Memory, Credibility and Insight: How Video-based Feedback promotes deeper reflection and learning in Objective Structured Clinical Exams.

***Authors:***

Alexandra Makrides(1)

Peter Yeates (1,2)ORCID ID: 0000-0001-6316-4051

1 School of Medicine, Keele University, Keele, Staffordshire, United Kingdom

2 Fairfield General Hospital, Pennine Acute Hospitals NHS Trust, Bury, Lancashire, United Kingdom.

# ***Corresponding Author Details:***

Alexandra Makrides - alex\_makrides@hotmail.co.uk

1 Newton Close

West Derby

Liverpool

L12 5JT

# **Abstract:**

Introduction: Providing high quality feedback from Objective Structured Clinical Exams (OSCEs) is important but challenging. Whilst prior research suggests that video-based feedback (VbF), where students’ review their own performances alongside usual examiner feedback, may usefully enhance verbal or written feedback, little is known about how students experience or interact with VbF or what mechanisms may underly any such benefits.

Methods: we used social constructive grounded theory to explore students’ interaction with VbF. Within semi-structured interviews, students reviewed their verbal feedback from examiners before watching a video of the same performance, reflecting with the interviewer before and after the video. Transcribed interviews were analysed using grounded theory analysis methods.

Result: Videos greatly enhanced students’ memories of their performance, which increased their receptivity to and the credibility of examiners’ feedback. Reflecting on video performances produced novel insights for students beyond the points described by examiners. Students triangulated these novel insights with their own self-assessment and experiences from practice to reflect deeply on their performance which led to the generation of additional, often patient-orientated, learning objectives.

Conclusions: the array of beneficial mechanisms evoked by VbF suggests it may be a powerful means to richly support students’ learning in both formative and summative contexts.

# **Keywords:**

Assessment

OSCEs

Feedback

Video-based Feedback

Reflection

# **Practice Points:**

Ensuring that students receive sufficient specific credible feedback from Objective Structured Clinical Exams (OSCEs) is important to support students learning.

Prior research suggests that Video-based Feedback (VbF), where students watch their own performances on video after the OSCE, may have beneficial influences on their learning.

Video-based feedback increased students’ memory of their OSCE performances; aided their receptivity to and the credibility of examiners’ feedback and provided additional insight into their performance.

Collectively, video-based feedback appeared to enable students to reflect more deeply, gaining a more details understanding of their performance which supported future learning.

# **Introduction:**

Objective Structured Clinical Examinations (OSCEs) were introduced by Harden et al. (1975) to improve the assessment of clinical competence. OSCEs have been well researched as an assessment practice (Swanson and Van der Vleuten 2013), with less focus on their educational value and formative uses. Van der Vleuten. (1996) stressed the significant impact that assessment can have on educational processes and recommended their use to achieve the desired educational reaction; thus, acting as a learning exercise. OSCEs, although primarily summative assessments, are no exception to this.

Despite this general trend OSCEs can provide a positive learning experience for students (Parish et al. 2006; Miller and Green 2007; Graham et al. 2014), producing an increase in which their clinical confidence is increased (Young et al. 2014). OSCEs have also offered opportunities for students to practice clinical skills in a safe environment (Touchie et al. 2013), acted as a bridge towards clinical practice (Farahat et al. 2016) and enabled students to self-assess their own performances (Aeder et al. 2007; Solà-Pola et al. 2020). Provision of feedback increases the formative value of an OSCE (van der Vleuten 1996). Feedback can improve student performance (Hodder et al. 1989) if detailed (Young et al. 2014) and constructive (Larsen and Jeppe-Jensen 2008; Ashby et al. 2016), given soon after the assessment (Touchie et al. 2013; Lee et al. 2018; Daniels et al. 2019) and if provided by an expert (Touchie et al. 2013). Feedback is also an essential tool to be utilised in self-regulated learning, a learning process that is beneficial to the life-long learner (Mann et al. 2011; Swanwick 2013).

