program                                            |
| PIM   | Practical Inquiry Model                                         |
| SIPTT | The Specialized Institute for Professional Training of Teachers |
| SP    | Social Presence                                                 |
| TP    | Teaching Presence                                               |
| WP    | Workplace                                                       |

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**KESAN LATIHAN E-SECARA ASINKRONI COMMUNITY OF INQUIRY  
(COI) TERHADAP PRESTASI, PENGLIBATAN, KEPUASAN DAN  
INTERAKSI GURU DALAM PERKHIDMATAN DI OMAN**

**ABSTRAK**

Latihan e-pembelajaran tidak segerak adalah penting untuk meningkatkan prestasi guru dan memastikan ia selaras dengan kemajuan dalam bidang pendidikan. Walau bagaimanapun, strategi latihan yang tidak berkesan boleh menjejaskan pencapaian objektif latihan. Kajian ini menggunakan kerangka Community of Inquiry (COI) sebagai strategi dalam latihan e-pembelajaran tidak segerak dan menilai kesannya ke atas prestasi, kepuasan, penglibatan, dan interaksi guru-guru dalam perkhidmatan di Oman. Seramai 132 orang guru dalam perkhidmatan dari Institut Latihan Profesional Guru (SIPTT) telah mengambil bahagian. Menggunakan reka bentuk kaedah campuran tertanam serentak, pendekatan kuantitatif telah menggunakan reka bentuk kuasi-eksperimen dengan kumpulan kawalan dan eksperimen yang tidak setara dan hanya ujian pasca. Kumpulan kawalan menerima latihan e-pembelajaran berasaskan kandungan, manakala kumpulan eksperimen menjalani latihan berdasarkan kerangka COI. Data dikumpulkan daripada pelbagai sumber, termasuk fail gred prestasi guru dalam perkhidmatan, soal selidik dalam talian, data log yang diperoleh daripada sistem MS Teams, dan perbincangan forum dalam MS Teams. Di samping itu, skema pengkodan bagi kerangka COI digunakan untuk menganalisis data kualitatif. Analisis statistik inferensi (ANOVA dan regresi berganda) digunakan bagi analisis kuantitatif, manakala data kualitatif dianalisis menggunakan analisis kandungan dan analisis rangkaian sosial. Hasil kajian menunjukkan perbezaan yang signifikan secara statistik yang memihak kepada

kumpulan eksperimen dari segi prestasi, kepuasan, dan penglibatan. Kehadiran Kognitif dan Kehadiran Sosial memberi kesan positif terhadap prestasi dalam kumpulan eksperimen, manakala hanya Kehadiran Kognitif memberi kesan kepada kumpulan kawalan. Hasil analisis kualitatif menunjukkan bahawa kumpulan eksperimen mempamerkan corak interaksi yang kompleks, dicirikan oleh pertukaran yang berterusan dan saling melengkapi antara guru dalam perkhidmatan. Analisis kandungan terhadap perbincangan forum menunjukkan bahawa interaksi ini kaya dengan penunjuk Kehadiran Kognitif dan Kehadiran Sosial, mencerminkan proses pembinaan pengetahuan secara kolaboratif. Sebaliknya, interaksi dalam kumpulan kawalan kebanyakannya terhad kepada respons linear yang mudah dengan bukti terhad mengenai dialog kolaboratif. Penemuan ini menonjolkan keberkesanan kerangka COI berbanding e-pembelajaran berasaskan kandungan dalam memupuk pengalaman pendidikan yang lebih mendalam dan bermakna. Kajian ini menekankan kepentingan untuk mengadaptasi strategi e-pembelajaran yang inovatif, serta menawarkan implikasi praktikal bagi institusi yang ingin meningkatkan prestasi guru dan memperkukuh program latihan.

**THE EFFECT OF ASYNCHRONOUS E-TRAINING COMMUNITY OF  
INQUIRY (COI) ON OMANI IN-SERVICE TEACHERS' PERFORMANCE,  
ENGAGEMENT, SATISFACTION AND INTERACTION**

**ABSTRACT**

Asynchronous e-training is vital for enhancing teachers' performance and ensuring that it aligns with educational advancements. However, ineffective training strategies may hinder achieving training objectives. This study adopts the Community of Inquiry (COI) framework as a strategy in asynchronous e-training and examines its impact on Omani in-service teachers' performance, satisfaction, engagement, and interaction. A total of 132 in-service teachers from the Specialized Institute for Professional Training of Teachers (SIPTT) participated. Using a concurrent embedded mixed-method design, the quantitative approach employed a quasi-experimental design with non-equivalent control-experiment groups post-test only. The control group received content-based e-learning, while the experimental group underwent training based on the COI framework. Data were collected through multiple sources, including the in-service teachers' performance grades file, an online survey, log data extracted from the MS Teams system, and discussion threads from MS Teams. Additionally, a coding scheme for the COI framework was applied to analyze qualitative data. Inferential statistics (ANOVA and multiple regression) were used for quantitative analysis, while qualitative data were analyzed using content analysis and social network analysis. Results showed statistically significant differences favoring the experimental group in performance, satisfaction, and engagement. Cognitive and Social Presence positively influenced performance in the experimental group, while only Cognitive Presence affected the control group. Qualitative analysis findings

