The use of video as self-evaluation in dance classes

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Abstract

Feedback to enhancing competence in dance performance is essential for the improvement of dance technique, acquisition of motor patterns, and the development of quality of movement. In an educational context, this feedback is provided from an external reference, usually by the dance teacher, but technological tools such as videos also complement these educational aims. We present our practice in students' self-evaluation using video performance records and reflections in the undergraduate dance course at Faculdade de Motricidade Humana – UL by defining the guiding principles that we pursue: the use of a global perspective on the student himself, the use of critical components at motor topology's acquisition (guiding attention to relevant aspects of the task), and the use of past performance reflections (analysis, comparison, replay, abstracted replay, and spatial reification) (Collins & Brown, 1988). Also, we attempt to highlight the assumption that video assessment and teacher feedback aids in students' independence, that the video feedback had a significant impact on students' self-perception and encourages the development of objectivity, and that video feedback contributes the engagement of the internal and external performance perceptions, guiding dance students to a closer connection between the kinesthetic sensation of the body in motion and the visual perception of it.

Keywords: dance, dance education, self-assessment, video feedback, reflective practice

Introduction

Improvement in dance technique, acquisition of motor patterns, and the development of quality movement increases from the information provided from an external source to the dance performer. In educational contexts, feedback as a factor that influences instruction is provided from both internal and external references (Krasnow & Wilmerding, 2015). Augmented or extrinsic feedback is usually provided by the dance teacher, but technological tools such as video, kinematics (motion-capture devices), and biofeedback (like electromyography) complement these educational aims. Risner and Anderson (2008) noted that like other artistic disciplines, dance now intertwines technological elements in teaching, performance, and choreography. By virtue of these technological advances, it has become increasingly important that undergraduate dance students possess and maintain the technological skills and advances currently utilized for creating, producing, and documenting creative and scholarly endeavors (p. 113).

According to Krasnow and Wilmerding (2015), the use of video and particularly the observation of prerecorded videos constitutes a form of nonverbal augmented feedback and can enhance dance performances, but its effectiveness depends on the level of the learner (p. 195). Thus, the role of the dance teacher is crucial in prescribing motivational tasks and assignments encouraging learners to self-discover how to improve their dance skills.

We will focus on the development and implementation of self-evaluation practices using video dance performance records. This paper deals with the use of video to analyze self-performance dance. Thus, we will be exploring self-observation as a method of feedback, which will highlight the importance of identifying and selecting constructs and the appropriated methods to developing effective qualitative movement enhancements.

Dance observation through video as a learning practice

Recent studies have shown that students and professional dancers spend considerable time informally observing themselves and each other (Doughty, Francksen, Huxley, & Leach, 2008; Leijen, Lam, Wildschut, Simons, & Admiraal, 2009), pointing out the need to dance educators to invest in dance observation as a learning practice.

The process of observing dance performance images has been extensively studied (Chatfield, 2009; Cross, Kraemer, Hamilton, Kelley, & Grafton, 2009; Dearborn & Ross, 2006;

Gray, Neisser, Shapiro, & Kouns, 1991; Henley, 2014; Krasnow & Chatfield, 2009; Leijen et al., 2009; 2015; Stevens, Malloch, McKechnie, & Steven, 2003; Smith-Autard, 2003; Torrents, Castañer, & Anguera, 2011; Wyon et al. 2011). Results from Maslovat and Franks (2015) showed that watching a skill can cause the body to experience similar neural activities in its motor system, as if it's performing the skill, due to the discovery of a mirrored neuron system. Likewise, self-observation has been considered to be superior when viewing another individual due to the great similarity in neural activation between observation and execution (Maslovat & Franks, 2015, p. 15)

According to O'Loughlin, Chróinín, and O'Grady (2013), digital video as an educational resource constitutes a means of feedback and self-assessment. They mention Schwartz and Hartman's (2007) model for learning with digital video (p. 7) as a suitable resource to use in developing assessments. The defined space of learning for the use of video contains four outcomes: saying, seeing, doing, and engaging. The "doing" outcome arises when the video presents human behaviors. The seeing makes sense when the video shows things that are new or presented in a different way. The digital video can glean audio knowledge from "saying." Lastly, the engagement in learning with video rises up when it shows relevant knowledge.