Whilst students appreciate feedback from OSCEs, it is not without some limitations. Typically, there is only a limited time available for examiners to provide written or verbal feedback during an OSCE cycle. This tends to limit the degree of detail and depth provided (Denison et al. 2016). Moreover, there is typically a significant delay between the OSCE and release of feedback to students which can prevent students from making use of the learning opportunity (Daniels et al. 2019). In combination, both of these factors could reduce students’ perceptions of the credibility of feedback, which is known to mediate its utility (van de Ridder et al. 2015; Lefroy et al. 2015). When such feedback contains negative messages, it may evoke a negative emotional response from students, thus negatively impacting on their ability to accept and learn from it. (Lefroy et al. 2015; Karol and Pugh 2020). Consequently, any opportunity to increase the richness, depth or credibility of OSCE feedback has the potential to support and increase students’ learning.

One potential approach to enhancing OSCE feedback is to supplement examiner feedback by additionally asking students to view their own performance(s) on video (termed video-based feedback). This could, in theory, provide greater insight into students’ performance and as a result, greater learning. Video-based feedback has been utilised in professions outside of healthcare. Within sport it has been shown to improve tactical skill and knowledge more quickly than coaching (Boyer et al. 2009; Gil-Arias et al. 2015). Within teaching, video-based feedback allowed student teachers to visualise strengths and weaknesses (Akcan 2010) although negative emotional reactions were elicited when watching their own performance video (Chan et al. 2018). In addition to this, it has been beneficial within healthcare by providing an opportunity for trainees to learn following simulated group tasks involving a number of healthcare professionals working together (Oseni et al. 2017), specifically physiotherapy (Maloney et al. 2013) and nursing (Grant et al. 2010).

The use of video-feedback has been repeatedly evaluated within clinical skills and simulation contexts in medical education, although a review of this literature noted that most studies either reported students’ satisfaction or uncontrolled measures of effectiveness (Hammoud et al. 2012). Fewer studies have investigated video-based feedback within an assessment context in medical education. White et al. (2009) compared faculty mediated or independent use of video within remediation for students who had failed OSCE stations. Whilst both groups showed significant improvements in re-sit scores the uncontrolled study design means that this change could have arisen due to unmeasured influences. Mookherjee (2019) similarly compared mentored or independent review of videos post-OSCE, with students rating mentored sessions more highly. Srinivasan et al. (2007) showed improvements in correlations between students’ self-assessments and simulated-patients’ assessments after video-review although correlations remained weak to moderate. Kam et al. (2019) showed that students’ agreement with statements about the veracity of the assessment increased marginally after video review, whereas Perron et al. (2016) showed that tutors’ feedback contained greater specificity and depth when they used video to provide feedback to students.

Whilst these studies collectively offer some broad support for the benefits of video-based feedback in assessments in medical education, they give only limited insight into how video-based feedback might achieve any such effects, or how students may experience and interact with video-based feedback from OSCEs. This makes it difficult to predict how it may operate in practice or what mechanisms may be responsible for any observed benefit. As it is important to have an in-depth understanding of these issues before video-based feedback can be recommended in practice, we aimed to understand how students experience, use and learn from video-based feedback on their own OSCE performances and how this might interact with examiners’ verbal feedback.

# **Materials and Methods:**

***Study design***

We adopted a social constructivist stance, using constructivist grounded theory methods collecting data through stimulated, semi-structured interviews. During interviews, students considered the verbal feedback they had already received from one OSCE station as well as a video of their own OSCE performance at that station (i.e. the performance which led to that feedback). Individual semi-structured interviews were chosen as participants were able to discuss their opinions more deeply in compared to focus groups and the researcher could adapt questions to follow up on answers given by the participants (DiCicco-Bloom & Crabtree, 2006). Due to the personal nature of individual experiences of OSCEs, these interviews also provided the privacy and confidentiality for participants to watch their OSCE performance alone and freely discuss their perceptions.