revealed that the experimental group exhibited complex interaction patterns, characterized by ongoing and reciprocal exchanges among in-service teachers. Content analysis of discussion threads indicated that these interactions were rich in both cognitive and social presence indicators, reflecting collaborative knowledge-building processes. In contrast, interactions in the control group were primarily limited to simple, linear responses with limited evidence of collaborative dialogue. The findings highlight the COI framework's effectiveness compared to content-based e-learning in fostering a deeper and more meaningful educational experience. This research underscores the importance of adopting innovative e-training strategies, offering practical implications for institutions seeking to enhance teacher performance and strengthen training programs.

## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 Introduction**

The education sector is considered as one of the most important sectors in building the future for the new generations with the ability to adapt to the 21st Century requirements and contribute to the advancement of societies (ALwahaibi, 2023). Teachers are the backbone of the education sector, which takes on the responsibility to facilitate and guide students' learning. Therefore, designing and developing appropriate and up-to-date training programs is important for improving teachers' teaching performance. Due to technological development, teacher-training tools and methods have evolved to keep teachers updated with the current trends in teaching and learning instructional strategies and methods (Redlo, 2020). E-training is one of the products of this technological development, where trainer-trainee communication takes place through information and communication technology (ICT). Many institutions have sought to rely on e-training instead of face-to-face (F2F) training due to the features that e-training provides, which are not offered by F2F training. For instance, e-training allows a large number of trainees to receive high-quality training on a wide range of courses (Wasserman & Migdal, 2019), without need to send them to training centers or interrupt their work. E-training programs are available and accessible to a large number of trainees, with the freedom to choose the workshops appropriate for trainees' interests and needs (Dede et al., 2009; Reeves & Pedulla, 2013). Moreover, the e-training can be synchronous and asynchronous training. Synchronous training refers to a training event and real-time interaction between trainer and trainees by using ICT. Asynchronous e-training allows trainees to complete training sessions according to their schedules within a specified timeframe

without needing to leave their workplace. This approach means that trainers and trainees are not simultaneously involved in the training process, providing significant flexibility for both trainees and trainers in managing their schedules. Furthermore, asynchronous interactions allow for extended reflection time, support, and continuous interaction among trainees, this method guarantees that time constraints do not limit the trainees' contributions (ALWardi, 2020).

The Ministry of Education (MOE) of the Sultanate of Oman has sought to develop training systems in the educational system to ensure that training opportunities are provided to all its bodies. The Specialized Institute for Professional Training of Teachers (SIPTT), which was established in 2014 (MOE, 2018), is one of the models for developing the training system in line with the needs of the Ministry's staff, offering long-term training programs of one to two years in addition to short-term training programs not exceeding 5 days. The New Teachers Program (NTP) is considered one of the long-term training programs with up to one year of training, targeting Omani teachers not exceeding three years of experience. It aims to keep teachers updated with the current trends in teaching and learning instructional strategies and methods (MOE, 2018). In terms of training content and performance evaluation, this program includes three types of training. These are face-to-face training, asynchronous e-training, and workplace training. These three types of training form the NTP's structure. For the in-service teacher to pass the training program, they must undergo all three types of training and complete all the associated training tasks. Although the Ministry has made attempts to achieve the training goals by providing skilled trainers and customising the training content to meet the specific needs of in-service teachers in collaboration with experts (AL Toubi, 2022; MOE, 2018), there has been a notable rise in the percentage of trainees who fail the NTP; due to the trainees' lack of success in completing

asynchronous e-training tasks and workplace tasks (Alameri & Alqumei, 2020; ALOmairi, 2021; SIPTT, 2021). Alameri and Alqumei's (2020) study, which focused on in-service teachers who failed to pass the NTP, revealed that a major factor contributing to their failure was the lack of clear instructions on the training tasks during asynchronous e-training and workplace training. Moreover, the trainer's inadequate support following the F2F training resulted in the trainees' failure to pass the NTP.

Previous studies have indicated that the goals of asynchronous training, which focus on improving individuals' performance and ensuring their engagement and interaction, can be achieved, which, in turn, reflects on achieving an acceptable level of satisfaction with the training, by improving training methods and providing sufficient support from the trainer (Mohebi, 2023; Hiver et al., 2021, D'Alessio et al., 2019; Hambacher et al., 2018). Furthermore, trainees' performance develops through their interaction with individuals with the same interests and trainees' motivation to engage actively in the training activities process is influenced by their connections with other course participants (Al-dheleai et al., 2020; Almasi & Zhu, 2020). Considering the discussion above and the researcher's personal experience in the field of training, the researcher believes that making improvements to the current training strategy in asynchronous e-training, which is a Content-Based E-Learning strategy, could help address the issues that have led to in-service teachers failing to pass the NTP. Furthermore, it is vital to undertake research to identify the dimensions that influence trainees' e-training experience.

