

Using short looping video to develop demonstrations of skill, reflective skills and advanced pedagogical practice in a Health and Physical Education teacher education program.

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Abstract

The challenges associated with instruction of health and physical education in school learning environments has been described as a roadblock to student learning. Anecdotal observations of pre-service teacher demonstrations of movement skill highlighted the poor connectivity between what is performed (by pre-service teachers') and what can be perceived. This article reports on an action research project that sought to utilise a multiple reflection in action cycle to support pre-service teachers to develop better performances of skill and an advanced pedagogical approach. An action research approach was utilised in order to implement the use of video review. Action research was utilised purposely in order to effect change and to encourage a democratic approach to research. While this approach does not imply the development of universal knowledge, the interpretation of findings confirms that pre-service teacher development of a short looping videos enhanced the quality of reflection, improved the accuracy of instruction (in terms of movement) and resulted in a pedagogy suitable for instruction in challenging environments.

Introduction

Schools are regarded as a site for learning where instruction often takes the form of the teacher speaking and children listening. The above mentioned perception is not altogether uncontested nor seen as unproblematic by the layperson. In sites for learning, noise is the predominant barrier that may impede teachers' instruction and children's learning. It is no surprise that school teachers have been found to experience psychological distress due to noisy learning sites at almost twice the rate of members of the general public (Finlay-Jones, 1986). Further, a large number of teachers have been found to suffer from frequent throat pain and vocal fatigue as they attempt to negotiate noisy learning sites (Bermúdez de Alvear, Barón, & Martínez-Arquero, 2011; Ryan, 2009). In relation to the physical education (PE) context specifically, research conducted by Ryan and Mendel (2010) found the PE learning site to have higher than recommended background noise levels and subsequently labelled them as 'hostile learning environments' and road blocks in terms of children's learning. As such Ryan and Mendel's (2010) findings prompted calls for architectural considerations and augmenting devices such as voice amplifiers to aid PE teacher instruction. This focus on sound and a teacher's ability to overpower it with amplification and organisation (Ryan, 2009, 2010) lacks critical consideration of other pedagogical strategies available to the PE teachers. Despite the noise factors found to occur in PE learning contexts, Ryan (2009) has cautioned educators seeking strategies in such environment to not to overlook the fundamental process of speaking and listening. More specifically Graham (2008) suggested that *demonstration* is a typical element of instruction for physical educators, and that the dual use of words and actions is a key pedagogical consideration that will assist to focus learners' attention.

In order to overcome the challenges associated with the PE learning site, Graham (2008) suggested that *teacher demonstration* must be a key consideration to successful PE teaching. James and Pollard (2014) explained that such a pedagogical approach needs to be addressed prior to teachers being in the field, and that PE pre-service teachers needed to be provided with the knowledge and strategies so they are adequately prepared for such challenges. If such a consideration is implemented into pre-service teacher education, James and Pollard (2014) explain that PE pre-service teachers with have the skills needed to negotiate challenging learning sites. This will invariably improve learner outcomes in the PE context, underpinning the very essence of education. The research team¹ sought to investigate the key question; *does instant video feedback and reflection on performances of movement skills improve the quality of pre-service teacher demonstrations thus resulting in an improved pedagogical approach.*

¹ 'Research team' is utilised by the authors when referring to the collective group that undertook the research project, this includes; the authors, unit tutor and pre-service teacher participants.

In order to achieve the aims of this project, the research team felt that the video capacity of tablet devices to record and play back visual demonstrations of skill would provide a flexible and valuable platform for pre-service teachers to reflect. Video feedback has previously been utilised with success in medical education to develop surgical skills (Backstein, Agnidis, Regehr, & Reznick, 2004) as well as dance education (Dania, Hatziharistos, Koutsouba, & Tyrovola, 2011) and pre-service teacher education (Colasante, 2011; Maclean & White, 2007; Prusak, Dye, Graham, & Graser, 2010). Both Colasante (2011) and Prusak et al. (2010) utilised pre-service teacher reflection on recorded performances however practical considerations of technology in each investigation meant that video review occurred only after a protracted period. The research team felt that this protracted period could severely limit a pre-service teacher's ability to reflect on and modify the original performance. It was therefore proposed by the research team that the use of more dynamic video feedback (frame by frame control, rewind and slow motion video tool) and a multiple reflection-in-action cycle would better develop pre-service teacher demonstrations of performance such that they would make advanced pedagogical choices. The research team thus felt that dynamic and instantaneous² reflection on performances would first allow pre-service teachers to;

- critically reflect on skill demonstrations,
- reconsider and appropriately select pedagogical approaches for PE instruction, and
- potentially improve pre-service teacher ability to perform movement skills.