***Feedback Context***

Following OSCEs, Keele University Medical School provides audio recorded, verbal feedback from examiners to students, which is recorded by examiners between student performances in the OSCE cycle. It is presented to students via a feedback website approximately four weeks after each OSCE along with station scores, cohort averages and skill specific scores (Harrison et al., 2015). Each student was examined by a trained, clinical examiner. Students do not receive feedback from simulated patients within this assessment format.

***Population, sampling and assessment context***

We used purposive sampling, recruiting participants from two different year groups, who had participated in different OSCEs, constituting both summative and formative contexts. The first year-group were year 4 students, who had taken a 12x 10min-station summative OSCE in May 2019, covering a range of clinical skills such as consultations, physical examination and procedural skills. In this OSCE, 6 students had been videoed as part of prior research (Yeates et al., 2021). Videos for one station from this research were made available for this study. The second year-group were year five students who participated in a formative 4x 20min-station OSCE in February 2020, also covering a range of clinical skills such as consultations, physical examination and procedural skills. A subset of the students within the formative OSCE were videoed on one station (see Figure 1 for the timeline). All examiners in both OSCEs came from Keele School of Medicine’s pool of regular examiners, had clinical or clinical skills backgrounds and had had prior examiner training. Both OSCEs were scored using Keele’s GeCos domain-based rating scales, which provides scores for a number of station-specific domains, producing scores between 6-27 per station. We sampled from students who had been videoed in these OSCEs. Sampling was determined from the data. Once the data reached saturation, sampling ceased.

***Recruitment, consent and ethics***

Ethical approval was gained from Keele University school-student project ethics committee (Ref- 20-01). We gained informed consent from the participants, examiners and simulated patients using signed written consent forms. Confidentiality was maintained by removing any identifiable data from interview transcripts and participant’s wellbeing was considered throughout.

***Data collection***

Interviews were conducted between March & June 2020. This meant that Year 4 participants had approximately 10 months delay since their OSCE, whilst Year 5 students had only a 3-month delay. One researcher (AM) conducted interviews with all participants, via an online meeting platform. Participants accessed and listened to their verbal feedback a few minutes before beginning their interview and were then asked to describe their responses to the audio feedback on their performance. Next, participants were shown a video of the performance of theirs which had generated the feedback to which they had just listened. A screen share function was used to display participant videos from the interviewer’s computer to the participant’s screen. Students watched the videos alone; the researcher turned away from the screen as the video played to avoid watching. Students were not given an opportunity to ask questions about their performance. Following this the researcher and participant discussed the participant’s perceptions of their performance in light of the video feedback stimulus. Consistent with good practice in semi-structured interviews (Newcomer et al., 2015), the interviewer used an interview topic guide to guide the conversation but was free to explore emergent issues. The interview topic guide prompted the interviewer to consider areas significant to feedback in education, OSCE feedback and video-based feedback. AM adopted a neutral stance throughout the interviews, neither commenting on examiners’ judgements or feedback, nor coaching students on their performance.

Interviews were recorded using the online platform’s recording feature. Audio from the interview was commercially transcribed. We checked each recording for accuracy and revised any discrepancies prior to data analysis. Interview transcripts were uploaded to NVivo Version 12 to aid analysis.

***Data analysis***

Data analysis began by AM reading each transcript to become familiar with the data set. Open coding, both inductive and theoretical, was completed, sentence by sentence, to elicit student’s perceptions related to the research aims. AM used constant comparison by simultaneously coding raw data and analysing emergent themes (Charmaz, 2013). In doing so she was able to compare participant’s perceptions and to explore inter-relationships or contrasting responses. Memo writing captured thoughts during data analysis and linked the methodological approach with the data set (Charmaz, 2013). Associating open codes were then grouped to create axial codes. Axial codes that interrelated were grouped to elicit themes relevant to the research aim. The themes interacted and influenced one another, thus forming a theoretical concept. In efforts to gain an alternative perspective of the data, PY reviewed and discussed portions of transcripts, the evolving open and axial coding and model. At the time of analysis, AM was completing an intercalated masters’ degree in clinical education and had completed a module on research methods including training on grounded theory. PY is an experienced researcher, who has used grounded theory extensively.