In order to evaluate their own skills captured in the video (self-assessment), dance students need not merely view video records, but must also be involved in the development of conceptions of quality approaching those of their teachers (extrinsic feedback from the teacher) and their own conceptions and valued judgements. The awareness of dance practice through video seems to guide students to a closer connection between the kinesthetic sensation of the body in motion and the visual perception of it (Scott, 1998).

Additionality, it seems important that teachers provide students with the criteria for self-assessment, as Liu and Carless (2006) suggest. Doughty and Stevens (2002) say that using video recordings of their own rehearsals and performances helps students to identify, to develop, and to articulate their understanding of the process and their own technical achievement (p. 3). A selection of information by the teacher may be presented (with cues) to the learner to avoid overloading. Precision and timing of feedback is essential, so the use of video editing before showing or using slow motion to reduce the attention demands of the viewer are some alternatives advanced by Maslovat and Franks (2015).

Other authors, such as Wilson and Cole (1996), propose that we should have students look back over their efforts to complete a task and analyze their own performance. They say that analyzing past performance efforts can influence strategic goal-setting and intentional learning, suggesting the adoption of the Collins-Brown model of cognitive apprenticeship, grounded in four types of reflection (Collins & Brown, 1988): *imitation* — when a teacher demonstrates a proper skill, comparing it; *replay* — when the teacher plays the video back, critiquing and comparing it; *abstracted replay* — tracing an expert's movements of key body parts, and comparing; and, lastly, *spatial reification* — tracing body parts and plotting their movement through space.

In Leijen et al. (2009), the authors suggest "video-based facilitation as valuable for supporting dance students' reflection activities since this helps teachers guide their students and opens up new possibilities for students to take more responsibility and ownership in their learning process" (p. 1194). Reflection includes two key elements, defined by Jones and Ryan (2015), as making sense of experience in relation to self, others, and contextual conditions, and reimagining and/or planning future experience for personal and social benefit (p. 52). The same authors highlight the usefulness of a framework to teach and apply reflection in dance practice through the 4Rs model, which includes four levels of critical or transformative reflection, including: reporting and responding, relating, reasoning, and reconstructing. Current literature (Cheng & Chau, 2009; Kimbrough, 2008, Leijen, Valtna, Djuddah, & Pedaste, 2012; Råman, 2009; Sööt & Viskus, 2014, Tembrioti & Tsangaridou, 2013) point to reflective tools as one of the most remarkable innovations in professional preparatory and higher education programs.

For dance students and dance teachers, video technology can be a powerful learning and evaluation tool (Doughty et al., 2008), prompting a high-quality learning environment, especially in self- and peer-learning situations. Therefore, observation figures as a teaching-learning methodology applied to dance classes, and it's important to engage with students as reflective practitioners as Jones and Ryan (2015) propose, developing students' reflection processes and contributing to major learning goals in higher education.

Video self-assessment in dance practice

Suggested use of technologies, such as video, in learning activities — self and peer observation, and reflection in dance — allow students to analyze, reflect on experience, and

relate theory to practice and synthesis (Laurillard, 2002, p. 191). The practice of observational analysis with the concurrent use of reflection in self-assessment processes that we propose to our dance students is based on formative assessment potential for improving student learning.

Our dance students — in contemporary, modern, and classical techniques — are invited to make a written assignment regarding the assessment that each student makes on his own work about the content, the process, and the product. For that, we use video records of two assessment moments to compare the motor performance. Presented in a structured manner, the self-assessment assignment creates the need to collect information through video records and their personal perception of their own performances concerning the physical, cognitive, and emotional engagement with the movement material (figure 1). It includes a reflective analysis of the recorded class in the form of a global assessment, and a comparison of the two sequences recorded three weeks before and again during the practical test, assessing their own observed progress (self-evaluation) and through their assessment of a classmate (peer-evaluation).