## **1.2 Background of Problem**

One of the factors in attaining the training goals effectively is using e-training as a form of training (ALWardi, 2020; Lu & Cutumisu, 2022; Wolor, 2020). It enables the training institutions to continue normal operations without disturbing their employees' work and provides employees with the most recent job-related information and skills. When properly planned, e-training can provide a comparable level of learning and motivation as traditional training (Seda, 2016). Despite the various benefits of e-training, such as cost savings and the ability to train a huge number of people and overcome geographical distance; it creates a sense of isolation among participants that may affect their training commitment, performance, and engagement during training (Singleton, 2019; Wolor, 2020). As a result, there has been interest among researchers and training program developers in finding solutions for training problems and testing their effectiveness. One choice that educational experts think can help to lessen people's isolation in online training programs is to give trainees the chance to engage in productive dialogue and interaction with one another in e-training environment. How trainees discuss training material and apply their skills and knowledge in the workplace are seen as essential components of knowledge development and experience accumulation (Devi B & Madhumathi, 2021; Junus, Indonesia, et al., 2019; Mumford & Dikilitaş, 2020).

The search outcomes show that the social constructivism theory can be effectively applied as the foundation for designing captivating and efficient e-training courses for reasons related to the principles of this theory (Cifuentes, 2021; Devi B & Madhumathi, 2021; Krzyszkowska & Mavrommati, 2020; Mbat, 2012; Swan et al., 2009), which encourage learners to interact with each other and with the course content actively. This approach creates a more engaging and interactive environment,

thereby mitigating the potential feelings of isolation that can arise in an e-training setting (Garrison et al., 2000; Huang et al., 2019). In contrast, it necessitates a thoughtful examination of e-training aspects such as facilitating social interaction, the trainer's role, learner-centred design, etc (Caskurlu et al., 2020; Garrison, 2017; Mbat, 2012). Social constructivism is concerned with the construction of knowledge, and it was influenced by the work of Dewey (1933), Piaget, Bruner, and Vygotsky (1978). These early researchers contributed to the development of a worldview based on people's interactions with their surroundings (Luke, 2016). As a result, the terms "community of practice" and "learning communities" emerged, allowing trainees to connect with one another, experience a sense of belonging, and get a more in-depth understanding.

### **Community of Inquiry (COI) Framework**

Over the past two decades, researchers have proposed a variety of theories and frameworks for developing and leading online learning communities, but none have been as widely adopted as the Community of Inquiry (COI) framework (Shea et al., 2022; Singleton, 2019). According to Garrison (2017) the Community of Inquiry framework is a theoretical model designed to enhance online learning environments by encouraging critical thinking, critical inquiry, and meaningful discussions between learners and instructors to develop personal meaning and validate shared understanding. The COI framework highlights the significance of interaction among three interconnected components: Teaching Presence (TP), Social Presence (SP), and Cognitive Presence (CP). TP refers to the role of the trainer, which involves designing and organizing educational content and directing cognitive and social processes; to achieve meaningful learning experiences (Anderson et al., 2001). Anderson and his colleagues define the CP as a learner's ability to construct understanding to the

formation of knowledge rather than just passively receiving information and validating understanding through constant conversation getting feedback and comparing their interpretations with those of others. This can only be achieved through the presence of another component, which is Social Presence. According to a definition provided by Garrison (2009), SP refers to the ability of learners to interact purposefully with each other and establish a sense of community in an online setting. The COI framework offer a structured set of guidelines for developing and maintaining a successful online community because they place an emphasis on social collaborative learning, social constructivism, instructional design principles, critical thinking, and facilitative learning (Fiock, 2020; Garrison et al., 2000; Shea et al., 2022).

Improving interaction between COI framework components contributes significantly to improving the internal reactions of the trainees; this could include their thoughts, feelings, and interaction with the training content and their ability to construct meaning and make sense of the learning process through discussion and reflection, which is known as Cognitive Presence, is consequently reflected in trainees' performance and satisfaction. This performance improvement could be evident in various ways, such as better comprehension, application of knowledge, or participation in training activities (Subramanian & Budhrani, 2020). Several studies corroborate the importance of optimizing interactions within the COI framework. For instance, Almasi and Zhu (2020) found that teacher questions serve as the primary motivator for increasing learner participation in discussions. These discussions enable students to integrate and apply their knowledge through interaction with each other, thereby functioning as a cohesive learning community. Almasi and colleagues further assert that increased student engagement in cognitive discourse significantly enhances their academic performance. Additionally, a study by Galikyan and Admiraal (2019)

revealed, after analysing the discussion transcripts, that there is a relationship between students' level of Cognitive Presence and their academic performance. The researchers indicated that Cognitive Presence, facilitated through critical thinking and reflective discourse, is essential for achieving deep learning and the practical application of acquired knowledge. The results of D'Alessio et al. (2019)'s study showed that students who received low grades had low indicators of social and Cognitive Presence. The researchers emphasized that Social Presence and Cognitive Presence are significantly influenced by Teaching Presence. This research together confirms that improving the interaction between social, teaching, and cognitive elements within the COI framework not only enhances trainees' internal responses but also their overall performance and satisfaction.