***Reflexivity***

The lead researcher (AM) is an undergraduate Medical Student at Keele University School of Medicine and has previously undertaken OSCE assessments at Keele University and received verbal feedback from them. This feedback has not included any video-based OSCE feedback. PY is a researcher and clinical Doctor whose research focuses on technology-enhanced assessment in Medical Education. Whilst both researchers were intrigued by the potential of video-based OSCE feedback to enhance assessment, neither has a direct motivation to ensure its success.

# **Results:**

Over a four-week period, eleven students were interviewed in total; eight year five students and three year four students; seven participants were male and four were female. Out of the participants, six were undertaking their first degree and five had completed a degree prior to medical school. One of these graduate students was an international student. The timing of the study relative to the two OSCEs meant that year five students had a two-to-three-month interval between the OSCE and interview. By contrast, the year four students had a one-year interval. Interviews ranged from 30 to 61 minutes and totalled 524 minutes. They produced 101 pages with 42,706 words of transcribed data.

The recorded data was transcribed verbatim and analysed. Themes that emerged interlinked to form a theoretical concept (Figure 2).

***Memory of Performance***

It was evident that students’ memory of their OSCE performance was poor. They had a general recollection of the OSCE station scenario but could not remember specific details either from the station content or their performance. Examiners’ verbal feedback adequately represented the entire performance; thus, students were reminded of the OSCE station. The verbal feedback was, however, a much less significant performance reminder than the video feedback where every detail of their performance was available for them to observe. The video was powerful enough to place the student back into the OSCE situation so they could remember their thought process during their performance:

*“When you’re watching your feedback I could almost remember what I was thinking at the time, so there was certain questions I was asking and I was thinking I remember when I was asking this question I was thinking of this, this and this.” – year 5 male*

Following the video, students reflected on the verbal feedback they had been given and noticed how the video had confirmed many aspects of it. Watching their performance as a “fly on the wall” improved their understanding of the examiner’s perceptions.With verbal feedback alone, the lack of understanding prevented students from appreciating the constructive nature of some feedback comments. Use of the video feedback provided clarity to such comments, enabling students to acknowledge this feedback in their reflections.

*“Then watching it you are like, oh gosh, I can see exactly why she said each thing in the verbal feedback” – Year five female*

***Receptivity and credibility***

Defensiveness was a common reaction to examiners verbal feedback, even when it was phrased constructively. This occurred especially when the feedback conflicted with a student’s self-perception:

“How am I meant to learn from something that isn’t accurate?” – Year 5 male

Defensiveness reduced following the video feedback and the emotional reaction was generally positive as students felt comfortable watching their performance independently. Without the barrier of negative emotions, students could better understand examiner feedback and could then reflect on the verbal feedback more specifically to create learning points.

With a stronger recollection and understanding of verbal feedback, participants’ perceptions of the credibility of examiners’ verbal feedback generally increased. Although perceived credibility was good following verbal feedback, students’ trust in the validity of the examiner’s opinion increased after viewing performances.

On occasions when students’ interpretation differed from that of the examiners, they still perceived the feedback as credible if the conflict focussed on a minor aspect of performance. On two occasions when the conflict was deemed more significant, students recognised the subjectivity of OSCEs and the pressures facing the examiner such as time limitations and levels of concentration:

*“Like I said earlier, she said about the red flags and I did go through some of them and when I was listening I was, I did say that, I did say that. So there’re a couple not that she missed, but maybe I asked it in a different way.” – Year five male*

On occasions where examiner feedback conflicted with student perceptions, students reflected on the discrepant aspects of performance, they typically recognised some potential to improve, albeit not to the extent which the examiner had indicated.