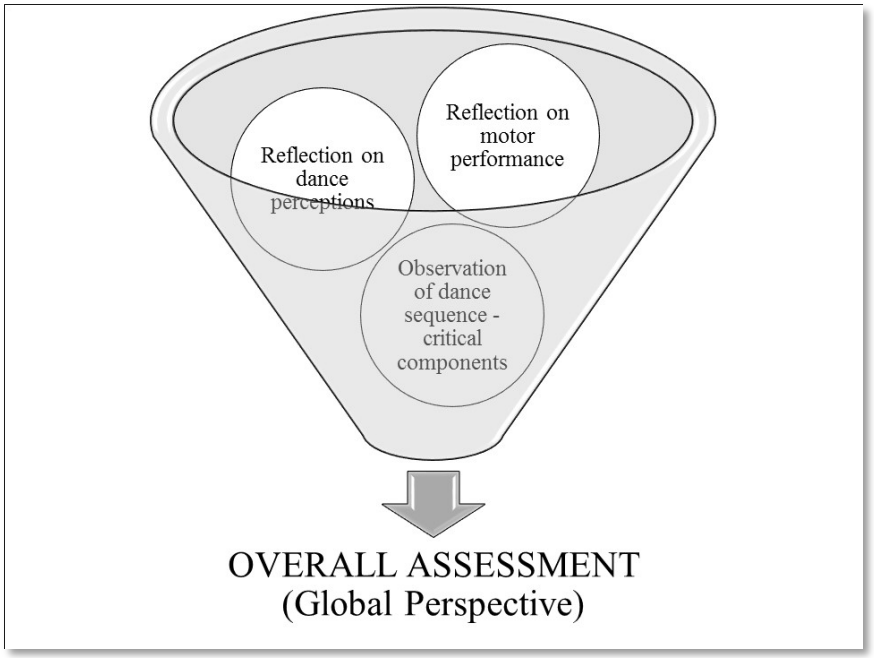

Figure 1. Guiding principles of self-evaluation through video assessment

This process of self-evaluation using video performance records and reflections pursues the following guiding principles: the use of a global perspective on the student himself, the use of critical components for the acquisition of motor topology (guiding attention to relevant

aspects of the task), and the use of past performance reflections. Our concern is to lead our students to analyze their own practice in macro and micro levels, where the micro level assumes the form of an analysis of the critical components presented in technical exercises, and that lead to the efficient acquisition of the topology of movement. The macro level of analysis refers to reflections on motor perception and performance.

To support the overall assessment of the students, they collect information from video records and are oriented by the teacher to reflect on several items:

- Procedures of performance and evaluation (self-correction), self-discipline, and concentration;
- Characterization of varied aspects such as musicality, performance in terms of body scheme, use of breath, memory, intersegmental coordination, and postural adjustments;
- Determination of weak and strong spots;
- Identification of limitations and of areas that need improvement;
- Establishment of goals to enhance future performance;
- Comparison of the same types of performance in different class situations;
- Presentation of the strategies that they intend to adopt to overcome limitations;
- Critically review actual outcomes in terms of quality of performance;
- Review the process by which they are going through concerning the physical, cognitive, and emotional engagement; and finally,
- Comparison of the evolution of performance in two dance sequences.

The micro analysis focuses on critical components present in technical dance exercises, and leads to the efficient acquisition of topology of movement.

In table 1, we have an excerpt of the list of critical components defined in a dance learning situation: a technical dance sequence with sequenced dance skills such as transfers of weight, gestures, and slide steps. For each sequenced dance skill, we define critical components for the dance factors: body, space, time, and dynamic.

Skill	#	Rhythmical Structure	Movement Description	Synchronization	Critical components	
1st 8 counts	1	123	Displacement with 3 forward steps in lower level, starts R, ends-oriented pt. 3 in 4th position parallel with the weight in front	Sinc [0] Antc [1] Delay [2]	Strong-fast dynamic of steps Regularity in amplitude of the steps (minimum 1 foot) Transfer of weight to the front with knee extension Precision at the end of Step 3 in 4th position parallel	0/1 0/1 0/1 0/1
	2	4	Torso bend forward; upper limbs relaxed	Sinc [0] Antc [1] Delay [2]	Dynamic collapse of torso Orientation of focus down Upper torso bent Length of torso descent at 1 count	0/1 0/1 0/1 0/1
	3	5678	Upward torso roll into the vertical	Sinc [0] Antc [1] Delay [2]	Continuous dynamics in the roll upward Focus direction ahead at the end Vertical alignment of the waistline Motion length in counts 4	0/1 0/1 0/1 0/1

Table 1. Excerpt of the dance sequence for self and reciprocal evaluation of dance skills' identification, movement description, synchronization with musical accompaniment structure (synchronization, anticipation, and delay), and of critical components (occurrence).

