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<https://orcid.org/0000-0003-0310-1360> and Liefeyth, Andreas
ORCID: <https://orcid.org/0000-0003-2121-3219> (2020) Student
experiences of live synchronised video feedback in formative
assessment. *Teaching in Higher Education*. pp. 1-14.

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<http://dx.doi.org/10.1080/13562517.2020.1725879>

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Student experiences of live synchronised video feedback in formative assessment

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Word count: 6552

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ABSTRACT

Effective student feedback is a central issue in higher education and has been closely aligned to satisfaction and overall experience. Technology-enabled models of feedback may have the capacity to overcome some of the limitations that previously made high quality feedback on formative tasks challenging or impractical. This study adopted live synchronised video feedback incorporating digital video recordings of student performance in assessment activities with real-time, synthesised, synchronous tutor audio feedback. Almost 300 unique incidences of technology-enabled feedback on formative assessment were provided during an undergraduate Physical Education and Sports Coaching module. Thematic analysis of group interviews revealed the availability of engaging feedback, the positive impact of technology, and the facilitation of reflective practice as overarching themes. Employment of this feedback strategy enabled the realisation of high quality, frequent, effective, sustainable feedback that positively impacted on students' experiences of formative assessments leading to their perceived development as learners and reflective practitioners.

Keywords: video feedback, formative assessment, reflective practice

Introduction

Feedback opportunities are the foundation of successful academic programmes (Lunt & Curran, 2010), and contribute meaningfully to the quality of the student experience (Henderson & Phillips, 2015). Research examining the effectiveness of feedback is considerable. A range of conceptual models remain influential to our understandings of how feedback should be employed and numerous review

studies synthesising effective feedback approaches are available (Hattie & Timperley, 2007; Shute, 2008; Carless et al., 2011; Boud & Molloy, 2013). However, regardless of the potentially positive impact feedback can have, the higher education sector continues to wrestle with the complexity of fully exploiting the advantages afforded by effective feedback (Hattie, 2009; Boud & Molloy, 2013). Dissatisfaction with feedback and how it is administered continues to blight institutional performance metrics, with students regularly articulating concerns around the consistency, frequency and timeliness of feedback (Nicol, 2010).

In the past decade it has become evident that researchers and practitioners feel it is necessary to reposition the feedback process away from a mechanistic information transmission model to a process where students are active constructors of their own knowledge and understanding (Sadler 2010; Carless et al., 2011; Molloy & Boud, 2013). Evolving from earlier definitions (e.g. Boud & Molloy, 2013; Carless, 2015), feedback can be defined as a process developed by educators, undertaken by students, and orientated around advancement 'through which learners make sense of information from various sources and use it to enhance their work or learning strategies' (Carless & Boud, 2018, p.1315). The repositioning of feedback in this manner means that other characteristics of feedback become important and that these characteristics extend beyond the provision of hopefully useful commentary from tutors (Molloy & Boud, 2013). Prominent conceptualisations of feedback remain mindful of the entire assessment process, placing the student at its centre, and creating an environment conducive to effecting change (Dawson et al., 2018). Evidence suggests feedback is the most impactful element of a higher education tutors role

(Gibbs & Simpson, 2005), a key determinant in student achievement (Hattie & Timperley, 2007), and inseparable from the learning process (Hounsell et al., 2008; Orsmond & Merry, 2011).

Compared to summative assessment, well-designed formative assessment can reduce discrepancies between current and desired performance (Lizzio & Wilson, 2008). Evidence demonstrates formative assessment and associated feedback opportunities effectively guide the learning process and provide correction, assurance, and encouragement (Rushton, 2005; Fletcher & Shaw, 2012). Such formative assessment however places additional demands on tutors that are difficult to meet in a higher education climate characterised by increasing class sizes and relatively lower staff resource (Hounsell et al., 2008).