***Additional reflection and insight***

The video not only clarified the verbal feedback points, but also provided further insight beyond those provided by the examiner’s verbal feedback. Whilst examiner’s verbal feedback focussed narrowly on how proficiently students had achieved elements of the marking guidelines, students’ interpretation of video feedback often focused on broader elements of their development as clinicians, such as general communication skills.

*“The main thing is just seeing yourself so you can see your body language and see how you respond to a patient.” – Year five female*

Communication skills were perceived to comprise elements of their performance that may not have greatly impacted their OSCE mark, however, were deemed to be significant in their clinical practice. Although this predominant focus on body language and verbal communication skills could distract students from reflecting on their use of medical knowledge during the station, students valued this reflection as it provided transferable learning for their clinical practice.

Students expressed their need for patient feedback. Within the existing assessment format, students do not receive feedback from simulated patients. Students perceived the potential for important additional learning which supplemented examiners’ verbal feedback, by focusing on the simulated patient’s perspective.

*“If I was actually her doctor, would she be happy with how that consultation went?” – Year five female*

When watching their video, students were able to observe the simulated patient’s reactions to their performance which enabled them to reflect on how a patient might have experienced the consultation. Specifically, by viewing their reaction to cues, students could analyse why they had or had not fulfilled specific elements of the station. This analysis gave an indication of the patient’s satisfaction with the doctor-patient interaction, as students could better understand if their patient’s concerns were addressed.

One student, however, struggled to create learning points following the video feedback. His high scoring performance was thought to limit the educational benefits of the video:

*“Maybe that was because there were only minor things that she said that needed to be improved if that makes sense. So, maybe if there were more drastic things I needed to improve, watching it over and seeing those drastic things happen might have made me say, oh yes, perhaps I do need to change that.” – Year five male*

This opinion was echoed by others who wished for video feedback on poorer OSCE performances. In addition, students longed for video feedback to be used in more complex OSCE stations and earlier on in the medical course. This may suggest that enhanced reflection following video feedback may be most beneficial to students when their performance requires more improvements.

***Triangulated understanding of own performance***

Through these collective processes, viewing videos resulted in participants’ developing a clearer understanding of their OSCE performance than was otherwise possible.

Students triangulated this novel insight against their understanding of their prior performance in OSCEs and their own beliefs about their ability in clinical practice, to construct a tacit self-assessment (i.e. a qualitative impression of their ability rather than a self-assessment score). Their own understanding of their abilities acted as a benchmark within this tacit self-assessment:

*“…but when you watch back the videos, you benchmark what you’re saying against what you normally say as well, which [the examiner] doesn’t have that kind of comparison.” – Year five male*

By triangulating examiner feedback, clinical experiences and previous OSCE performances, students were able to compare these encounters with their video performance in order to self-assess. Their initial self-assessment following examiner feedback alone was challenged by their video performance resulting in an in-depth and specific performance evaluation.

***Deeper reflection and generation of learning objectives***

Students reflected on their tacit self-assessment which highlighted areas in need of improvement. This reflection often led to actionable learning points for the future:

*“So I know we're supposed to do that in the interviews to summarize before moving on again, but I actually felt I did that three times, whereas I could have asked more questions in the HPC to be more thorough.”* – Year 4 female

Consequently, by triangulating across the insights available from both video-based and examiner’s verbal feedback, this process prompted deep reflection which led to actionable learning points to implement in future practice and OSCEs.

# **Discussion:**

***Summary***

Use of video-based feedback alongside verbal feedback improved: students’ perceptions of the credibility of verbal feedback; their understanding of verbal feedback; and their memory of performance. it also enabled creation of additional learning points. These four processes combined to allow students to gain clearer insight into their own performance. Both the verbal and video feedback challenged their self-assessment when it disconfirmed their self-efficacy but confirmed it when self-efficacy and feedback aligned. When reflecting on their informed self-assessment, students reflected more deeply by evaluating the elements of their performance in need of improvement and developed learning strategies to implement. These improvements were tailored to their own specific needs, whilst being influenced by expert examiner opinion.