These critical components can function as parameter feedback (Krasnow & Wilmerding, 2015) or as variable features of skills (Blischke, Marschall, Müller, & Daugs, 1999), which are provided (prescribed values) and supervised by the teacher during students' motor performance. Blischke et al. (1999) distinguish four types of information provided in motor performance feedback: 1) criterion value information; 2) actual value information; 3) discrepancy information (between actual value deviated from criterion value); 4) correcting information (information to reduce discrepancy). Therefore, criterion value and correcting information have an instructional function, and actual value and discrepancy information is characterized as feedback. According to the amount of information needed to define the movement, Blischke et al. (1999) categorize motor-learning tasks as modeling tasks, acquisition of motor topology, and parameter learning (figure 2). Modeling tasks consider the performance standard of a model, the acquisition of motor topology reflects learning the movement segments of a complex motor skill, and

additionally, parameter learning designates the process of approximation to optimal parameter value.

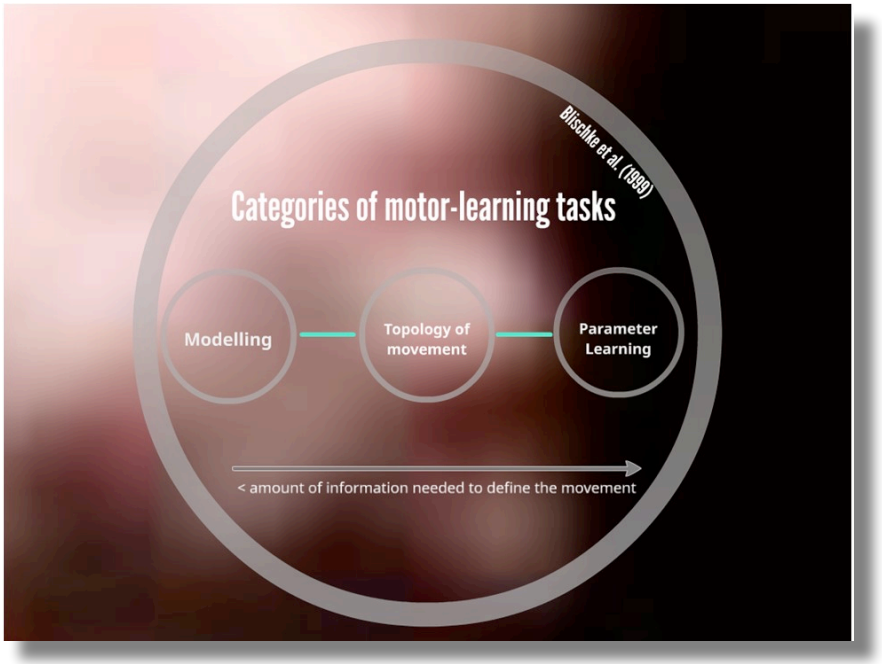

Figure 2. Categories of motor-learning tasks according to the amount of information needed to define the movement (adapted from Blischke et al., 1999).

The educational value of this type of information is enormous and corroborated by studies (Krasnow, Wilmerding, Stecyk, Wyon, & Koutedakis, 2011), such as one performed by Androzzi (2008), which states that the improved accuracy of a performer's assessment is related to video observation and verbal instruction on biomechanics.

Conclusions

This article reports findings from a literature review that aimed to support video evaluation as a practice in dance education, and presents our practice of students' self-assessment using video performance records and reflections in technical dance classes at the undergraduate dance course at Faculdade de Motricidade Humana – ULisboa.