Emerging technology-enabled models of information transmission may have the capacity to overcome some of the limitations that previously made high quality feedback on formative tasks challenging or impractical (Brown, Hinze and Pellegrino 2008). While the domains of written and audio feedback have been routinely investigated (e.g., Lunt & Curran, 2010; Nicol, 2010; Jolly & Boud, 2013; Hennessy & Forrester, 2014), the concept of technology-enhanced video feedback remains in its infancy. As a consequence, there is relatively little empirical research on the subject area (Henderson & Phillips, 2015). The available evidence suggests that video feedback is welcomed by students because it accommodates numerous advocated characteristics of high quality feedback. Video feedback is recognised as being personalised and specific in nature (Crook et al., 2012), comprising of richer explanations (Lamey, 2015) and enabling feedforward observations to be included (Henderson & Phillips, 2015). Furthermore, efficiency savings have been reported from staff producing video

feedback with students also suggesting it is less effortful to view and engage with compared to other feedback strategies (Mahoney, Macfarlane & Ajjawi, 2018).

Few publications provide discrete definitions of video feedback, and the label appears to encompass a diversity of practices and feedback formats. A recent review (Mahoney, Macfarlane & Ajjawi, 2018) for example identified the utilisation of three distinct approaches to video feedback within higher education (screencast, combination screencast, and talking head), but did not acknowledge anything of a similar nature to the feedback method employed by this study. The video feedback format adopted in this study defined as 'live synchronised video feedback' (LSVF) incorporates digital video recordings of student performance in assessment activities with real-time, synthesised, synchronous tutor audio feedback. Consequently, the current paper aimed to document the effectiveness of a novel video feedback strategy, while exploring undergraduate student experiences of LSVF employed during formative assessments. The research explored the following research questions:

- What are the participants' views on receiving LSVF?
- How do students engage with LSVF when employed in formative assessments?
- How does LSVF support learning and development of coaching practice?

Method

Video feedback process

Following successful smaller scale, pilot projects video feedback was employed as the primary mode of feedback on a final year undergraduate sports coaching

course. Alongside classroom-based theoretical delivery, the semester-long (twelve weeks) module provided a succession of formative practical coaching opportunities. Students were required to design and deliver safe and effective evidence-based sports coaching sessions. This model of delivery resulted in almost 300 unique incidences of formative assessment whereby students received video feedback with embedded tutor audio commentary. The formative assessments were each 10 – 15 minutes in length and involved coaching peer groups while being filmed. The student coach and tutor wore dual channel microphones enabling interference-free audio capture of the student's verbal interactions with peers and the provision of synchronised tutor audio commentary. During the coaching observation tutors would periodically deliver feedback aligned to the course learning outcomes, commenting upon the design, management, and execution of the observed session. The impromptu commentary was typically stimulated by witnessed incidents resulting in close alignment between video footage and nature and orientation of commentary provided. No immediate face-to-face feedback was provided following the conclusion of the coaching activity, enabling efficient management of time within the session and the opportunity to maximise the volume of student assessments undertaken.

Videos containing audio feedback were typically uploaded to the virtual learning environment within 24 hours of the original recorded session taking place. No post video capture editing was necessary, and investment by academics in the process beyond the timetabled sessions that incorporated the formative assessment was zero.

Research approach

With numerous authors advocating criteria that encompass researcher agency in the determination of the extent and completeness of adherence to criteriological approaches (Yardley, 2008; Tracy, 2010; Smith & McGannon, 2017), this study aligns with interpretive approaches of qualitative inquiry committing to epistemological constructionism and ontological relativism. As such this study has selectively orientated itself to desirable characteristics for the realisation of high quality research proposed by Braun and Clarke (2006) and Tracy (2010). Consequently, universal hallmarks of qualitative inquiry including rich rigour, credibility and resonance have been attended to through the research process comprising study conceptualisation, administration and dissemination.

The investigation employed a qualitative approach to inquiry, comprising of a series of group interviews which were subsequently analysed using inductive thematic analysis, as described by Braun and Clarke (2013). The institutional research ethics committee approved the study with participants giving voluntary written informed consent.