Impetus

The impetus for the research project came from anecdotal observations of pre-service teacher demonstrations of movement skill within practical tutorial activities at the research team's tertiary institution. What became apparent for the authors from these observations of PE pre-service teachers was the mismatch between the verbal instruction and the quality of the actual PE demonstration. In many cases this mismatch was so profound that if one had not heard the verbal instruction, little or no meaning could be made from the physical demonstration of the skill. Alongside personal and professional goals to improve the quality of teaching practice, the researchers aimed to contribute to faculty and institute goals through integration of technologies, pedagogies, and sports skills and the implementation of effective teaching within a variety of contexts. Further, this research project contributed to general capability priorities within the Australian curriculum Health and Physical Education (HPE) with particular reference to the ability of students to analyse, measure and enhance movement performances through the integration of technologies (Australian Curriculum, Assessment and Reporting Authority [ACARA], 2016).

² Review and reflection occurring immediately after the conclusion of the performance artefact.

Methodology.

For this investigation the research team utilised an action research approach. Kember (2000) suggested that an academic's research is "influenced, if not determined by" (p. 7) their epistemological beliefs. The action research approach dovetails with authors 1's alignment with critical approaches that utilise the actions of observe, reflect and the will to try to bring about change (Kember, 2000). There were four key considerations for employing the action research methodology. First, the authors share a commitment to democratic social change, in particular we subscribe to Lewin's (1951) notion that systems can be better understood if the enquiry process involves the members of the system. Second, as educators the authors were motivated by the desire to improve their teaching practice through monitoring and reflection. The formalisation of this process lead to enquiry into personal teaching practice and the incorporation of participatory research methods. The fact that the 'others' involved in this project (pre-service teachers and class tutor) have a voice and we the researchers are open to the views of others aligns with Kemmis' (2009) notion of practical action research. The authors felt that an action research approach wherein pre-service teacher participants could contribute to the development of the design and implementation of the project was the best fit. In this way the team sought to solve a real world problem "while dealing with localized contingencies" (Harrison, 2013, p. 1). Third, the authors believe that even within complexity and uncertainty we can resolve dynamic problems. This aligns with Brydon-Miller, Greenwood and Maguire's (2003) suggestion that in order to effect social change we have to deal with some messiness. Fourth, action research was employed because this approach is purposeful with regard to the dissemination of findings. In the first instance, we do not privilege academic community over participants and the development of theory in this investigation is both experienced by pre-service teachers and can subsequently be taken up by the same to further develop practical pedagogies in their future study. Second, through action research, findings are able to be disseminated through practical workshops aimed at pre-service teacher educators and third, via this formal development of scholarly writing for academic consumption. The research team also value the way that the action research approach encourages reasoning or theoretical explanations of a local reality. Our bracketed theoretical assumptions prior to data collection aligns with Sparkes and Smith's (2014) development of inductive strategies in response to a foreshadowed problem. This bottom up approach seeks to explain and describe using theory rather than create universal knowledge (Coghlan, 2002; Sparkes & Smith, 2011). While this approach to generating practical knowledge can align with case research (Blichfeldt & Andersen, 2006), we subscribe to Coghlan's (2002) call for action researchers to more clearly articulate for the reader how this story should interest others.

Action research has been variously described, however it is easiest understood with reference to how it relates to knowledge. Action research is described by Huang (2010, p. 93) "as an orientation

to knowledge creation that arises in a context of practice". The context of practice in this instance is a learning site; tertiary tutorials. Mills (2000) suggested that by using action research one can systematically enquire and "gather information about –and subsequently improve" (p. 20) how learning sites operate. The action research process is characterised by its collaborative nature and that the focus is on personal practice rather than the practice of others (Kemmis, 2009; Mills, 2000). Action researchers want to effect change rather than just understand a social organisation (Dick, 2015; Huang, 2010). While action research is taking an increasing number of forms, the fundamental element of enquiry by teachers in teacher identified issues remains at the centre of this methodology (Noffke & Stevenson, 1995).

