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Reflect and develop: A pilot study to explore perceptions and to test the impact of a short course on reflective practice amongst dental practitioners undertaking continuing professional

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Abstract

Introduction: In 2018, the General Dental Council introduced reflective practice as part of an Enhanced Continuing Professional Development (ECPD) system, mandatory for registrants in the United Kingdom. The aim of this pilot study was to investigate dental professionals' perceptions and practice of reflection and to explore the benefits of an evidence-informed reflective practice learning course.

Material and methods: This study was conducted at two dental schools in the United Kingdom (UK). A short course on reflective practice which included pre- and postcourse surveys, using closed- and open-ended questions, was afforded to dental professionals attending Continuing Professional Development (CPD) courses. Quantitative data were analysed using SPSS version 25.0 software, and responses to open-ended questions were explored by content analysis.

Results: Fifty-two dentists attending the short course provided responses; the majority were female (73%, n = 38) and internationally gualified (60%, n = 31). The pre-course questionnaire revealed that the majority of participants (94%; n = 49) considered reflection as part of their professional practice, with 55% (n = 29) reporting doing so daily. Most (88%; n = 46) had received no formal training. The post-course questionnaire revealed that 88% (n = 46) found the course useful as it gave a "systematic and schematic" approach enhancing the participants' understanding of reflective practice.

Conclusion: The findings suggest that a theoretically informed short course on reflective practice was welcomed by participants who showed a strong interest in learning how to reflect supported by mentors. This pilot provides the basis for further research on reflective practice.

KEYWORDS

dental education, dental professionals, reflection

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1 | INTRODUCTION

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In 2018, the General Dental Council (GDC), the regulatory body for dentistry in the United Kingdom following an evaluation of the existing Continuing Professional Development (CPD) system introduced a reflective element in the new system called Enhanced Continuing Professional Development (ECPD) mandatory for registrants.¹ The goal of this reflective practice is to help shape each practitioners CPD programme by tailoring it to an individual's insight into their needs and to help reflect on the completed CPD activity. It is therefore both prescriptive and reflective.

There has been little research on the effectiveness or the impact of CPD on practice.^{2,3} Researchers in nursing have found that reflective thinking could support professional development activities and is associated with better perceived teamwork and performance. Reflecting on practice is an important part of continuing professional development and should go beyond knowledge- or skill-based training. Welp and co-workers identified that professional development activities "enhanced reflection in and on practice as these activities were linked with higher perceived quality of care and teamworking" amongst nurses.⁴

The medical education literature proposes various approaches to reflection. Reflection has only recently been introduced into dental education, and therefore, it is likely that not all dental professionals in practice would have had formal teaching during their undergraduate training.⁵

The EU-funded Dent CPD project, looking at guidelines for CPD for graduate dentists in Europe, clearly alludes to the importance of dentists being... "reflective practitioners who reflect not only on their learning needs but also on what they have learnt and how that impacts on their clinical practice. This is part of the philosophy of a continuum of education and training throughout the dental career."⁶

Sandars defines reflection as "*a metacognitive process that occurs before, during and after situations, with the purpose of developing a greater understanding of both the self and the situation.*"⁷ Reflection has become an accepted instrument to augment deeper learning but there is limited evidence on an accepted method. In the context of CPD, reflection helps a learner to evaluate professional needs for maintenance and development. Reflection can be captured and expressed in different formats, written, spoken or pictorial. On a systematic basis and with repetitive activity, patterns and connections become visible.⁸

Education theory supports the view that reflection can contribute to learning. Illeris describes learning to consist of three dimensions, emotional and social dimensions as well as cognitive. It is accepted that cognitive aspects are measured through assessments, whereas reflection facilitates capturing emotional and social aspects of learning.⁹

Kolb and Fry proposition a cycle of learning which comprises of four elements—a concrete experience, an observation and reflection, formation of abstract concepts and testing in new situations.¹⁰ The learning cycle starts with a task being carried out, the learner reflects on this experience and can apply the learning in a new situation. The learner will identify broad principles from this learning experience and make connections to actions required in new situation.

It is now common practice for dental schools to deliver specific education and training in reflective practice.¹¹ There is a counterargument that in the "process of operationalization, the philosophical underpinnings of reflection have been discarded." However, a learning tool which acknowledges the diversity of reflection would be well placed as an educational instrument.¹²

Knowledge of dental professionals' perceptions of reflective practice and factors important in engaging in the process is necessary information for maintaining skills, knowledge and competence up to date of the workforce.