Sample and data collection

A purposive sample of undergraduate sports coaching students were recruited according to predetermined criteria pertinent to the research study aims. The sample size was established inductively with further sampling undertaken until theoretical saturation occurred. This was operationalised as the point in data gathering where further materials produced minimal or no change to the codebook (Guest, Bunce, & Johnson, 2006) resulting in a sample of 16 participants contributing to four group interviews. Guidelines for thematic analysis

(Braun & Clarke, 2013) suggest such a sample size is representative of a medium sized project and affords sufficient materials to enable meaningful exploration of the phenomenon under investigation.

Following recruitment, participants engaged in group interviews that were facilitated by an independent moderator. The interview guide consisted of both broad and focused questions developed from the literature and the pedagogic experience of the research team. All participants were asked identical questions with the moderator adopting techniques such as neutral prompts, paraphrasing, inductive probing and clarifying questions to elicit rich commentary in which interviewees shared examples and experiences of video feedback. Interviews averaged 39 minutes and 26 seconds in duration and were digitally recorded prior to transcription.

Analysis

Thematic analysis of the group interview data was undertaken adopting an inductive data-driven approach (Braun & Clarke, 2013), commencing with familiarisation of the data and the noting of potential interests within the materials. This initial familiarisation allowed preliminary codes to be developed capturing different features of the participant's understandings, with illustrative citations from the material chosen. Provisional candidate themes originating from the initial coding captured something significant about the data in relation to the research topic and typically represented some degree of patterned response and meaning within the documentation. These emerging themes were openly discussed within the research team enabling assumptions, interpretation and understanding to be challenged and consensus to be determined. Following

revision and refinement, key assertions and thematic categories that materialised from the data were subsequently incorporated and grouped into hierarchical themes that accurately embody the participants' experiences.

Results and Discussion

The visual thematic map (Figure 1.) provides a hierarchical thematic illustration addressing the outcomes of the analysis. Thematic analysis identified the availability of engaging feedback, the positive impact of technology, and the facilitation of reflective practice as overarching themes. The emergence of engaging feedback as an overarching theme reflects the literature in that feedback is recognised as a vital part of the educational process and that exceptional learning experiences are built on a foundation of excellent feedback (Schartel, 2012). In the absence of useful feedback, the reinforcement of appropriate performance does not take place, errors remain unchecked, and progression is either limited or does not take place. The second overarching theme which identifies the positive impact of technology reflects the changing nature of how students interact with their places of study and the manner in which learning takes place (Adams & Porter, 2014). Hennessy and Forrester (2014) specifically highlight the increasing use of technology to provide more creative and effective feedback. Technology-enhanced feedback and in particular digital video provides accessible resources through a medium that students have an inherent affinity towards. The final theme that recognises the capacity of video feedback to facilitate reflective practice is noteworthy. Schön (1983) attaches significant value to reflecting on and informing practical performance to promote personal development. The importance and relevance of reflective practice have

been previously well established, particularly in the fields of coaching and coach education (Partington et al., 2015; Cushion, 2018).

Participants' views on receiving LSVF

While the three overarching themes to have emerged from the analysis are consistent with the area of study and the teaching strategy under scrutiny, it is the preceding thematic groupings which offer perhaps greater insight into the student's experiences of LSVF and its usefulness. Academic staff and programmes continue to be judged upon the quality of the student experience, and the delivery of excellent feedback plays a vital role in recognition of what constitutes such an experience (Hennessy & Forrester, 2014). Participants acknowledged the beneficial impact that LSVF had upon their development, identifying the importance of both the process and type of feedback as fundamental to their positive experiences. For example, one student suggested 'this module sets the standard for feedback' due to being 'student centred' and another when comparing to other feedback strategies identified it 'especially stands out... everybody appreciates the input [from] the module leaders'.