Method.

In this next section, an elaboration of the method for this investigation will be outlined. The process undertaken in this project builds on Kemmis' (1988) well known action research spiral³ which includes exploration, planning, action, monitoring, reflecting, rethinking and evaluation. In this instance the research team monitor, reflect, rethink, before cycling around to complete a second action step. This approach is based on Lewin's (1947) cyclical spiralling process guiding both the method of enquiry and presentation of this scholarly submission. In this way, the report that follows utilises a narrative style whereby each of the titled stages, as described by Kemmis (1998), are first elaborated and then populated with the procedure and findings of this investigation.

Exploration.

Exploration is the process of informal and formal gathering of information to support the action research process. Exploration of the subject matter followed the anecdotal observations outlined in detail in the impetus for this investigation. After watching numerous cohorts struggle to make the connection between verbal instructions and physical movement patterns, the research team reviewed scholarly articles that referenced the use of video feedback in the development of pedagogy. There was little evidence of the use of tablet technology with the two most recent investigations utilising hand held video recording devices and a reflection cycle of longer than a week (Colasante, 2011; Prusak et al., 2010).

The researchers determined that more immediate reflection and the opportunity to reconsider elements of the performance of skills would enhance pre-service teacher capacity to critically reflect and develop advanced pedagogy. This lead to the development of an action plan in which a shortened and multi-reflection in action cycle utilising instant video playback was implemented.

³ "A spiral of steps, each of which is composed of a circle of planning, action, and fact-finding about the result of the action" (Lewin, 1947, p. 206).

Planning.

This '*planning*' stage outlines the evolution of the project from resource organisation up to the practical implementation of the action research process within tertiary tutorial classes. In line with Stirling and Belk's (2002) suggestion that the most effective teaching pattern involves clear and concise communication that avoids too much disruption to the flow of instruction, the research team developed an action plan that sought to achieve this. In early December, 2015, the research team obtained a grant from the Tasmanian Institute for Learning and Teaching (TILT) to run a teaching development project with pre-service teachers enrolled in the Bachelor Education (Primary and Early Childhood) degree at University of Tasmania (UTAS). The research team defined the aim of the project as 'investigating how instantaneous video feedback through the use of tablet technology implemented into practical teachings might assist pre-service teachers to reflect on and adjust their pedagogy to suit their environment'. It was initially proposed as a multiple case study analysis with participants from both UTAS and another Australian metropolitan university that were enrolled in health and physical education (HPE) pedagogy units. The project contracted slightly following the purchase of iPad tablets due to logistical constraints of sharing resources with another university. It was decided that the first iteration of the project should operate as a pilot study that might inform a broader investigation at a later date.

Following ethical approval by UTAS Human Research Ethics Committee in March 2015, the research team began planning for the project to commence midway through semester 1, 2015. Bachelor of education students (referred to as pre-service teachers) undertaking their second year of study were purposely chosen as the participants as this group would be introduced for the first time to instruction of movement patterns. Three tutorial groups (n=70) of pre-service teachers enrolled in the 'Introduction to Health and Physical Education' unit were introduced to practical pedagogies (as a part of their normal learning sequence) around the inclusion of movement into both the classroom space and the outdoors. The research team decided that the best juncture in which to start the investigation was during a tutorial dedicated to the development of fundamental motor skills (FMS). The acquisition of fundamental motor skills is regarded as the primary determinant of children's ability to master key sports specific skills such as throwing or hitting balls, running and jumping (Siedentop & Van der Mars, 2004). Research also suggests that there is a positive correlation between the FMS and adolescent participation in organised physical activity (Lubans, Morgan, Cliff, Barnett, & Okely, 2010; Okely, Booth, & Patterson, 2001). The Victorian Department of Education state that "during the early primary school years (P-3) students must be given the opportunity to learn the essential motor skills upon which later learning is dependent" (Victoria, 2009, p. 4). This is based on the suggestion that children develop motor skills sequentially, and are building on previously learned movements in preparation for the assimilation of advanced skills (Clark, 2005; Victoria, 2009).