### **Interaction**

Interaction is a key element in building the levels of knowledge for the persons, as the interactions with others' ideas build new ideas (Shin, 2008). Interaction also contributes to raising the performance of low-performing individuals when they engage in group activities with high-performing individuals (D'Alessio et al., 2019). In the virtual training environment, an asynchronous discussion is used as a way to facilitate trainees' interaction by building social bonds between trainees so that they can feel part of the group, consequently they can communicate openly (Garrison, 2007). One of the challenges trainers face in e-training is obtaining trainees' participation in forums, which indicates that the number of participants affects online discussions (Raković et al., 2020). Hambacher et al. (2018) believed through the study they conducted on pre-service teachers aimed at exploring methods for developing the level of interaction in e-learning environments, that the combination of asynchronous discussion and synchronous discussion gives many benefits to introverted students by

giving them an opportunity to think and ask their questions. Additionally, they emphasized that small group discussions significantly enhance trainee engagement and a sense of belonging to the learning community compared to larger groups. Similar results were found in studies by Akcoaglu and Lee (2016) which found that smaller online groups had higher-quality discussions and were more cohesive.

Guilleumas (2020) and colleagues believe that active interaction can only occur if there is questioning, responding to others' messages, or exchanging opinions. The success of online interaction depends on the ability of individuals to project their identity in the online environment and interact with each other and how the trainer builds human connections and creates a supportive environment (D'Alessio et al., 2019). Despite this, maintaining the quality of these interactions remains challenging. Increasing the number of interactions does not necessarily lead to knowledge construction (Devi B & Madhumathi, 2021). Therefore, there is still a need to examine participants' interactions, identify interaction patterns, and determine if they affect participants' performance (Devi B & Madhumathi, 2021; Raković et al., 2020).

### **Engagement**

Cognitive psychologists have indicated that learner engagement in learning is a meta-construct, associated with positive learning behaviours and academic achievement (Salas-Pilco et al., 2022). This engagement can be emotional, cognitive, or behavioural (Martin & Borup, 2022). Martin and Borup observed that the three dimensions of learner engagement are "highly influenced" by the learning environment and the available supports. On the other hand, these three types of engagement affect learner performance and contribute to the completion of their learning courses (You, 2022). Dwivedi and colleagues (2019) indicated in their research findings that learner

engagement in e-learning is significantly influenced by learning activities and the role of the trainer. The researchers observed that trainees are more engaged in learning activities when the instructor is present and actively responds to their questions. These results align with a previous study by Bernstein and Isaac (2018), which emphasized the trainer's role in asking probing questions, offering immediate feedback, and summarizing discussions to enhance engagement. While these findings underscore the teacher's importance, they also raise questions about the sustainability of student engagement in the absence of constant teacher interaction and the need for more autonomous engagement strategies in e-learning design. Xu et al. (2020) found in their research that organizing participants into groups and assigning leaders for each group plays a crucial role, similar to that of the instructor, in enhancing both behavioural and cognitive engagement. Moreover, In-service teachers' fellowship and emotional support can become a driving force or reduce engagement in online training (Dille & Røkenes, 2021). This leads to the conclusion that Social Presence plays a significant role in trainee engagement. Ouyang and Chang (2019) found that assigning leadership roles to less active participants contributed to improving their engagement. In contrast, researchers observed that although there were high levels of social participation among students, this did not necessarily lead to high levels of Cognitive Presence at the group level. These findings underscore the effect of both the teaching and Social Presence in enhancing trainees' engagement in an e-training environment. Building on the preceding discussion, the current study aims to enhance Teaching Presence and Social Presence by delineating the roles of the instructor and the learner in an inquiry-based learning environment. Furthermore, this study seeks to offer insights into the effective implementation of the Community of Inquiry framework in the design of e-training programs.

## **Performance and satisfaction**

Social Presence, Teaching Presence, and Cognitive Presence are significant factors that positively impact trainees' satisfaction and performance in online courses (Caskurlu et al., 2020; C. Guo et al., 2022; Guo et al., 2021; Patwardharn et al., 2020; Turk et al., 2022). The findings of these studies demonstrate a strong relationship between these three types of presence and both trainees' performance and satisfaction with the training. Turk, Heddy, and Danielson (2022) emphasize the importance of forging a group identity through a sense of belonging to and relationship with the online learning community and their capacity for engagement and communication with other students. According to Tudor et al.(2015), trainees prefer to express their opinions in a forum instead of face to face. According to an exploratory study conducted by Nilsen and Engevik (2023), trainees indicated that reviewing their assignment with others provided them with the opportunity to reassess their ideas and make necessary adjustments to their assignments. This aspect of Social Presence fosters a supportive environment that enhances learning outcomes. Francis & Jacobsen (2023) indicated that one reason for trainees' inability to engage in e-training environments could be the nature of the activities provided by the instructor, which do not encourage participation and interaction. Cognitive Presence is crucial for trainees to build knowledge and develop expertise. As noted by Galikyan and Admiraal (2019), training content must encourage exploration, reflection, treatment, and evaluation of new knowledge about teaching and learning. This process helps trainees to engage deeply with the material, promoting better understanding and application of the concepts. A body of research also confirms that trainees' engagement in meaningful learning activities tailored to their training needs has a significant effect on their satisfaction with the training course and their performance (Elshami et al., 2021; Wei