This pilot study aimed:

- to explore the differences in participants' understanding, perception and practice of reflection based on demographic data, year of qualification, country of graduation and practice setting
- to explore the impact of an evidence-informed reflective learning course on the participants' understanding, perception and intended practice of reflection.

2 | METHODS AND MATERIALS

This pilot study was conducted at two metropolitan United Kingdom (UK) dental schools delivering undergraduate and postgraduate studies. This research was approved by (King's College London Research Ethics Committee—MRA-17/18-7922). Dental team members who booked continuing professional development (CPD) courses at each institution were offered a short course on reflective practice as part of a larger professional development event where participants could then consider their new understanding and reflection on that larger experience.

The short course was designed and developed by exploration of wider literature and consultation with an expert on reflective practice.⁷ This consisted of a Powerpoint presentation of 30 minutes which explored definitions of reflective practice, why reflect, approaches to reflection (scaled v iterative), three loops of reflection, modes of reflection—on own, with peer, meta-reflection with mentor and frameworks to undertake reflection as seen in Table 1.^{7,13} During this CPD session, participants were invited to complete a paper-based pre- and post-questionnaire, just prior to and immediately after the 30-minute course (Table 2).

Quantitative data from the pre- and post-questionnaire were analysed descriptively using SPSS software (IBM SPSS Statistics for Macintosh, Version 25.0). The data on understanding, perception, and practice of reflection amongst the participants were crosstabulated with the demographic data of age, gender, country of graduation, year of graduation and type of practice. An analysis of variance (ANOVA) test was used to compare the means and determined the statistically significant cross-tabulations at ≤0.05% which was then further analysed and discussed.
 TABLE 1
 Summary of reflection course

 developed with expert⁷
 1

Course on reflectio	n
Aim	To develop an understanding of reflective practice to enhance personal development plan and activity log
Objectives	Define reflection Identify modes and means of reflection appropriate to clinical setting Identify Pathways of reflection suitable for the learner
GDC development outcomes ¹	B: Effective management of self and effective management of others c: Maintenance and development of knowledge and skill
Plan	Introduction to reflection and what it means to our everyday practice Approach to Reflection: Scaled or Iterative Means of Reflection: Reflective writing (on your own) Reflective discussion (with a peer) Patchwork Reflection-Meta-reflection (with a mentor) Pathways for Reflection: putting reflection into oral healthcare practice: Gibb/Schon/ Holm and Stephenson Ground Rules for safe Reflection Outcomes of Reflection Challenges

Qualitative data from open-ended responses were explored using summative content analysis.¹⁴ This is an analytic approach commonly used for open-ended survey questions, whereby key words are identified and quantified to understand a situation.¹⁵ This approach was considered the most suitable as responses were in single word and short sentence formats. Two researchers independently read and re-read the text to identify key words from the responses. These were subsequently sorted into such as categories and sub-categories and quantified using frequency counts. The main categories and sub-categories that arose were then identified to enable further interpretation. The researchers then compared identified categories for validation purposes.

These categories were then presented as concept maps, a technique that can demonstrate how people visualise relationships between various concepts. Concept mapping methodology was considered appropriate for open-ended survey data because it combines the strengths of word-based and code-based methodologies whilst addressing some of their limitations. Concept maps display concepts within circles or boxes with labelled connecting lines to indicate the relations between linked concepts. There is a hierarchical structure with primary concepts at the top and secondary concepts below. Concepts maybe linked by linking words in a map.¹⁶

3 | RESULTS

All fifty-two dental team members who enrolled in the short course on reflective practice also participated in the pilot study. Participants were a mixed group composed of staff from the dental school and the dental community in general.

The majority of participants were female (73%; n = 38). Around half were aged 30–40 years (50%; n = 26) and had graduated after

2000 (50%; n = 26). Many were international graduates (40% n = 21) of which 38% were from India (n = 8). Just over half of the participants (52%; n = 27) practiced in the public sector (NHS National Health Services practice or hospital), with only 11% (n = 6) in the private sector and 11% (n = 6) in University only. Most participants (63%; n = 33) did not identify if they were a specialist or a general dental practitioner (GDP); however, amongst the remainder almost half (n = 8) identified themselves as GDPs.