First Action Step.

This stage describes the process undertaken with the first tutorial group in which investigators describe and facilitate the activity and pre-service teachers experienced the instantaneous reflection in action of their personal performance artefacts.

In the tutorial on the week prior to the investigation, pre-service teachers were encouraged to review the lecture material and readings and research a pedagogical approach for the instruction of a fundamental motor skill. The pre-service teachers were told that as a part of the general teaching and learning sequence they would be instructing a small group of their peers to become proficient at their chosen skill. In order to augment their development of such performances a peer would record their instruction such that the instructor could play back and review the video and in this way inform future performances. During the introductory discussion in each tutorial group, pre-service teachers were informed of the research project and invited to participate in the formal gathering of data. This created a mini storm of consternation by pre-service teachers not wanting to be recorded. Consenting individuals recorded their preference on informed ethical consent statements distributed by the research team and the tutorial began. After the initial resistance of some to be involved in the recording of instruction all except one pre-service teacher consented to the process after watching others in the group have a go.

In preparation for the project, the research team downloaded the 'Netball Coach Plus' application onto four iPad tablets. This application utilised the iPad video camera function and was able to record and review video at various frame speeds such that video grabs could be reviewed, paused and annotated with text or voice. At the commencement of the first practical tutorial session the group were introduced to the application, however the point and shoot intuitiveness of the application interface reduced the need for extensive tutelage. Pre-service teachers broke into small groups and began recording instruction.

The pre-service teachers initial focus was on the mild embarrassment caused by watching and reflecting on a recording of themselves, *"A bit embarrassing but I could see where I was going wrong and I am sure I could do a better job of it next time"*.

Monitoring.

In order to determine the effect of the activity planned during the first action step, data were collected in a number of ways. First, the tutor and chief investigator who were present and facilitated the activity recorded handwritten notes which detailed the general pattern of activity, peculiarities, the essence of conversations between pre-service teachers and conversations between the instructors and pre-service teachers. The second data collection tool was a questionnaire that was given to pre-service teachers at the conclusion of the tutorial and contained open ended questions relating to the

investigation to record pre-service teacher understanding of the usefulness of the activity in developing; reflective practice, demonstrations of skill and pedagogical choices. Finally, the recorded performance artefacts developed by pre-service teachers were retained in the memory of the iPad devices.

Walking among the groups, investigators observed and recorded a wide range of approaches to instruction by pre-service teachers. Investigators supported the record-reflect process and noted the specifics of interactions in a note book. Group members took a turn instructing/ leading their group through the movements and used a variety of pedagogical approaches to achieve success. Three main approaches became apparent here with the majority of pre-service teacher instructors utilising a talk while demonstrating approach, and the remainder either using a skilled demonstrator while instructing or using verbal instruction only and physically manipulating their students through the movement.

Recorded artefacts developed by pre-service teachers ranged in length from one minute to over four minutes. The result of this was a significant amount of down time for non-instructing members in each group as the instructor reviewed their performance artefact. Non-performing members seemed not to be inclined to be a part of a collaborative review process and sat back to wait for their turn. In addition, subsequent performances were characterised by more extensive dialogue which provided layers of information and very little change in the actual movement demonstration itself. Due to the length of some recordings not everyone in each group had an opportunity to demonstrate their movement skill.

The tutor in charge of the pre-service teacher group noted, *“They just seem to be over compensating for their lack of, or poor body movement by describing in greater detail what they want. That’s going to work for some students but not everyone”*.

The most telling interaction between investigator and pre-service teacher proceeded thus; After watching the video playback of one particular demonstration of skill, the investigator enquired, *“Lets watch this together and you can describe how the performance unfolded.”* As the video plays, and vision of the pre-service teacher demonstrating is illustrated on the tablet, the investigator asks; *“What are you demonstrating here?”* The reply; *“OK, so this is where I am showing them what not to do...”* *“What about this next performance?”* asks the investigator? *“Again I am showing what not to do.”* *“And this performance?”* prompts the investigator; *“That is also what not to do... [A brief pause] But next is where I show them how to do it”*. What followed was a short discussion about how this might be interpreted by a watching group of children and the potential disorientation that might occur due to the repeated performances, only one of which is correct.