***Theoretical implications***

The perceived credibility of feedback impacts on its meaningfulness for students (Watling et al. 2013). Feedback that contradicts a person’s self-perception causes tensions (Mann et al. 2011) which in turn, elicits negative emotions that prevent the receipt and uptake of feedback (Lefroy et al. 2015). This was echoed by our students who became defensive and were unable to reflect upon conflicting examiner comments. After watching their video, the perceived credibility of examiners’ verbal feedback improved overall, and defensiveness reduced, thus increasing their receptivity to examiner feedback.

Similarly, to Humphrey-Murto et al. (2016) findings, our participants’ memory of their performance, and ability to relate examiner’s verbal feedback to their performance, were both poor which many have limited their ability to learn from the experience. They attributed their poor memory of performance to the delay between the OSCE and receiving or using feedback. Due to this issue, giving immediate feedback is thought to be beneficial (Ashby et al. 2016; Graham et al. 2014), however, the practicalities of this are difficult due to the time required to process examination results and feedback. Moreover, prior research has shown that students often only initially engage with feedback briefly, but then return to it repeatedly over the interval between exams (Harrison et al. 2013). Ashby et al. (2016) indicated that descriptive feedback is necessary to improve recollection. The video was a powerful performance reminder for students, regardless of the amount of time between the OSCE and watching their video. After watching their video, students could directly relate their performance to their verbal feedback comments and could reflect on them more specifically. Watching their performance may, therefore, have improved recollection of verbal feedback as it the two sources of performance information interacted. This may have enhanced the utility of the verbal feedback.

Both Solà-pola (2020) and Parish et al. (2006) concluded that independent self-assessment could highlight strengths and weaknesses. This can, however, become problematic for students when their self-assessment is inaccurate (Reiter et al. 2004; Sears et al. 2014). Our participants developed a clearer understanding of their performance following video feedback. It added to and supported the examiner verbal feedback, allowing students to evaluate their performance more effectively, thus delivering a more nuanced self-assessment. From the perspective of self-regulated learning cycle which involves planning, learning, assessment and adjustment of performance (Swanwick T 2013) a more accurate self-assessment may allow students to progress through the self-regulated learning cycle more successfully.

Students became confused when critical verbal feedback lacked actionable guidance describing how to improve performance. After listening to examiner feedback and watching their video, students were able to better reflect on their performance. Their reflections triangulated verbal feedback with self-assessment and previous performances, directing their reflections towards specific goals in their personal professional development. They could create actionable improvements specifically for their own development. Consequently, students appeared situated in their “zone of proximal development” (Vygotski and Cole 1978) and were able to self-critique and create their own learning points, scaffolded by verbal and video feedback. The ultimate aim of this theory is to be able to perform successfully, unaided. Progressing towards this goal involves independently generating richer self-assessments and deep reflections following their performances. Video-based feedback appeared to enhance students’ capability to perform these processes.

This deep reflective process could potentially begin to build self-monitoring skills in students from an early start in their career, by allowing students to self-assess more comprehensively in order to create effective adjustments to their performance (White et al., 2014). In so doing, students are experimenting with metacognitive knowledge, monitoring and control (Dunlosky and Metcalfe 2009) by analysing their performances, identifying areas in needs of improvement, and finally, what methods they use to improve these areas (Winne 2021). This allows them to engage in self-regulated learning. This skill is essential for a life-long career in order for practitioners to continue their professional development without the constant support of external feedback. This enforces Touchie et al’s (2013) conclusion that self-regulated learning provides direction for learners without coaching, thus is more

***Recommendations for practice***

Our research suggests that OSCE feedback has the potential to be considerably enriched by using video-based feedback. Whilst these educational benefits are likely to apply equally to summative and formative OSCEs, institutions should consider the implications of releasing videos of summative performances in OSCEs to students, both in terms of the potential for the videos to be used to challenge examiners’ judgements and the implications for the security of question banks. If pragmatic solutions to these challenges can be identified or their impact mitigated, then video-based feedback may help to address the perennial concern about the limit developmental value of summative OSCEs. Equally, institutions could decide that sufficient educational value can be derived from video-based feedback in formative settings. Approaches to videoing in assessments have previously been described (Yeates et al. 2020) and offer guidance on how to minimise the impact of videoing on exam conduct whilst ensuring meaning depictions of performances.