Pre- and post-course quantitative results are summarised in Table 3.

An analysis of variance test in SPSS was used to focus results. For an ANOVA result to be valid assumptions of normality, homogeneity of variance and sample independence must be verified. These requirements were verified and statistically significant difference noted only in usefulness of the reflection course given [F(3, 43)=4.594, p = 0.01] between types of practice groups as shown in Table 4. The post hoc test Tukey could not be performed as small sample and at least one group had fewer than 2 cases.

3.1 | Pre-course

Nearly all participants (94%; n = 49) reported reflection as part of their professional practice, with 55% (n = 29) doing so daily. The majority (88%; n = 46) had received no formal training on reflection, and 80% (n = 42) had no identified method for reflection.

A total of 51 of the 52 participants responded to the first Pre-Course open question, "What does reflection mean to you?". Just under half of participants, (45%; n = 25) understood reflection as self-evaluation illustrated by "Evaluating how I am performing during and post treatment, to provide the best possible outcome" (Participant (P)45: Male, UK graduate) focusing on self-assessment and looking back. Twelve participants (21%) viewed reflection as a process that

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TABLE 2 Pre- and post-course questionnaires

Gender Male Age Solution Year of graduation Country of graduation Practice: choose one orm ore as applies Private Practice Private Practice Solution Teaching commitments Private Practice NHS/Practice NHS/Practice NHS/Practice NHS/Hospital University Teaching commitments Full time CP-Ceutom-F Versity Versity Versity Versity CP-Ceutom-F Versity Versity Versity	Demographic ques	stions					
Q1: What does reflection mean to you? (5-10 words) (Open) Q2: How often do you reflect? (Closed) Daily weekly monthly other time period Q3: Have you had formal training on reflection? (Closed) Yes No Q4: Do you have a method/system/process for reflecting? (Closed) Yes No Q4: Do you reflect on your professional practice? Yes What enables you to reflect? (Open) No What are the limitations to your reflection? (Open) Q6: What is the purpose of reflection? (Open) Q6: What is the purpose of reflection? (5-10 words) (Open) Q2: Did you reflect on the course after completion? (Closed) Yes No Q3: If you have reflected on the course, did you find the framework proposed in the course helpful? Yes why? (Open) No writeflecte on the course, which pathway did you find appropriate? (Closed) Re	Male Female	20-30 30-40 40-50 50-60	Year of graduation	Country of graduation	Private Practice NHS/Practice NHS/Hospital	Part-time	
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	Q5: If you did not r	reflect on t	he course, what were	the limitations to your ref	lective practice? (Open)		

could improve the future as exemplified by the following quotation: *"It means what you have learnt and put into practice after a course"* (P19: Female, International graduate).

Ten participants (18%) identified reflection as a cognitive process "thinking," whilst a smaller proportion, 3 participants (5%) identified it as a contemplation illustrated by the quote, "assessing your own work and provide yourself feedback" (P 38: Male, UK graduate). Nearly all the practitioners in this study reported engaging in reflection. Figure 1 below shows a concept map of participants' perceptions of reflection before the short course.

The analysis of the two pre-course open questions, "What enables you to reflect?" and "What are the limitations to your reflective practice?" enabled the identification of three key categories from the coding of facilitators and deterrents to reflection as seen in Table 5. The codes presented in Table 5 are in fact quotes from the raw data text in response to the open-ended questions. Qualitative analysis coding revealed key categories which facilitated or deterred participants' reflective practice. These were time, knowledge and training, confidentiality of reflections and peer support, which are developed further in the discussion. There were codes such "seen as incompetent by others" (P42: Female, UK graduate) in response to the openended survey question on limitations. However, the researchers did not probe participants to understand how an individual's experiences had helped them to construct meaning. This is a limitation of this type of study.