Reflecting – Rethinking.

This important stage of the action research process is achieved by reflection on the first action cycle. To do this the research team review the initial plan and consider the possibility that there were elements of the process that could be altered to enhance success of the activity. This interpretive reflective step considered as described by Creswell (2002), whether the action cycle made a difference. The importance of this responsive reflect and rethink step allows both the researchers and participants to adapt and enhance the research model (Wolcott, 2003).

At the conclusion of the first practical tutorial the research team met to discuss the session. There was a general feeling of dissatisfaction with the way that the video recordings supported verbal instruction and did not encourage an emphasis on the physical performance of the instructor, i.e. what was visible to the learner. The research team brainstormed ideas that might encourage an alternate focus. From this process it became evident that the length of the instructional performance had to be somehow limited. In addition the research team felt that the narration, over the performance of skill, encouraged an over reliance on words to communicate. The light bulb moment for the research team came in the form of a humorous ‘Vine’ that was shared on the chief investigators social media stream. The ‘Vine’ entitled; ‘How to kick a ball’ showed a young man facing the camera and stating, “*This is how to kick a ball*”. The next frame is the young man kicking a large (60cm diameter) fit ball squarely into the wall, whereupon it promptly bounced back, directly into the kicker and camera with obvious consequences. At this point the video loops back to the start and continuously replays the sequence.

In order to refocus pre-service teacher attention on the visible elements of the performance artefact the research team decided that three changes should be made to the action plan for the remaining two tutorial groups. First, it was decided that pre-service teachers would produce a six second looping video that was subsequently uploaded to the video host ‘Vine’. It was hoped that in this way the small groups would be encouraged to collaborate in the production of numerous small sections of video that when played together would provide the visual cues required to better communicate the movement pattern. Second, the video would be recorded without accompanying verbal instruction. This decision was a practical consideration of the fact that the dance hall utilised, and the large number of groups working in the space mimicked the same challenging acoustic environment that teachers experience in schools. Third, the ‘Vine’ would then be utilised to as an instructional tool for another group of pre-service teachers. This final step was implemented in order to gain an element of neutral feedback on the performance artefact. Mills (2000) interprets this realignment of the area of focus as fundamental to action research, Mills further suggests that the “intimate, open-ended and often serendipitous” (2000, p. 71) nature of change in action research can help to clarify the focus area.

Second Action Step.

At the commencement of second tutorial session pre-service teachers were introduced to the Vine application and spent a few minutes becoming familiar with the record, pause and edit functions on the application interface. Without extensive instruction pre-service teachers were encouraged to produce a soundless Vine that communicated their chosen movement pattern to a child. Notes recorded, by the chief investigator, during this tutorial indicate that early attempts were characterised by pre-service teachers attempting the entire movement pattern and becoming frustrated by the six second limit. It was also noted that soon after this initial frustration, groups instinctively began to realise that they needed to break their movement pattern into a small number of main or key steps. Through rich and animated discussion, pre-service teacher groups analysed their particular movement and decided which elements needed to be included and focussed on;

Group E, working on their demonstration for catching a ball.

Pre-service teacher 1: *“So if we focus on the hands up/ thumbs touching/ palms out first, then the second clip of the ball landing in the hands that will show that this is the best hand position.”*

Pre-service teacher 2: *“Yes, but before all of that we need to show body position. You know; feet slightly apart, knees bent, hands up and eyes on the ball. We could do that thing, you know where you point at your eyes and then point at something to mean; look at that” (pre-service teacher 2 gestures the ‘I’m watching you’ sign with her index and middle finger).*

Pre-service teacher 3: *“We probably should show that part ‘side on’, otherwise it will be hard to see the proper position of the body.”*

From this point they discussed how many short video grabs (passages of video) would best communicate the key steps. With reference to the finalised artefacts, this was done quite simply for the majority of groups by dividing the six second limit into equal portions that demonstrated a specific of key element in the sequence of movement. Some groups also finalised their recording with a fluid and complete movement from start to finish that showed all elements combined at real speed. So a typical final production would loop (continuously replay) showing three key teaching points in sequence and possibly the full movement pattern in one short passage at the end of the video.