An exploration of participants views within the theme of valuing the feedback process saw students acknowledging LSVF as 'engaging feedback' that encouraged their interaction on numerous levels. Students frequently articulated their views on what made live synchronised video-based feedback so effective; reporting 'detailed', 'very specific', 'personal', and 'well explained' as core to the strategy employed. These student comments were epitomised by a student who suggested it was like 'feedback given personally to you, you can relate to [it] much more'. Such components of feedback are frequently recognised

in the literature as being essential to effective feedback (Carruthers et al., 2015) and what is evident from this study is that the medium of video lends itself extremely favourably to the inclusion of such elements. Many of the study participants specifically identified detail as being an important characteristic of the video feedback, often reporting it as the primary feature resulting in them interpreting the feedback as effective. Further examples of student commentary aligned to the theme of engaging feedback acknowledging 'you can specifically see where you need to improve or where you need to put more information or change it slightly for next time'. Dawson et al. (2018) support this observation with their acknowledgement that the most commonly articulated characteristic of effective feedback is communicating what needs to be improved successfully.

A secondary theme providing insight into participants' views on receiving LSVF was the students' opinions on the purpose, interpretation and understanding of feedback. The data suggested that LSVF was perceived as being highly detailed, facilitating interpretation and effectively stressing the necessary adjustments required to address concerns. In this study participants noted the synchronised audio commentary alongside video enabled easier interpretation of feedback: 'say something is going wrong, [the tutor] was watching my session he'd point it out. That exact bit' with another participant noting 'it's in context as well, like you can understand where they are saying it and why they are saying it, it's not just written and doesn't make sense where it's being said'. This sentiment resonated across the group interviews with others remarking 'in the video it's very specific' and 'when they are saying it to you verbally, you can interpret it better'.

The synchronisation of feedback in relation to performance captured on the video not only assists with interpretation but also provides a degree of clarity consequently avoiding the risk of feedback being ambiguous. These findings echo the wider evidence indicating video feedback affords clearer comprehension of tutor remarks, helping to avoid misinterpretation (Mahoney et al., 2018). Student testimonials reinforce this sentiment identifying 'you can obviously hear [the tutors]... they'll interject with things, coaching points or things you should do differently at that point, which is good' and 'so it's not "when did I do that?" It's in front of you and then [tutors] have given us points to what we can improve... So it's clearer than other feedback'. There is significant value in the ability of comprehensive, clear feedback to effectively establish a perceived discrepancy in performance between student, tutor and results (Lizzio & Wilson, 2008). With initial observations from this study indicating that the characteristics of LSVF enabled such discrepancies to manifest themselves more effectively, consequently enabling students to positively impact their subsequent performances more constructively.

Student engagement with LSVF

When considering how students engaged with LSVF, the formative nature of this assessment and feedback strategy was central to supporting student learning and lends itself effectively to the creation of 'engaging feedback' as an overarching theme. Feedback from formative assessments has the capacity to motivate and engage students effectively (Rust, 2002), with for example students establishing interactivity with their feedback and effecting change as a result. 'I'm tweaking it [future work] while I'm watching' and 'I've sat and looked through mine,

and I've been able to write down the points from it and then to actually look at my coaching and maybe spot things out myself... to improve for my assessments' both provide an indication of students moving away from being simple recipients in the process of information transmission, towards a higher level interface between themselves and their feedback.

Sustained engagement with the process is effectively reinforced through regularity of assessment opportunities provided. Students valued the opportunity to undertake successive formative tasks, reflected in comments such as: 'getting feedback shows if you are changing anything, it's been put into practice, and then you get further feedback soon, so it's sort of on-going' and 'we are getting the feedback and we actually putting it into practice but we are still getting the feedback, so it's continuous'. Iterative or connected tasks as demonstrated in this study align effectively to literature based recommendations whereby students can use feedback from earlier formative tasks to feed into success in later formative or summative assessments (Boud and Molloy, 2013; Dawson et al. 2018). Endorsements such as these effectively align to the supportive research advocating the regularity, impact and significance of formative assessments.