3.2 | Post-course

Following the short course, 25 participants (36%) reported perceiving reflection as a learning process which leads to professional development, *"important habit in development of individual*

TABLE 3 Quantitative pre- and post-course questionnaire data

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Very userul 17 36.5 36.0 54.0 Useful 19 36.5 38.0 92.0 Somewhat useful 4 7.7 8.0 100.0 Total 50 96.2 100.0 Missing 2 3.8 -			Extremely useful	8	15.4	16.0	16.0
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Total 50 96.2 100.0 Missing 2 3.8			Useful	19	36.5	38.0	92.0
Missing 2 3.8			Somewhat useful	4	7.7	8.0	100.0
			Total	50	96.2	100.0	
Total 52 100.0			Missing	2	3.8		
			Total	52	100.0		

TABLE 4 Cross-tabulation of How useful? Ext useful; very useful; useful; somewhat useful; not useful By Practice type

	Private practice	NHS practice	NHS hospital	University	Mixed including NHS	Mixed excluding NHS	Total
Extremely useful	0	1	0	0	4	1	6
Very useful	1	5	0	2	5	0	13
Useful	3	1	5	4	2	0	15
Somewhat useful	2	1	1	0	0	0	4
Total	6	8	6	6	11	1	38

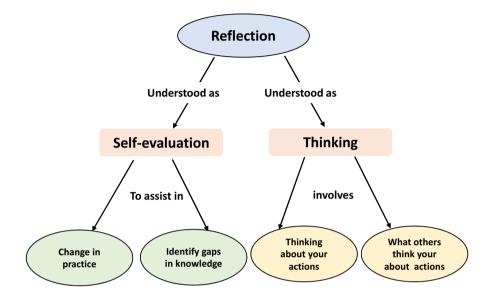


FIGURE 1 Concept map of participants pre-course perceptions of reflection before short course

performance and practice" (P48: Female, International graduate) and "learning to improve professional practice and development" (P13: Female, International graduate). Eleven participants (20%) understood reflection as looking back to change the future, "It's about learning from your mistakes and trying to avoid them in future" (P14: Female, International graduate). Ten participants (18%) identified reflection as a metacognitive process "thinking about thinking" a definition provided in the short course, as shown in Figure 2.

6 |

Participants interpreted the question pertaining to the preferred pathway of reflection as a "choose all that apply." They selected either none, one or all the options provided (Table 2). Reflecting with a peer regularly was the most preferred option (38%; n = 20), whilst 25% (n = 13) favoured reflecting on their own or meta-reflection.

The open question "What have you learnt about reflection?" revealed an enhanced understanding of reflective practice due to the provision of theoretical underpinning and exposure to "different methods of reflection" (P34: Male, UK graduate). The majority of participant (88%; n = 46) found it useful because of the "systematic and schematic" approach provided to reflection (P4: Female, International graduate). The CPD course on reflection was found to be useful, very or extremely useful by 74% of participants and 68% of these participants had public sector (NHS National Health Services practice or hospital) commitments (Figure 3).

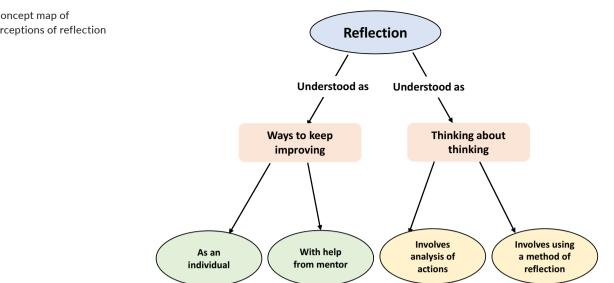
4 | DISCUSSION

4.1 | Key findings

Fifty-two dentists attending the short course provided responses; the majority were female and worked in the public sector. The precourse questionnaire revealed that the majority of participants considered reflection as part of their professional practice, with 55% reporting doing so daily. Most had received no formal training. The post-course questionnaire revealed that the majority found the course useful as it provided a methodical approach. The participants understanding of reflective practice was enhanced after the course.

The open-ended questions yielded responses which were helpful in gaining a greater insight into the responses to the closed questions and thereby enhancing the understanding of the participants' views on reflective practice. Responses varied from a word to a few phrases and represented a variety of concepts with varying frequency with sparse detail. The analysis of free-text responses helped in generating preliminary understanding and substantiated answers to the close- ended questions.