Our findings indicate that through self-observation, the information gathered from students' performances is recognized as supplemented and sometimes conflicted with their experience as performers. Some dance students noticed aspects of their performance that they were unaware of at the time of performance, and other students found self-viewing on film

disconcerting and uncomfortable. The majority of the students demonstrate increased self-awareness, which is a precursor to the development of autonomous, independent learning. Therefore, video and computer technology can be powerful learning and evaluation tools for students, teachers, and evaluators.

Main conclusions of the topics presented in the article point out that video feedback had a significant impact on students' self-perception and encourages the development of objectivity. Additionally, video assessment and teacher feedback allows students independence, and that feedback via video contributes to the engagement of their internal and external performance perceptions, guiding dance students to a closer connection between the kinesthetic sensation of the body in motion and the visual perception of it.

New devices related to the future of video using interactive methods (video annotation tools) (Aubert, Prié, & Canellas, 2014; Cherry, Fournier, & Stevens, 2003; Kannan, Andres, & Ramadoss, 2010; Rich & Hannafin, 2008; Pea, 2006), digital video assignments, and embedded technology, are examples of the challenges facing dance teachers today. Some instruments of observation are developed in dance, like Video Traces (digital media annotation system) (Stevens, 2007; Cherry, Fournier, & Stevens, 2003), Observational System of Motor Skills — OSMOS (Castañer, Torrents, Anguera, & Dinusová, 2009), and Mediathread (Columbia University- CNMTL, 2015).

As dance teachers, we must step up to the challenge, relying on and managing these new devices. For instance, new education endeavors, such as distance education in dance, are now assuming a substantial role in dance education.

References

Androzzi, J. (2008). *Efficiency of teaching biomechanical motor assessment via video observation and verbal feedback*. (Thesis). Retrieved from http://libres.uncg.edu/ir/listing.aspx?id=1809

Aubert, O., Prié, Y., & Canellas, C. (2014). Leveraging video annotations in video-based e-learning. In *7th International Conference on Computer Supported Education (CSEDU)*. Retrieved from papers3://publication/uuid/6C9BAE37-254B-4C8B-8EAC-E0DD8BF1C3FE

Blischke, K., Marschall, F., Muller, H., & Daugs, R. (1999). Augmented information in motor skill acquisition. In Y.V. Auweele, F. Bakker, S. Biddle, M. Durand, & R. Seiler (Eds.), *Psychology for physical educators* (pp. 257-287). Champaign, IL: Human Kinetics. Retrieved from https://www.researchgate.net/publication/262103570_Augmented_Information_in_Motor_Skill_Acquisition

Castañer, M., Torrents, C., Anguera, M., & Dinusová, M. (2009). Instrumentos de observación ad hoc para el análisis de las acciones motrices en danza contemporánea, expresión corporal y danza contact-improvisation. *Apunts: Educación Fisica Y Deportes*, *2009*(95), 14-23.

Chatfield, S.J. (2009). A test for evaluating proficiency in dance. *Journal of Dance Medicine & Science*, *13*(4), 108-114.

Cheng, G., & Chau, J. (2009). Digital video for fostering self-reflection in an ePortfolio environment. *Learning, Media and Technology*, *34*(4), 337-350. http://doi.org/10.1080/17439880903338614

Cherry, G., Fournier, J., & Stevens, R. (2003). Using a digital video annotation tool to teach dance composition. *The Interactive Multimedia Electronic Journal of Computer-Enhanced Learning*, *5*(1), 1-7. Retrieved from http://imej.wfu.edu/articles/2003/1/01/index.asp

Collins, A., & Brown, J.S. (1988). The computer as a tool for learning through reflection. In Mandl et al. (Eds.), *Learning Issues for Intelligent Tutoring Systems* (pp. 1-18). New York, NY: Springer-Verlag. Retrieved from http://download.springer.com/static/pdf/919/chp%253A10.1007%252F978-1-4684-6350-7_1.pdf?originUrl=http%3A%2F%2Flink.springer.com%2Fchapter%2F10.1007%2F978-1-4684-6350-