***Strengths and limitations***

This study was conducted at a single site and only a single video was shown to each student. Videos only depicted communication skill stations. Consequently, these findings are not implicitly transferable to other medical schools and other types of OSCE stations such as clinical examination or clinical skill stations. Nonetheless, we expect that as the stations were typical of OSCE-style assessments of communication skills, may find resonance in other settings.

The use of convenience sampling may have influenced the results. Students who volunteered to participate are likely to be more motivated to learn from feedback, and thus may not accurately represent the population of Medical Students. This could result in a sampling bias which may again limit the transferability of these results.

The examiners of the videoed OSCE stations were experienced and provided good quality feedback as perceived by students. Considering most students viewed their feedback as effective, these students’ perceptions may not be applicable to students who receive lower quality feedback from a less experienced examiner.

Having a medical student as the lead researcher may have constituted a strength of the method by facilitating informal discussions during interviews with peers. Participants may have given more honest opinions when talking to a peer compared to being interviewed by a member of faculty.

As prior research (Harrison 2013) has shown that students often use feedback in the run up to the next OSCE, the intervals between the OSCE and interviews were realistic. This adds to the ecological validity of the study.

***Suggestions for future research***

Future study should probe students’ perceptions of video-based OSCE feedback at different stages of medical school and following clinical examination and skill stations. By determining differences or similarities between findings from different students and station types, the use of video feedback could be utilised in a way that benefits students’ learning most.

A study similar to Harrison et al. (2013) could be conducted using the same feedback portal to generate an understanding of which students use video feedback and when they access it in relation to their other OSCE assessments.

Finally, research into the learning behaviours which result from video feedback would be beneficial, and their impact on learning. Our understanding of student perceptions may not align with their actions following video feedback. Although difficult, studying students’ progression with video feedback could be of use to demonstrate if the reflective process has aided their active learning to improve performance.

# **Conclusion:**

Whilst the predominant focus of OSCEs remains on fair and equivalent assessment *of* learning for summative purposes, they also represent a considerable (and often unrealised) assessment *for* learning opportunity. Video-based feedback enhanced students’ memory of performance; increased the credibility of examiners’ feedback; and facilitated novel insight into students’ own performance. The reflection this prompted provided deeper understanding of students’ ability which offered a clear guide for future learning. Consequently video-based feedback appears to offer a valuable means to increase the impact of formal performance assessments on learning. Whilst some practical considerations should be addressed before routine use of video in assessment, we advocate for the potential of video-based feedback to enhance students’ learning in both formative and summative assessment contexts.

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# **Declaration of Interests:**

Both authors declare that they have no conflicts of interest

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# **Author Biographies:**

Alexandra Makrides is a final year medical student at Keele University who completed an intercalated Master’s degree in Medical Education.

Peter Yeates is a senior lecturer in medical education research and a consultant in acute and respiratory medicine. His interests focus on assessor cognition in medical education and technology-enhanced assessment.

**Author Contributions:**

AM: developed the protocol and ethics application, performed all interviews and lead the analysis of data and drafting of the manuscript.

PY: conceived the study, substantially contributed to protocol and ethics development, data analysis and drafting of the manuscript.

# **Glossary Terms:**

Video-based Feedback (VbF) – students watch a video of their own performance in order to gain insight into their performance.

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# **Figures:**

Diagram

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Figure 1: Timeline of participant activity.

Diagram

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Figure 2: Illustration of the interaction of the theoretical constructs arising from Video-based feedback.