This pilot study provides insight into dental professionals' views on reflection and the perceived value of a short educational intervention. Nearly all participants reported reflection as part of their usual professional practice despite the majority having received no formal training. Dental professionals identified facilitators and deterrents to reflection. Following the short course, perceptions of FIGURE 2 Concept map of participants' perceptions of reflection post-course



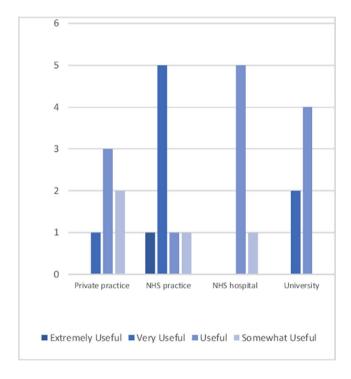


FIGURE 3 Usefulness of course based on type of practice

reflection were modified and the majority found the course a useful learning experience.

The analysis of variance was used to compare the means (ANOVA) and determine whether there are any statistically significant differences to explore in

- 1. differences in participants' understanding, perception and practice of reflection based on demographic data, year of qualification, country of graduation and practice setting
- 2. impact of an evidence-informed reflective learning course on the participants' understanding, perception and intended practice of reflection.

The only statistically significant difference was in usefulness of the reflection course between types of practice groups. Further exploration is required to understand why participants from the public sector background found this course to be useful. Other demographic categories of gender, age, year and country of graduation, teaching commitments and dental team specialities did not impact on this pilot study participants' reflective practice.

4.2 Time

In this pilot study, participants identified time as a limiting factor due to balancing busy schedules, quality assurance and quality improvement in their practices. This fits with the wider literature which identifies lack of time as the most common reason why practitioners do not engage in reflection. Evidence suggests that busy medical clinicians have competing demands on their time and may treat reflection portfolios as a tick box exercise, which can diminish reflection.¹⁷ Teoh and co-workers highlighted a similar concern with time for reflection in academic practice.¹⁸ However, interestingly our course participants preferred daily reflection which was perceived as a method to cope with challenges of their practice, which represents a positive perspective.

Furthermore, the only statistically significant difference amongst participants was in usefulness of the reflection course by types of practice. Further exploration is required to understand why significantly more participants from the public sector background found this course to be useful. However, it could be hypothesised that those in the NHS practice settings may have found it most useful as they may not have access in busy timetable training opportunities.

Knowledge and training 4.3

Medical education has taken an instrumental approach to reflection, by way of checklists, requiring a uniform way of teaching and guidelines.^{19,20} Contrary to philosophical underpinnings of reflection,

°⊥-Wiley

TABLE 5List of codes and categories of facilitators anddeterrents

Facilitator categories	Codes
Peer support	Colleagues to talk to
	Appraisal
Informal discussions	Friends at work
	everyday discussion with colleague
Confidentiality	scared to discuss with others
	be seen as incompetent
Deterrents categories	Codes
Time	Lack of time
	No space
Knowledge	No formal training
	No guidance
	Lack of information
	No structure
Support	No supervision
	Non-bias advice

the academic focus on outcomes has been critiqued due to "poor reflection, lack of engagement from students and low-confidence and apathy of staff."²¹ However, there is recognition that teaching should be focused on creating conditions that foster reflection, rather than trying to teach directly "how to reflect."¹² Most of the participants in this study had no formal training and reflection was perceived predominantly as "thinking."

One of the GDC's aims is to enhance continuing professional development by encouraging registrants to plan CPD by reflection, and the supporting guidance is in keeping with philosophical foundations of reflective practice rather than the provision of a prescriptive framework.²² It has been recognised that there remains some uncertainty for those who have not had prior experience of reflective practice.²³ The participants in this research confirmed the disconnect between GDC expectations and registrants' experience. Most participants viewed the course as useful as it filled the void from the lack of formal training.

Since the Bawa-Garba case, which involved allegations of breach of confidentiality of entries in a doctor's reflective journal, healthcare professionals have become increasingly sensitive to following an approved process to decrease risk of litigation.²⁴ Until embedded reflective practice in the undergraduate and postgraduate curricula catches up, there is a need to ensure that support is available for those in dental practice who have not had to formalise their reflection until now. There is a need for CPD on reflection to allow for a safe reflective practice. Following our short course, there was reportedly a change in perceptions of reflection. The change was reflected in how learning from the past can help in determining how to improve in the future. An additional significant shift was the introduction of the concept of metacognition.⁴

Before launch and expectation to adopt in new CPD practice, it would have been advisable to see that the ability, understanding and training were there for reflection to be safely embedded into regulatory requirements.