7_1&token2=exp=1451221863~acl=%2Fstatic%2Fpdf%2F919%2Fchp%25253A10.1007%25252F978-1-4684-6350-7_1.pdf%3ForiginUrl%3Dhttp%253A%252F%252Flink.springer.com%252Fchapter%252F10.1007%252F978-1-4684-6350-7_1*~hmac=f54805ff61569618f5c58f04f5d63739514526170d9e7e01577d2754cfba4817

Columbia University – CNMTL, Columbia Center for New Media Teaching and Learning. (2015). *Introduction to Mediathread* [website]. Retrieved from http://ccnmtl.columbia.edu/our_services/tools/mediathread/

Cross, E.S., Kraemer, D.J.M., Hamilton, A.F., Kelley, W.M., & Grafton, S.T. (2009). Sensitivity of the action observation network to physical and observational learning. *Cerebral Cortex*, *19*(2), 315-326. http://doi.org/10.1093/cercor/bhn083

Doughty, S., & Stevens, J. (2002). Seeing myself dance: video and reflective learning in dance technique. In *Finding the balance: A conference on dance in FE and HE in the 21st century,* Liverpool, John Moores University, 23 June 2002 (pp. 1-8). Retrieved from https://www.dora.dmu.ac.uk/handle/2086/1700

Doughty, S., Francksen, K., Huxley, M., & Leach, M. (2008). Technological enhancements in the teaching and learning of reflective and creative practice in dance. *Research in Dance Education*, *9*(2), 129-146. doi:10.1080/14647890802088041

Gray, J.T., Neisser, U., Shapiro, B.A., & Kouns, S. (1991). Observational learning of ballet sequences: The role of kinematic information. *Ecological Psychology*, *3*(2), 405-414.

Henley, M.K. (2014). Is perception of a dance phrase affected by physical movement training and experience? *Research in Dance Education*, *15*(1), 71-82. http://doi.org/10.1080/14647893.2013.835124

Jones, E., & Ryan, M.E. (2015). The dancer as reflective practitioner. In M.E. Ryan (Ed.), *Teaching reflective learning in higher education: A systematic approach using pedagogic patterns* (pp. 51-64). Berlin, Germany: Springer International Publishing. Retrieved from http://eprints.qut.edu.au/76361/2/76361.pdf

Kannan, R., Andres, F., & Ramadoss, B. (2010). Tutoring system for dance learning. *IEEE International Advance Computing Conference IACC'09*, 9-11. Retrieved from http://arxiv.org/abs/1001.0440

Kimbrough, S. (2008). The use of video feedback and semi structured interviews for reflection among pre-service teachers. *Journal of Education and Human Development*, *2*(2). Retrieved from http://www.scientificjournals.org/journals2008/articles/1389.pdf

Krasnow, D., & Chatfield, S.J. (2009). Development of the "performance competence evaluation measure": Assessing qualitative aspects of dance performance. *Journal of Dance Medicine & Science*, *13*(4), 101-107. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/19930811

Krasnow, D., Wilmerding, M.V., Stecyk, S., Wyon, M., & Koutedakis, Y. (2011). Biomechanical research in dance: A literature review. *Medical Problems of Performing Artists*, *26*(1), 3-23. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/22031961

Krasnow, D., & Wilmerding, M.V. (2015). *Motor learning and control for dance: Principles and practices for performers and teachers*. Champaign, IL.: Human Kinetics.

Laurillard, D. (2002). *Rethinking university teaching: A conversational framework for the effective use of educational technologies* (2nd ed.). London, UK: Routledge.

Leijen, A., Lam, I., Wildschut, L., Simons, R.J., & Admiraal, W. (2009). Streaming video to enhance students' reflection in dance education. *Computers & Education*, *52*(1), 169-176. http://doi.org/10.1016/j.compedu.2008.07.010

Leijen, Ä., Valtna, K., Djuddah, A.J.L., & Pedaste, M. (2012). How to determine the quality of students' reflections? *Studies in Higher Education*, *37*(2), 203-217. http://doi.org/10.1080/03075079.2010.504814

Liu, N.F., & Carless, D. (2006). Peer feedback: The learning element of peer assessment. *Teaching in Higher Education*, *11*(3), 279-290. http://doi.org/10.1080/13562510600680582

Maslovat, D., & Franks, I.M. (2015). The importance of feedback to performance. In M. Hughes, & I. Franks (Eds.), *Essentials of performance analysis in sport* (2nd ed., pp. 11-17). London, UK: Routledge.