The acknowledgement of technology-enhanced feedback modalities has previously discussed the capacity to facilitate feed forward learning (Carruthers et al., 2015). Such opportunities were debated by participants in this study identifying 'It's formative you can make the improvements for next time, that's what I like about it' and 'leading up to our exams, I'll go back and watch all mine, and I'll be looking at them thinking right, what am I going to do to improve those further for the actual exam'. The evidence of the worth students attribute to feedback in this study reflects the work of Higgins, Hartley and Skelton (2001)

when portraying students as 'conscientious consumers' pursuing feedback to facilitate engagement and achievement. Acknowledgement of interactions of this nature exposes the students as active constructors of knowledge with agency over the development of their understanding. Such examples suggest learners are going beyond basic consumption of the feedback and are attempting to make sense of implicit and explicit source feedback material delivered through the audio-visual medium. Such practices are representative of repositioning feedback as proposed within the literature, demonstrating a much more sophisticated and desirable student interface with feedback materials (Sadler, 2010; Molloy & Boud, 2013; Dawson et al., 2018).

A further theme that transcends the two overarching themes of 'engaging feedback' and 'positive technological impact' was the 'quality of audio and video feedback'. The analysis of student perceptions on this theme confirmed the findings of Henderson and Phillips (2015) who reported a positive response from both tutors and students to this type of feedback. Supportive commentary aligned to these themes included observations that 'being able to see it visually is really good... when you go and sit down to watch your video you can see for yourself'. Additionally, assessors engaged with trialling LSVF reported positively about the format. The structure of the assessment and feedback opportunities were conducive to reducing marking times, making the timetabled academic sessions more efficient due to not having to provide an opportunity for one to one feedback upon completion of the student coaching. Furthermore students readily acknowledged the positive impact the multimodal prompts delivered through video had upon how they received their feedback: 'for the video, you get to obviously look at the way you coach, so for yourself you can assess yourself and

pick out key areas of what you can do to improve, and then with the audio linked in with that video it just highlights things that you can improve again'. This provides a further example of how LSVF goes beyond the rudimentary information transmission model of feedback and facilitates student opportunities to make decisions about the quality of their work. By engaging in evaluative judgements of their performance in this manner, students are able to pursue the development of understanding and skills more meaningfully.

Hounsell et al. (2008) highlighted that the capacity to feed forward was facilitated by prompt and timely feedback. The use of technology in this study enabled the prompt return of feedback following formative assessment, with students commenting that feedback was 'a lot quicker, in other modules if we get an [formative] assignment it takes ages' and 'it's way more quicker... you are being provided with feedback in the ten minutes... all they have to do is change a video file, upload it'. In most cases LSVF was made available via the university virtual learning environment within 24 hours of the formative assessment taking place. This process involved faculty administrators naming and uploading the video files following compression of the original file where necessary. Such methods highlight the sustainable nature of this technology driven feedback process, by providing fast, high quality feedback to students when accommodating a high volume of formative tasks. A recent study by Holmes (2015) identified that the speed of feedback and its immediacy caused less anxiety when waiting for results, a faster turn-around in implementing strategies for improvement, and a greater understanding of where they went wrong while it was fresh in their mind.

Learning and development of coaching practice

The final overarching theme to be generated was focussed upon the capacity for LSVF to support learning and practitioner development through the 'facilitation of reflective practice'. The digital medium allowed for a convenient and efficient way to review and reflect upon coaching performance by providing a digital repository for students to access. Participants highlighted how they used their feedback videos describing the purpose of both initial and subsequent views: 'there is the initial almost like "I'm going to have a look to see how I got on" and then before maybe the next session look at it repeatedly and then being a bit more critical'. Unlike the typical models for feedback in practical coaching and teaching environments (student-tutor face-to-face dialogue) video feedback affords students the ability to pause, rewind, and repeatedly review their feedback. In addition to this, interviews highlighted numerous instances where students reported the advantages of revisiting earlier feedback videos. As a result of their more extensive discipline knowledge and as beneficiaries of multiple coaching episodes and feedback, revisiting earlier work presents students with the potential to make evaluative judgements through a very different lens. As a consequence, students were able to draw potentially educative conclusions as to the quality of their performances they were neither positioned nor equipped to make earlier in the course.