4.4 | Confidentiality

In response to the Bawa-Garba case, the healthcare regulatory bodies, including the GDC, published a joint statement in support of reflection.²⁴ This joint statement reassured their registrants that reflection is there to support professional development not to punish, clearly stating that this record will not be requested by the regulators for investigations.²⁵

The GDC expects dental care professionals to "have undertaken training which is appropriate for" them and equips them "with the appropriate knowledge and skills to perform a task safely."²⁶ Therefore, it is the authors' opinion that appropriate training in reflective practice is necessary for undertaking Enhanced Continuing Professional Development.

The British Medical Association, in light of the Bawa-Garba case listed the need to:

- 1. "push for legal protection for reflections in all education and training documents
- support the development of new GMC guidance acknowledging the scope for reflection
- 3. work with the Academy of Medical Royal Colleges to produce a toolkit on safe and effective reflection
- 4. call on health education bodies and royal colleges to ensure consistency in their own guidance about reflection requirements"

Honest, open discussions are expectations of reflective practice which may be hindered if confidentiality is breached and lead to defensive practice.²⁵

4.5 | Peer support

The participants preferred to reflect with a peer rather than on their own. This was perceived to be supportive with suggestions of mentored reflections to enable identifying patterns. Nursing literature has identified the value of peer mentoring in the development of a range of skills including teamwork, collaboration, reflection and communication skills.²⁷ Meta-reflection is popular in terms of selfdevelopment as part of a pathway to promotion in a hospital or university setting.

The findings from this pilot study resonate with the wider literature on the challenges to reflection such as "time, motivation, *initial expertise and lack of peer support are recognized barriers to reflection*," and the intervention in the form of a short course was identified as useful as it provided a framework to guide the reflective process.²⁸

Reflection is either seen as an "individual dialogue in a reflective writing or as a social and interactive dialogue in a meta-reflection." The

sooner this initiation to reflection is planned within higher education curricula the better the students become at reflecting and move from a superficial to a true engagement in meaningful reflection essential to lifelong learning practices.²⁹

Where most practitioners look to peer support of their reflective practice, in the University setting the preferred choice is reflection on their own. There is a Professional Development Review (PDR) process part of the promotion pathway which serves as a venue for reflective discussion but with identified superior. This is not so much a personal choice than a set process.¹⁸

A recent literature review identified job security and promotion as a highly sensitive matter and peer review can either support or undo a colleague's professional progression.¹⁸ This leads to "*suspicion and distrust as one can risk losing one's job or promotion chances by participating in Peer Review of Teaching (PRT).*" Reflecting on your own can be therefore viewed as safer in the academic environment. If a framework and clear criteria are defined as well as training provided to those involved, then this risk is mitigated, and faculty are more agreeable to a PRT.

4.6 | Strengths and limitations

The limitations of this pilot study include a small sample size of 52 participants who nominated to take this short course, possibly demonstrating a positive bias towards engaging in reflective practice. Whilst not generalisable, the heterogeneity of participants' means that their perspectives maybe similar to dental registrants in dental practice in the UK. However, some did not provide responses to all the open-ended questions hence their perspectives may not have been captured completely.

The limitations also acknowledge that free-text responses in surveys seldom produce data rich enough to achieve credibility, and the analysis, therefore, also risks falling short of producing interpretive insights to meet the standards required of qualitative data. However, researchers can conceptualize this data and their analysis as an adjunct analysis to the primary survey research.³⁰

Furthermore, the post-course questionnaire was delivered immediately after the presentation rather than a longitudinal follow-up to gauge the impact of this course on everyday practice.

The findings of this pilot study contribute to the existing literature on reflective practice in dentistry and have also identified the need for explicit and structured teaching of reflection. This proposition requires further research on a wider scale.

5 | CONCLUSIONS

Reflective practice as requirement for continuing professional development amongst registered dentists in the United Kingdom has come into effect in 2017.¹ Our study looked at an original exploration of reflective practice amongst dental professionals associated with two academic institutions. Our findings highlight facilitators and deterrents of reflection and suggest that a short course on reflective practice enhanced understanding and provided a constructive framework amongst professionals who reported already reflecting regularly. The findings suggest that this theoretically informed educational intervention designed to improve reflected behaviour, conducted as a pilot study, provides a useful basis for supporting professional development involving reflective practice and provides the basis for future research.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author.

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