O'Loughlin, J., Chróinín, D.N., & O'Grady, D. (2013). Digital video: The impact on children's learning experiences in primary physical education. *European Physical Education Review*, *19*(2), 165-182. http://doi.org/10.1177/1356336X13486050

Pea, R. (2006). Video-as-data and digital video manipulation techniques for transforming learning sciences research, education, and other cultural practices. In J. Weiss et al. (Eds.), *The international handbook of virtual learning environments* (pp. 1321-1393). The Netherlands: Springer. http://doi.org/10.1007/978-1-4020-3803-7_55

Råman, T. (2009). Collaborative learning in the dance technique class. *Research in Dance Education*, *10*(1), 75-87. http://doi.org/10.1080/14647890802697247

Rich, P.J., & Hannafin, M. (2008). Video annotation tools: Technologies to scaffold, structure, and transform teacher reflection. *Journal of Teacher Education*, *60*(1), 52-67. http://doi.org/10.1177/0022487108328486

Risner, D., & Anderson, J. (2008). Digital dance literacy: An integrated dance technology curriculum pilot project 1. *Research in Dance Education*, *9*(2), 113-128. http://doi.org/10.1080/14647890802087787

Schwartz, D.L., & Hartman, K. (2007). It is not television anymore: Designing digital video for learning and assessment. In R. Goldman, S. Derry, R. Pea, & B. Barron (Eds.), *Video research in the learning sciences* (pp. 335-348). Mahwah, NJ: Erlbaum. Retrieved from http://aaalab.stanford.edu/papers/Designed_Video_for_Learning.pd

Scott, M. (1998). Ohio university school of dance: Assessment report 1997-1998. *Assessment report 1997-1998*. Retrieved May 01, 2014, from http://www.ohio.edu/instres/assessments/97_98assess/dept/dance.htm

Smith-Autard, J. (2003). The essential relationship between pedagogy and technology in enhancing the teaching of dance form. *Research in Dance Education*, *4*(2), 151-169. http://doi.org/10.1080/1464789032000130363

Sööt, A., & Viskus, E. (2014). Teaching dance in the 21st century: A literature review. *The European Journal of Social & Behavioural Sciences*, (1998), 1193-1202. Retrieved from http://www.c-crcs.com/files/menu_items/other/ejsbs99.pdf

Stevens, C., Malloch, S., McKechnie, S., & Steven, N. (2003). Choreographic cognition: The time-course and phenomenology of creating a dance. *Pragmatics Cognition*, *11*(2), 297-326. http://doi.org/10.1075/pc.11.2.06ste

Stevens, R. (2007). Capturing ideas in digital things: A new twist on the old problem of inert knowledge. In R. Goldman, R. Pea, B. Barron, & S. Derry (Eds.), *Video research in the learning sciences* (pp. 547–564). New York, NY: Routledge.

Tembrioti, L., & Tsangaridou, N. (2014). Reflective practice in dance: A review of the literature. *Research in Dance Education*, *15*(1), 4-22. http://doi.org/10.1080/14647893.2013.809521

Torrents, C., Castañer, M., & Anguera, M. T. (2011). Dancing with complexity: Observation of emergent patterns in dance improvisation. *Education, Physical Training, Sport*, *80*(1), 76-81.

Wilson, B., & Cole, P. (1996). Cognitive teaching models. In D. H. Jonassen (Ed.), *Handbook of research in instructional technology*. New York, NY: Scholastic Press. Retrieved from http://learngen.org/~aust/EdTecheBooks/AECT_HANDBOOK96/index.html

Wyon, M.A, Twitchett, E., Angioi, M., Clarke, F., Metsios, G., & Koutedakis, Y. (2011). Time motion and video analysis of classical ballet and contemporary dance performance. *International Journal of Sports Medicine*, *32*(11), 851-855. http://doi.org/10.1055/s-0031-1279718

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