& Chou, 2020) . Other researchers (Caskurlu et al., 2020; Garcia-Paine, 2012; Ma et al., 2022; Sheridan & Kelly, 2010; Turk et al., 2022), note the importance of Teaching Presence . According to Garrison

(2017), Teaching Presence significantly contributes to achieving learning goals through the trainer's ability to give clear instructions and provide timely feedback during the learning process. This finding aligns with D'Alessio et al. (2019), who found that students' performance levels are linked to the support and facilities the instructor offers during learning. Effective Teaching Presence ensures that trainees receive the guidance and support necessary for successful learning experiences.

A well-organized training course, featuring clear content design, specific deadlines, and detailed participation guidelines, along with instructor feedback, ensures that trainees understand their tasks and timelines. This clarity and support facilitate self-directed learning and enhance trainee satisfaction (Turk et al., 2022; Vansteenkiste et al., 2020). This underscores the importance of Teaching Presence in e-training environments. Additionally, the findings of Kaban (2021) confirm that all types of presence have a statistically significant impact on trainee satisfaction, yet Teaching Presence was found to be the most influential.

Overall, integrating social, teaching, and Cognitive Presence in online courses creates a holistic learning environment that enhances trainees' performance and increases their satisfaction with the training experience. By addressing these interconnected elements, educators can design more effective e-learning programs that meet the diverse needs of their learners.

According to previous studies, integrating social, teaching, and Cognitive Presence in online courses creates a holistic learning environment that positively impacts trainees' interaction, engagement, performance, and overall satisfaction with the training experience. Given that one of the major challenges faced by the training system in the Sultanate of Oman is the low completion rate of trainees to asynchronous e-training programs, it becomes imperative to explore innovative strategies to enhance e-training outcomes.

This study proposes adopting the COI framework as a model to address this issue. By implementing the COI framework, the research aims to evaluate its effectiveness in improving trainees' performance, satisfaction, and engagement in asynchronous e-training programs.

Furthermore, this study will delve into the dynamics of interactions during asynchronous discussions, examining how different types of interactions influence trainee performance. By understanding these interactions, the research seeks to provide actionable insights into designing more effective e-training programs that cater to the specific needs of Oman's trainees. Ultimately, the goal is to develop a scalable and sustainable training model that can be implemented across various e-learning contexts to improve completion rates and enhance the overall learning experience.

### **Exploratory Study**

Although a large number of new teachers were enrolled in the NTP training, with a total of 1401 trainees in 2020, it was noted that the number of trainees who had passed the training program was 1084 trainees (Trainee's Evaluation and Accreditation Department , 2021). Trainee's Evaluation and Accreditation Department in SIPPT

(2021) reported that the most prominent reasons for trainees' failure to pass training were the weak performance level in workplace tasks, low posted engagement in asynchronous e-training and the non-delivery of asynchronous training tasks or workplace tasks. In light of a descriptive and analytical study conducted by Alameri and Alqeumi (2020), which aimed to identify the reasons for trainees' failure to meet the requirements of the New Teacher Program from trainees point of view and targeted 42 trainees who did not pass the NTP and 22 who passed, and the study found three main reasons: first, personal reasons; second, reasons related to the training program; and third, reasons related to the school or workplace environment.

Since the study by Alameri and Alqeumi did not include the trainers' perspectives on the causes of the problem, the researcher decided to conduct an exploratory study to further investigate the issue of trainees not passing the NTP, but this time from the perspective of the trainers. The researcher conducted exploratory study aims to investigate why trainees fail to complete and submit the required tasks during asynchronous and workplace training, addressing the main question: *"From the trainers' perspective, what are the reasons for trainees' failure to complete asynchronous e-training and workplace tasks?"*. To achieve this, the researcher follows the qualitative approach using the semi-structured interview to collect the responses from the targeted sample. Six NTP trainers with a minimum of three years of NTP training experience participated in the interview. The interview consists of seven questions, six of which are arranged in two sections: the trainer's role (Q1, Q2, Q3) and training tasks (Q4, Q5, Q6) in asynchronous e-training. The seventh question is about participants' suggestions for the NTP asynchronous e-training (see Appendix R).

Regarding the role of the trainer, in response to the first question, “*Are the trainees aware of the NTP passing requirements that were initially explained during the training?*”, all participants agreed that trainees had a general understanding of the training requirements from their co-workers before joining the NTP. Furthermore, because trainees were allowed to ask questions during the first session of F2F training, which focused on training objectives and training passing conditions, it helped to raise their awareness and dispel any prior misconceptions.

