

Web-Based Motion Literation Assessment in Dance Learning on Junior High School

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Abstract: This study aims to diagnose the students' literacy skills in the industrial revolution 4.0 era, especially in dance learning using the web. In the era of industrial revolution 4.0 or the era of disruption, "new literacy" was needed in addition to old literacy as a capital to take part in people's lives. The old literacy includes the competencies of reading, writing and counting, while the new literacy includes: 1) data literacy, 2) technological literacy and 3) human literacy. To support this literacy as a necessity in facing future skills in the field of art, one of them is the movement skills in this case motion literacy, namely Body expression of emotion through body posture and gesture. Motion literacy assessment, which includes reading, writing, and translating motion symbols, is then expressed in the form of motion, so that it can measure critical and analytical thinking skills, which can at the same time diagnose students' kinesthetic intelligence. This research method uses a Research by design procedure from a web-based motion literacy assessment instrument. Sampling uses purposive sampling by considering schools that have cultural arts teachers who have the background of competence in the field of dance. The results of this research are expected to web-based motion literacy assessment can be utilized by arts and culture teachers in dance learning, as a measuring tool to find out the kinesthetic intelligence of students in a fun way.

Keywords: *assessment, motion literacy, dance learning, website, kinesthetic intelligence*

INTRODUCTION

In the era of disruption 4.0 associated with so-called "smart Factories" (Dutton, 2014), where decentralized decision making can be developed virtually (Buhr, 2015), with system of cooperation or communication with each other in real time with various service (WEF et al., 2018). This will lead to social innovations that lead to positive sustainable transformations in community networks (Mulgan, 2006). Social innovation must express novelty and improve responses to community needs (WEF et al., 2018).

One of the responses to the needs of the community is in the world of education, where learning procedures have been developed with technology media that demand the ability to technology literacy and data literacy (Subiyantoro & Nugroho, 2018). Transforming education to integrate online learning, active learning emphasized in 21st century skills requires digital literacy skills, as the need for the importance of lifelong learning as an individual skill (Jitsoonthornchaikul, 2018). 21st century skills are the skills to survive in the digital age, while 21st century skills are classified into three groups, namely 1) basic literacy as numeracy literacy, scientific literacy, technology literacy and information, and financial literacy, and culture, 2) competence or ability to handle various complex problems, 3) ability to survive in a changing environment (Jitsoonthornchaikul, 2018).

Thus in response to the era of disruption 4.0, literacy has a very broad understanding, because literacy is understood as mastery or comprehensive competence of a field of science. In the field of education that emphasizes general intellectual knowledge and capacity in complex life in the 21st century, what is needed in the world of work is skills or skills for the future (Longo, Nicoletti, & Padovano, 2017), the meaning of literacy is an ability in a person to write

and read. Likewise, according to (Teale & Sulzby, 1986), the meaning of literacy is the language ability possessed by someone in communicating (reading, speaking, listening, and writing) in different ways according to their purpose. However, UNESCO (The United Nations Educational, Scientific and Cultural Organization, 2018), the meaning of literacy is the ability to indentify, understand, interpret, create, communicate and compute, using printed and written materials associated with varying contexts. The essence of the statement explained that literacy leads to the ability to read and write.

This ability is also found in dance, where motion as an expression tool has meaning. The ability to read and write in dance is more about motion or in the form of perceived symbols then expressed. Several studies on movement literate are used to determine the ability to think and move through dance notation in the form of symbols and coding (Bucek, 1998). These symbols and codes are quite complex, so it is important for dancers to make written notes about motion, read symbols, and form patterns from these symbols. Students learn to dance while honing their language skills and begin to engage in cross-disciplinary, cross-experience experiences that build understanding and spark creativity (Robinson, 2006).