Monitoring, Reflecting and Interpreting.

In this final step we present and interpret data gathered during and after the second action cycle. The search for meaning should not be confused with an authoritarian interpretation, rather as Mills (2000) suggested; there comes a point at which must summarise what you have learned, share the findings and determine what happens next. Interpretation of the data values Wolcott’s (1994) view that despite

their “undistinguished origins, our works and the implications to be drawn from them are socially significant” (p. 258).

The presentation and analysis of data follows the storied approach (Smith, in press; Smith & Sparkes, 2009) where inductively developed themes are presented with excerpts and vignettes from the data. In this instance interpretation of the data first follows what Mills (2000) described as an approach that is “low on the data interpretation risk scale” (p. 113). This approach described by Stringer (1996) as extending the analysis, involves raising questions about the study, and reporting implications that could be drawn. In this way we are pointing rather than leading the way. In order to extend our understanding of the data we ask a series of key questions based on and incorporating the research question. In this way the research team further reveal the problem under investigation (Stringer, 1996). The second stage of interpretation utilises the more powerful interpretive lens that is based on the researchers’ experiences conducting the study (Mills, 2000). In this way the memories and emotions of the researcher are brought to the fore and are used to make sense of the findings. Indeed as suggested by Mills (2000) the investigator is embedded within the process and is best placed to “make sense of discrepant events” (p. 114) played out in the investigation.

The development of themes was an inductive process and began in the exploration and planning stages of this investigation. In order to find meaning in the data, recurring themes were identified from pre-service teacher feedback (questionnaires), drawn from investigator notes and observations and from the Vine’s (instructional artefact). Themes were developed following Spradley’s (1979) approach where the data was reviewed for evidence of; contradictions, satisfaction/dissatisfaction, successes and failures, outlying considerations. The themes that were derived and become the organising framework for the following reflection and interpretation were;

- Engagement
- Clarity and accuracy
- Skill and pedagogical development

Engagement.

In order to consider the effectiveness of this approach some measure of the pre-service teacher experience needed to be determined. One characteristic that I strive for in my personal approach to instruction is an enthusiastic and energetic encouragement of pre-service teachers undertaking practical activities. During the second action cycle the chief investigator and tutor were essentially sidelined and while we introduced the activity with vigour, pre-service teachers took over the process of design, evaluation and redesign of performances for production into Vine artefacts. Early resistance by pre-service teachers was limited to an initial sense of discomfort in seeing themselves perform:

“It was a little weird watching myself but I can now see how my actions might be muddled by students.”

This small element of resistance was far outweighed by pre-service teacher comfort with contemporary iPad technology and the social media element of the Vine application.

“Teachers are working in a technological world and need to be up with this sort of technology.”

All of the groups that participated in the second action cycle uploaded their video (to Vine) and tagged (via Twitter and Facebook) themselves and their friends in order to further share their submission on their preferred social media.

In order to extend the analysis we ask ourselves; if this approach is transferable, both to other teaching contexts and with differing pre-service teacher groups? This pre-service teacher group demonstrated considerable enthusiasm however additional rigour and a better determinant as to the wide ranging success of this project must include a more diverse pre-service teacher group. To this end, the implementation this approach has become a feature of introductory practical, activity and movement based pedagogy units that are led by Author 1.

The collective feeling of the research team is that ‘we got this part right’. Field notes collected indicated the high degree of engagement and group involvement with the process. It was noted a number of times that some pre-service teachers became so engaged in the design of the performance artefact that they seemed not to realise the importance of what they were doing, i.e. the development of a high quality performance and continued development of their pedagogical practice. Apart from a few humorous moments, as evidenced in Vine artefacts, the pre-service teacher groups undertook the second action cycle with a combination of thoughtful consideration and vigour.

Clarity and Accuracy.

Pre-service teacher reaction to the second action cycle was enthusiastic as noted by the investigators in field notes. In particular it was noted that pre-service teacher conversations focussed primarily on how a movement pattern was or would be perceived, i.e. the clarity and/or accuracy of the performance. This element in particular drew opinions from all members and rich debates about how a child audience might interpret the performance drew the groups together around the video screen rather than the more individual record and reflect approach seen in action cycle one. This theme featured prominently in pre-service teacher responses in the post activity questionnaire;

“I feel like this approach helped me to be more thorough and precise with my instruction.”