Forming the third overarching theme to emerge from the study, there was clear acknowledgement by the participants that the use of video enabled opportunities to develop and engage in reflective practice. Support already exists for the employment of technology in coach education (Carson, 2008), and these findings reflect the work of Knowles et al. (2014) that suggests not only should

reflective practice be central to educational processes within sport but there is a need for wider use of technology to support this. Participants in this study affirmed opportunities to engage in the process of reflection were embedded within the course with comments such as 'You will always be able to reflect week after week after week... the opportunity to have the feedback of all forms every single week from this module helps you reflect and improve a lot'. Example student testimony such as this alludes to the existence of a feedback loop being present enabling participants to influence future practice. Partington et al.'s (2015) work highlighted the usefulness of digital media to facilitate improved reflection in a sports context, indicating that video feedback seemed to provide structure to the reflective process, helping students develop self-awareness and support modification in learning behaviour. The findings from this study support this sentiment with comments such as: 'you got a lot of good feedback from it [video feedback], coz obviously you could watch what you were doing and then relate it to what they [tutors] were saying about how you can learn'. Another student identified 'I've sat and looked through mine and I've been able to write down the points from it and then to actually look at my coaching and maybe spot things out myself then use it for my feedback to improve for my assessments'. This is closely aligned with Henderson and Phillips (2015) proposal that video feedback presents opportunities to think reflectively following time to absorb, rather than focussing on the in the moment two way dialogue that exists in more traditional verbal feedback situations.

Additionally, the extracts indicate the motivations that exist to make meaningful revisions and if as Boud and Molloy (2013) contend, feedback's principal role is to change what students can do then LSVF would appear to

present the means and tools to enable evaluation driven change to happen. It also supports the notion that feedback has been enacted, subsequently completing the feedback loop and consequently qualifying as 'feedback' under its reconceptualised branding (Dawson et al., 2018). Engagement with feedback to influence future behaviour or performance is an essential skill. As Carson (2008) maintains, reflective skills need to be developed through practice, rather than them being conventional responses to educational opportunities. Video would consequently seem to present a viable alternate medium to increase exposure to the critical incidents faced in practical domains that typically stimulate reflection and revision.

It is well established that the ability to reflect upon and subsequently modify practice is fundamental to successful coaching (Partington et al., 2015). Effective information transmission and the availability of rich feedback through the medium of video potentiated insightful reflection and consideration of the work undertaken in this study. LSVF further supported learning and development of coaching practice through the creation of video repositories allowing retrospective analysis of the athlete's performance as well as documenting coaching practice. Participants acknowledged 'you get carried away with coaching it, and you can't really look at the techniques, so you can look at the technique on a video, then you can pick up on that person, coz you will have the same individuals in your session the week after'. This opportunity to revisit and review athlete skill execution and movement mechanics by video presents the chance to establish weaknesses and competencies in performance otherwise challenging to spot when managing the administration of a 'live' session. LSVF subsequently enables the foundation and refinement of a bank of experiences

facilitating future observations and the provision of timely, insightful coaching points aimed at enhancing movement quality that would otherwise remain difficult to develop if singularly engaged in face to face coaching.

The evidence presented in this study highlights how technology-enabled feedback strategies can create sustainable feedback (Hounsell, 2007). Sustainable feedback stimulates capacity to evaluate own learning, equips students to learn prospectively, and encourages sustained engagement. LSVF provides an effective communication medium encompassing numerous high quality feedback characteristics not usually evident within large scale formative assessment and associated feedback practices. This study, in some instances presents evidence of feedback being classically positioned as a teacher driven, task orientated, single loop process. However, there is also enough evidence to suggest that feedback has been repositioned, particularly over time as the programme continues and student exposure to the process increases. Consequently, we observe a noticeable shift in how students articulate their engagement with feedback. The materials analysed clearly attest to an agentic student approach that sees them become producers of their own understanding, intrinsically motivated to engage in the feedback process, and able to demonstrate their ability to pass judgement on their own performance. This more sophisticated student interface with feedback, combining "telling" students how to improve alongside the development of their active involvement in the feedback process is acknowledged as more desirable and is typically representative of a richer learning experience (Sadler, 2010; Carless et al., 2011; Dawson et al., 2018).