In response to the second question, “*Do the trainees have a clear understanding of submission instructions and the task deadlines for completion ?*”, all of the participants noted, that they do not expect any ambiguity or misconception among the trainees regarding the deadlines and method of task delivery in the training due to the trainers' clarification of the method for handling asynchronous e-training tasks and workplace tasks, as well as the deadline for completion, during the face-to-face (F2F) training. Three participants confirmed that on day five of the training week, there is a specific session to explain this. In addition, the trainers provided the trainees with PDF files that contained all the details related to the tasks' submission process and deadline.

In response to the third question, “*To what extent did you provide feedback to your trainees on their performance in training tasks?*”, five of the participants indicated that they did not provide any feedback and did not participate in the trainees' discussions; their involvement was limited to posting the main question for discussion. While one participant motioned that she occasionally provided feedback. In the trainers' perspective shared during the interview, their role primarily involved uploading training content on Microsoft Teams (MS teams) and evaluating trainees' responses to training questions. They justified this limited involvement by explaining

that the nature of the activities did not necessitate continuous trainer engagement and that their workload prevented them from closely monitoring trainee performance. However, they did provide support to trainees through phone calls or text messages when contacted.

Regarding the training tasks type, in response to the fourth question, "*Could you clarify what types of training tasks were assigned to trainees in asynchronous training?*", Participants noted that the nature of the tasks trainees are required to complete in asynchronous e-training is a discussion question based on what they watched and read in the e-content, and that the discussion should take place between trainees.

In response to the fifth question, "*To what extent are the asynchronous e-training tasks in the MS Teams platform linked to the tasks that the trainee is required to implement in the workplace?*", participants pointed out that, although e-training content and workplace tasks have similar subjects such as lesson planning and student evaluation, there is no direct link between them in terms of the type of discussion topic and the topic carried out in the workplace. One participant added that because the asynchronous e-training tasks were unrelated to the tasks required in the workplace, they did not support the discussion of the trainee's difficulties in completing the workplace tasks.

In response to the sixth question, "*How effectively did the discussion questions encourage trainees to share their knowledge and seek further knowledge?*", four participants indicated that the discussion questions did not necessitate in-depth discussions as the answers were typically readily available in the digital content. Consequently, the responses from all trainees tended to be similar. On the other hand,

two participants mentioned that the trainees primarily focused on providing answers to the discussion questions, and their engagement with their colleagues' comments was limited to expressing agreement through statements like "I agree with you" or using emojis to show appreciation.

In response to the seventh question, *"Based on your training experience, what are the suggestions that are needed in the NTP asynchronous online training?"*. Four participants suggested reducing the number of tasks in asynchronous online training because it relies on trainees' ability to recall what they saw in the videos and read in the text. While two participants proposed eliminating asynchronous e-training activities due to trainees' lack of commitment, another participant proposed making training content available without evaluation. According to one participant, the only reason for providing e-training activities was to ensure that they could access e-content.

In summary, to answer the main question of the preliminary study, *"What are the reasons for trainees' failure to complete the asynchronous e-training and workplace tasks?"*.

Participants' responses to the first, second, and third questions about the trainer's role revealed a lack of the trainer's role in the asynchronous e-training in terms of providing support to trainees and motivating them to complete the required tasks, as well as the trainer's reliance on the guidance he provided during the F2F. This finding is consistent with the results of Alameri and Alqeumi's study, which revealed that one of the reasons for trainees' failure to meet the requirements of the New Teacher Program was a lack of trainer follow-up at a moderate level. The responses of participants to the fourth, fifth, and sixth questions, which focused on the nature of the

tasks required of trainees to complete, revealed that trainees could complete e-learning tasks without extensive research or additional effort. Furthermore, there is no link between them and the tasks of the workplace. This contradicts the findings of the study by Alameri and Alqeumi, which indicated that respondents faced difficulties in completing the training tasks at a high level of difficulty. Additionally, the study found that the time allocated for task submission was rated as highly insufficient. The responses to the seventh question showed that trainers do not place a high value on e-training tasks that can provide trainees with additional knowledge or educational skills.

From the previous presentation, the researcher concluded that the weak Teaching Presence, which included the trainer's role in providing support to participants during asynchronous e-training, coupled with the design of training tasks that do not encourage discussion and dialogue; led to one-way posts from trainees without interactions. This indicates a weakness in Social Presence. Moreover, the lack of common points between asynchronous e-training tasks and workplace tasks did not support the purpose of creating a discussion board in asynchronous e-training. As a result, there were no workplace task topics discussed on the discussion board during the asynchronous e-training, potentially leading to trainees feeling isolated and less serious about completing their assigned tasks (Alameri & Alqeumi, 2020; Harrison, 2021; Redlo, 2020). This reflects a deficiency in both social and Cognitive Presence. Based on the researcher's practical experience in training and the goals established for asynchronous e-training, which include delving into training content and providing trainees with an opportunity to discuss issues related to their work reality, it is evident that linking e-training tasks with workplace tasks can facilitate communication among trainees. This would allow them to discuss the challenges they face in applying

workplace tasks under the trainer's supervision, ultimately enhancing their performance in completing training tasks.