This motion literacy ability can be documented and published if it is based on a website, so that it can be accessed quickly wherever and whenever. The website can also function to provide information in the use of motion elements, so that it can improve the quality of the design in detail by considering the speed of the system, in addition to the ability to use the information technology. Interactive websites lead to more information processing, a higher preference for products, besides that the use of web sites makes it easier to process information (Sicilia, Ruiz, & Munuera, 2005). For that integrated abilities related to cognition, psychomotor, and affective can be seen in motion literacy learning.

To know the development of one's ability, authentic judgment is needed, so that the level of understanding will be diagnosed. Some of the results of studies on dance performance appraisal of clarity in motion are amplitude of the range of motion of the involvement of all body parts accompanied by spatial skills or spatial integrity and are related to the concepts of space, time, energy according to Laban's motion analysis (Angioi, Metsios, Koutedakis, & Wyon, 2009; Chatfield, Byrnes, Lally, & Rowe, 1990; Krasnow & Chatfield, 2009).

For this reason, the problem of literacy skills in dance based on psychomotor skills, along with thinking skills in perceiving movement symbols, can be determined through Laban notation motion analysis. But Laban notation that was discovered in 1959, should be adjusted to the development of the 21st century era that uses digitization, one of which is through the utilization of the web site. How to use and use the web site for understanding movement by reading Laban's notation, so that it can be easily understood and documented properly as a diagnostic tool for students' ability to learn dance.

METHOD

This research method uses the research by design procedure, to describe an action, where design and research are interrallated when new knowledge is generated (Roggema, 2016). The following is an overview of research by design that starts from quations, answers, outcomes, knowledge transfer and wider impact of research by design.

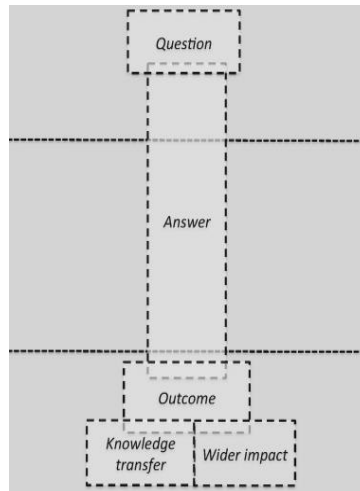


Figure 1. Question, Answer, Outcome, Knowledge transfer and Wider impact of research by design (Roggema, 2016)

The population in this study were art and culture teachers who were incorporated in the cultural arts MGMP in DKI Jakarta and junior high school students throughout Jakarta, while as a product user, a purposive sample was used with consideration of schools that have good hot spot capacity.

Instruments to measure motion literacy are arranged in the following steps: 1) theoretical analysis by defining conceptually and operationally, 2) preparation of observation items and rubrics, 3) expert validation of the instrument, 4) instrument input into the web site, 4) effectiveness test web-based assessment of respondents, who in this case are dance teachers.

The motion literacy assessment instrument with indicators measures the ability to read Laban notation expressed in motion, describes motion symbols by writing according to language rules, and translating languages into motion symbols. The aspects measured are as follows:

Table 1. Specification instrument movement literation

No	Indicator	Aspect	No. Item Questions
A.1	Doing the motion by reading the motion symbol	Accuracy of movement with symbols read	1,2,3
2		Smoothness of motion according to the symbol being read	4,5,6
3		Speed in responding to symbols	7,8,9
B.1	Describe or write a description of the motion	The accuracy describes the motion of the symbol being read	10,11,12
2		Smoothness describes the motion according to the symbol being read	13,14,15
3		Suitability in describing motion reads from symbols with enhanced spelling	16,17,18

No	Indicator	Aspect	No. Item Questions
C.1	Interpret or make motion symbols	Accuracy in manifesting description of motion in the form of symbols	19,20,21
2		Smoothness in manifesting the description of motion in the form of symbols	22,23,24
3		Suitability in manifesting description of motion in the form of symbols	25,26,27,28

Futhermore, the instrument that was complied based on the lattice was analyzed by 3 experts consisting of linguists, measurement experts, and material experts. The results of the analysis in the form of qualitative analysis are more about improvements in construction and language. After repairs, the next step is input the instrument into the web site that has been designed previously with the e-assessment.id web site. Web site effectiveness test is given to 10 dance teachers input the instrument into the web site that has been designed previously with the e-assessment.id web site. Web site effectiveness test is given to 10 dance teachers in junior high schools as users with indicators: 1) motivating, 2) practical, 3) effective, and 4) interesting. These indicators refer to usability studies as part of the multi-diciplinary field of Human Computer Interaction (HCI) which studies how to design computer screen display in an information system to comfortable to use by users (Nugroho, 2009).