“This approach encouraged me to focus on emphasising or over emphasising parts of my demonstration so that students can see that this part is important.”

“Yes, this activity helped me to place a higher emphasis on the combination of visual and verbal cues.”

“It allowed me to see the lack of depth portrayed initially, this lead to more detail and clarity in the final production.”

“It allows you to see how miss-communication can occur.”

These responses were characteristic though pre-service teacher responses varied in length and detail. If we ask the research question; ‘does instant video feedback and reflection on performances of movement skills improve the quality of pre-service teacher demonstrations?’ then the answer for this group is in the affirmative. Further investigation of the data set and retesting of this approach might provide a more robust conclusion. With regard to the researchers’ lens, this approach provided many points in which the investigator noted that pre-service teachers focus was directed to clarity, quality and accuracy due to the short duration of recorded artefact. The fact that the research team felt that pre-service teachers took control of their learning by actively engaging in critical discussions and efficiently redesigned elements of their instruction to enhance understand-ability leads us to conclude that the shortened format offered by the Vine had a positive effect.

Skill and Pedagogical Development.

Pre-service teacher responses collected via questionnaire provided positive support for this approach. A common thread from respondents was that the recorded footage often differed as to what pre-service teachers perceived they had done. As one respondent noted:

“It is easy to forget what has happened or what you did or said. Having footage of it allows for it to be watched repeatedly and for reflection to be made based on actual evidence.”

Another pre-service teacher stated:

“As a visual learner it gave me the opportunity to actually see the activity again, rather than relying on memory to make the changes if required.”

The key question for this section is; does this approach help pre-service teachers develop skill and advance their pedagogy? The conclusion that the research team draw from field notes and review of recorded Vine artefacts produced by the group of pre-service teachers is in the affirmative. Pre-service teachers developed outstanding artefacts (Vines) that communicated clearly through the use of body patterns and pedagogical techniques their chosen skill. While pedagogical approaches in the second action stem mirrored those exhibited in the first action step (teacher talks and demonstrates, using a skilled actor with teacher narrations and using an unskilled actor that is physically manipulated through the movement) the primary advance in pedagogy was the recognition of the key elements and the clarity of the key elements of the physical movement pattern.

One pre-service teacher was critical in their response, stating that the approach;

“...had no impact on my development of advanced pedagogy.”

Most responses fell on the affirmative side of the question noting;

“...the importance of the visual aspect, there is definitely a need to over emphasise”

“It allowed me to think more deeply about what my body was doing during instruction.”

Pre-service teachers also noted that by compartmentalising their instruction or;

“...breaking it down for my students, and over exaggerating the important stuff.”

They could develop a more advanced pedagogical approach.

Importantly pre-service teachers noted their satisfaction with the use of technology, however they also felt that this approach might not be limited to improving teacher demonstrations;

“This approach has made me consider using technology more effectively in learning environments to benefit students learning. I can see how this use of iPads might help students rather than distract them.”

This suggestion that not only could this approach impact on teacher performances of skill, but if the same approach were utilised with children that in might aid learning.

From the research team’s perspective, the way that pre-service teachers treated the second action step almost as a game through which they created a fun/engaging, clear and fundamentally sound productions made us realise the potential of this approach for the development of personal movement skills and pedagogy.

Concluding thoughts.

The dynamic nature of the action research process is evidenced in this investigation with reference to modifications made from the first action step to the second action step. A minor modification in the work plan resulted in a profoundly different experience for pre-service teachers undertaking the second tutorial class. The modifications made also resulted in an action step that better linked to the ‘so what’ of this investigation. This investigation does not provide a definitive model for the development of teacher demonstrations of skill, however through the authors’ personal experiences undertaking the research and the use of questions to extend the analysis a general statement can be made. To this end, by utilising a short looping online video host (Vine), pre-service teacher participants in this investigation developed demonstrations of movement skill that layered narration and movement patterns, focused viewer attention and made advanced pedagogical choices.

In this way pre-service teachers advanced the quality of their instruction, and mediated the effect that challenging environmental factors have on instruction.

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