### 1.3 Problem Statement

Despite the increasing number of new teachers enrolled in the NTP by 1.27% between 2015 and 2019, due to an increase in the number of recruited new teachers during that period (SIPTT, 2019), the success rates remain low, with an average pass rate of 38.69% during the same period. The data indicated that failure to complete asynchronous training tasks was one of the main contributing factors. According to other statistics compiled by the Evaluation and Accreditation Department (EAD) in SIPTT (2021), 317 out of 1401 total trainees enrolled in the NTP in 2020 failed to pass the training program. According to data, 255 trainees failed to meet the NTP's criteria because they did not complete the tasks assigned to them or performed poorly on the asynchronous and workplace tasks. As shown in Table 1.1 62 trainees did not attend F2F training in the second semester of 2021 due to a variety of reasons related to the trainees and 43 performed poorly ( Evaluation and Accreditation Department , 2021).

Table 1.1 Distribution of NTP trainees' failure with the non-passing reasons (Evaluation and Accreditation Department, 2021).

|                | <b>Asynchronous<br/>Training</b> | <b>Workplace<br/>Training</b> | <b>Asynchronous<br/>+Workplace<br/>Training</b> | <b>Poor<br/>performance</b> | <b>Absence</b> |
|----------------|----------------------------------|-------------------------------|-------------------------------------------------|-----------------------------|----------------|
| Trainees<br>No | 105                              | 54                            | 53                                              | 43                          | 62             |

This decline in performance is attributed to several factors, including the lack of engagement in asynchronous e-training and interaction between trainees and trainers, and feelings of isolation, which reduce trainees' motivation to complete training tasks. Researchers from SIPTT Alameri and Alqeumi (2020) conducted a

study aimed to find out the reason for trainees' failure to meet NTP requirements. A questionnaire was administered to 42 trainees (male and female). Then a semi-structured interview was applied to the 22 of the trainees. According to the study, trainees' failure to fulfil the NTP's pass requirement was due to a lack of trainer monitoring of trainees' progress, a lack of understanding of asynchronous and workplace training activities, and a lack of incentive to complete training tasks. These results align with Cartagena's study (2022) conducted on students at a university in the Philippines, aiming to identify challenges they face in asynchronous learning. The findings revealed that one of the challenges students' encounters is a lack of motivation to participate due to feelings of isolation, leading to their failure to complete learning tasks. These findings indirectly reflect the limitations of the content-based training strategy commonly adopted in asynchronous e-training, which relies heavily on passive exposure to training materials without integrating mechanisms for support, active interaction, or continuous performance assessment. Many participants in the NTP tend to adopt passive observer roles or contribute minimally or not at all to the training community. Such patterns of disengagement are often associated with a lack of immediate feedback, unclear instructional expectations, and low motivation to interact with peers (Joseph, 2024). The evident lack of participation and structured guidance in these training environments underscores the urgent need for adopting more interactive and learner-centred approaches, particularly in asynchronous training contexts.

Building on these findings, the exploratory study results indicate that the lack of interaction between trainees and trainers, as well as the absence of interaction among trainees themselves, contributed to a decrease in motivation to complete training tasks. This aligns with the study by Li and Zhang (2023), which highlighted

that feelings of isolation negatively impact motivation and persistence. This finding is consistent with Moore's (2014) argument that a learner who acquires knowledge without interacting with others may feel alienated and detached from the course, which will negatively affect their performance. According to the Eberly Center (2021), Students may become less motivated to interact with the subject or even pursue their careers if they believe that their learning environment is unsupportive or that they are being marginalised by their classmates or the course material.

Research shows that trainees' engagement, which is crucial for successful course completion, is heavily influenced by the learning environment and the available support (Martin & Borup, 2022; Mohebi, 2023; Xu et al., 2020). The absence of external supervision and the inability to meet online learning requirements further compromise the quality of training (You, 2022). Maintaining active engagement in such environments is particularly challenging (Kucuk & Richardson, 2019; Meyer, 2014). Additionally, studies emphasize the importance of social engagement in e-training, as it reduces the sense of isolation and improves performance (D'Alessio et al., 2019; Ouyang & Chang, 2019; Wang et al., 2019; Hambacher et al., 2018). Cognitive Presence—characterized by building meaningful knowledge, high-level thinking, and active participation through interaction also plays a vital role in ensuring engagement in asynchronous training (Kucuk & Richardson, 2019). Therefore, designing training activities that foster both cognitive and social engagement by encouraging exploration and sharing of expertise related to the content creates a motivating environment, which helps sustain trainees' engagement (Chiu, 2022; McKeithan et al., 2021; Dwivedi et al., 2019). Given the importance of trainee engagement in achieving high performance and successful completion of training, developing instructional strategies based on a robust framework, such as the

Community of Inquiry (COI), may be essential to enhance this engagement. Such strategies may not only improve performance but also increase trainees' satisfaction with the asynchronous online training experience.