Limitations

Notwithstanding the optimistic tone to emerge from the investigation some pedagogical limitations and challenges of this feedback approach remain. LSVF does not allow time for tutors to reflect on their commentary before they are required to provide it for example. This instantaneous feedback approach while being deemed beneficial may place pressure upon the academic to effectively narrate their observations in a clear, coherent and informative manner. The importance of providing clear indications of successful performance is attributed to positively impacting student learning (Hattie, 2009), and so if ineffectively articulated may reduce student development opportunities. Tutors reported that their exposure to LSVF and the process of providing rich, instant commentary reflecting assessment of performance became progressively more refined and sophisticated over the duration of the course.

The necessity to provide 'in the moment' feedback resulted in instances where isolated tutor commentary in response to observations was perhaps not reflective of later examples of good practice or indeed overall performance in the formative task. In these situations tutors would acknowledge the previous comments in relation to the more desirable performance subsequently observed. The physical presence of a tutor in the feedback process is often acknowledged as being positive, particularly in more dialogically orientated feedback formats. The absence of such tutor presence in LSVF may be interpreted as a limitation, however the perceived 'virtual presence' of the tutor was positively reported in the data. Additionally, the videos offered a rich catalogue of accessible materials for students to call upon in tutorials and face to face dialogue post event.

Conclusion

It is evident from this study that students tended to be confident as to the perceived effectiveness of LSVF on their capacity to demonstrate proficiency in meeting the course learning outcomes. The authors, much like Nicol (2013) readily acknowledge adjustments to feedback that determine improvements in student perceptions do not inevitably translate to enhanced student learning and development. However, this study demonstrates the employment of LSVF enabled the realisation of high quality, frequent, effective, and sustainable feedback. With the video medium providing an effective vehicle through which to improve student engagement, interpretation, and subsequent utilisation of feedback in practical settings. Furthermore, the ability to analyse performance accurately, especially concerning best practice reportedly allowed for a better cognitive understanding of coaching and the capacity to meaningfully engage in associated reflective practice.

The majority of characteristics articulated as positive within this study are common to more traditional methods of high quality feedback. Academics are able to provide rich, timely, sustainable feedback utilising alternative strategies. However, LSVF is able to achieve these same outcomes in a more time efficient manner limiting the wider workload impact often associated with providing high quality formative feedback. Distinctively, by synchronising tutor audio feedback to student actions in the video, any ambiguity as to *what* event feedback is being provided for is removed. The timeliness and clarity of information in this format assists with student comprehension and helps avoid misinterpretation. This is a distinguishing feature of LSVF, as feedback strategies within coaching environments are typically a combination of either face to face dialogue, post

event verbal debriefs or written feedback. Consequently, video feedback encompassing some of the characteristics evidenced within this study presents an attractive proposition regarding delivering an enhanced, personalised feedback strategy that is conducive to facilitating student development.

Key Messages

There may be some technological apprehension for tutors with regard to confidence and competence of being able to provide rich feedback in this format. Once overcome the benefits of improved student engagement with feedback, economy of process, and scalability of approach, all provide persuasive resonance for integrating LSVF into wider assessment practices. Other practical environments or workshops where assessment is required (e.g. construction, engineering, laboratories and clinical practice), performance disciplines (e.g. dance, music and drama), or formal presentations and round table debate would appear to offer alternate assessment domains where LSVF could prove to be a useful tool. It may, therefore, be reasonable to conclude that based on the outlined positive aspects of LSVF, it is conceptually and practically generalisable to other discipline and topic areas when it comes to feedback on formative or summative tasks and assessment.

As technology progresses, or when existing technology can be redeployed, there may be opportunities for enhancements in the LSVF system and how this may facilitate its use in wider pedagogical domains. For example, wireless audio systems with a larger receptive range to enable a variety of physical separation between student and tutor. Or microphones with superior audio sensitivity which would permit use in a wider range of noisier or quieter

teaching environments are some of the examples of the reasonable changes in technology we could expect in the near future.