Creating a sense of belonging in trainees to a community of training is a useful strategy for assuring the success of asynchronous e-training and reducing training withdrawal; because it allows trainees to feel satisfy and connected not only to their trainer and peers but also to the training content (Guo et al., 2022). According to Almasi and Zhu (2020), when a teacher plays a prominent role in a discussion, students are able to explore information through discussion and presentations, integrate it with their prior knowledge, and then apply what they have learned. Furthermore, the flexibility of social connection between individuals and exchange the of information promotes training satisfaction and promotes the trainees' deep-level knowledge inquiries, which may help enhance collective knowledge growth (Guo et al., 2022; Ouyang & Chang, 2019; Wei & Chou, 2020). Satisfaction plays a critical role in predicting the desire to continue training(To & Leung, 2024). Typically, trainees exhibit higher satisfaction levels with training courses they select, as these align with their specific training needs. Conversely, mandatory training programs may not always ensure a high level of satisfaction due to their lack of personalization. Additionally, the amount of information delivered and the intensity of course activities significantly influence trainee satisfaction. For instance, a study conducted in the United States on faculty members who underwent online training revealed that participants often felt overwhelmed by the volume of information presented within a short timeframe, leading to challenges in processing and retaining the content (Redlo, 2020) In the current study, trainees will engage in discussions to complete workplace tasks. This engagement could either impose an additional burden or alleviate isolation, thereby

motivating task completion. Consequently, it is imperative to investigate trainees' satisfaction with asynchronous training by establishing a training environment that helps identify variables influencing trainee satisfaction and the overall success or failure of the training program.

To understand any educational experience, it is essential to rely on theoretical knowledge that explains how learners construct their knowledge. The Community of Inquiry (COI) framework, developed by Garrison, Anderson, and Archer (2000), is based on social constructivism, which posits that knowledge is co-constructed through social interaction and collaborative inquiry. This theoretical basis makes the COI framework well-suited to address the challenges inherent in asynchronous e-training.

Firstly, one of the major issues in asynchronous e-training is the weak teaching presence, where instructors often struggle to engage learners effectively. The COI framework mitigates this problem by emphasizing structured teacher participation, timely feedback, and the facilitation of reflective dialogue. Such an approach not only enhances the instructional presence but also encourages learners to actively participate in the learning process (Caskurlu et al., 2020; McKeithan et al., 2021; Ouyang & Chang, 2019; Xu et al., 2020).

Secondly, asynchronous e-training environments frequently suffer from a lack of interaction among participants, leading to diminished engagement and a sense of isolation. By fostering an interaction-rich environment, the COI framework promotes dynamic exchanges among learners through collaborative activities and discussions. Studies such as Singleton (2019) and Borup et al. (2022) have demonstrated that online training programs grounded in the COI approach can significantly improve learner engagement and the overall quality of the educational experience.

Considering these challenges, the current study adopts the COI framework as an intervention to enhance the effectiveness of asynchronous e-training. The intervention is specifically designed to strengthen teaching presence and stimulate meaningful interactions among trainees, thereby improving their performance, engagement, and overall satisfaction. Furthermore, the successful application of the COI framework in various similar contexts as evidenced by extensive literature (e.g., (Redlo, 2020; Singleton, 2019; Gunter et al., 2019; Kovanović et al., 2019) reinforces its credibility as a valuable approach and effective solution.

Therefore, the COI framework was chosen because it offers a comprehensive approach that addresses the issues the researcher seeks to solve in this study through its social constructivist foundation and its demonstrated effectiveness in enhancing online learning experiences. This study aims to investigate the effect of the COI framework on trainees' performance, engagement, and satisfaction in the context of asynchronous e-training. Furthermore, it aims to explore how the framework enhances trainees' interaction and overall learning experience in the asynchronous e-training setting.

#### **1.4 Research Objectives (RO)**

The study's objectives are as follows:

- RO1. To investigate the comparative effectiveness of asynchronous e-training based on the Community of Inquiry (COI) framework versus content-based e-learning for Omani in-service teachers
- RO2. To investigate the comparative effectiveness of asynchronous e-training based on the Community of Inquiry (COI) framework versus

content-based e-learning in relation to Omani in-service teachers' satisfaction.

RO3. To investigate the comparative effectiveness of asynchronous e-training based on the Community of Inquiry (COI) framework versus content-based e-learning in relation to Omani in-service teachers' engagement.

RO4. To explore the comparative levels of interaction between asynchronous e-training based on the Community of Inquiry (COI) framework and content-based e-learning.

RO5. To explore the comparative posting patterns of social, cognitive, and teaching presence posting patterns between asynchronous e-training based on the Community of Inquiry (COI) framework and content-based e-learning.

RO6. To determine the comparative effect sizes of social, cognitive, and teaching presences on Omani in-service teachers' performance in asynchronous e-training based on the Community of Inquiry (COI) framework and content-based e-learning.

## **1.5 Research Questions (RQ)**

This study tries to answer the following research questions:

RQ1. Is there a significant difference in the performance of Omani in-service teachers undergoing asynchronous e-training based on the Community of Inquiry (COI) framework compared to content-based e-learning?