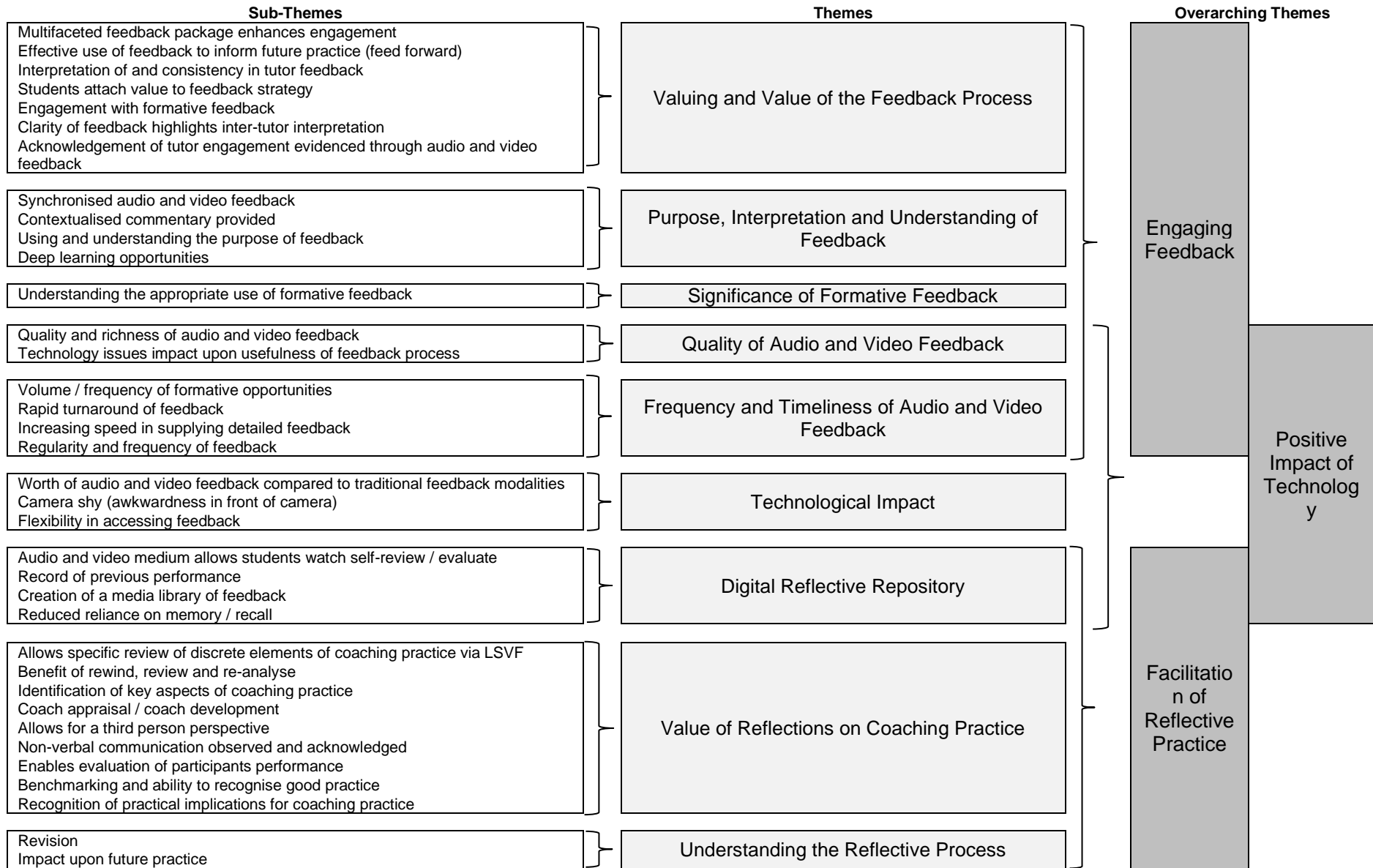


Figure 1. Visual thematic map of analysis.

Disclosure statement

No potential conflict of interest was reported by the authors.

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