RESULTS AND DISCUSSION

Data analysis was carried out with several stages, including: 1) Review items from experts. Review of the motion literacy assessment items conducted by experts by looking at the conformity of constructs, languages, and quantitative measurements can be measured by looking for the V index of Aiken. The formula to find the index is as follows:

$$v = \frac{\sum n_i |i - r|}{N(t - 1)}$$

The results of calculations using the formula, obtained 28th is declared valid with the results of the calculation as follows:

Butir	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
$\sum s$	39	39	39	37	37	37	39	39	39	42	42	42	35	35	35	42	42	42	36	36	36	39	39	39	42	42	42	42
V	0.886	0.886	0.886	0.841	0.841	0.841	0.886	0.886	0.886	0.955	0.955	0.955	0.795	0.795	0.795	0.955	0.955	0.955	0.818	0.818	0.818	0.886	0.886	0.886	0.955	0.955	0.955	0.955
keterangan	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid	Valid

Figure 2. Results of calculations using the formula

Based on the results of these calculations, it can be concluded that the items are declared valid and worth using. 2) Stage of instrument input into the web site. At this stage the instrument that has been declared valid is input into the <https://www.e-assessment.id> web site so

that it can be used by students and can be assessed, documented and given feedback, so students can reflect on themselves.

Following is the appearance of the assessment instrument on the e-assessment web site:

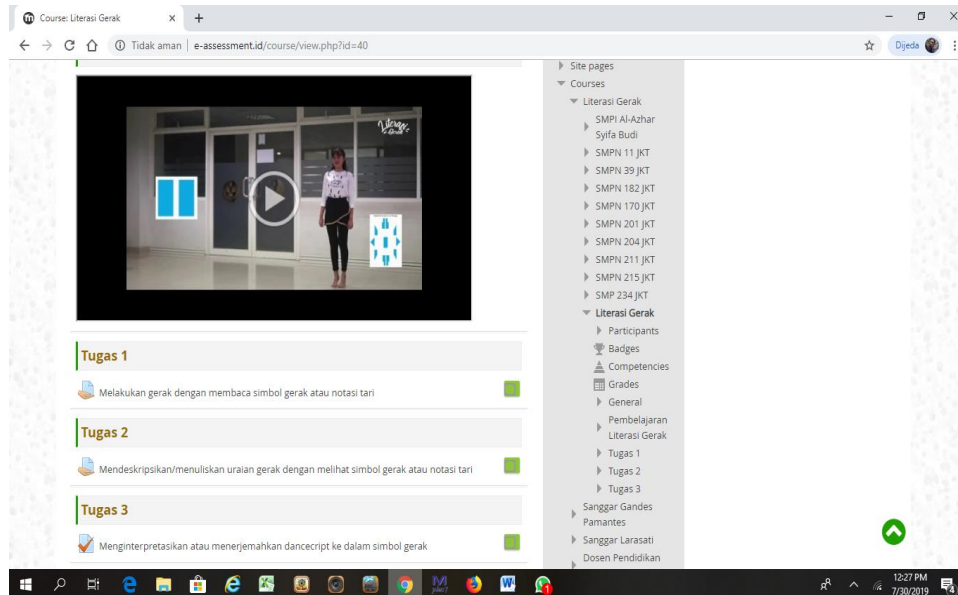


Figure 3. Task 1: Perform motion by reading the dance symbol or dance notation

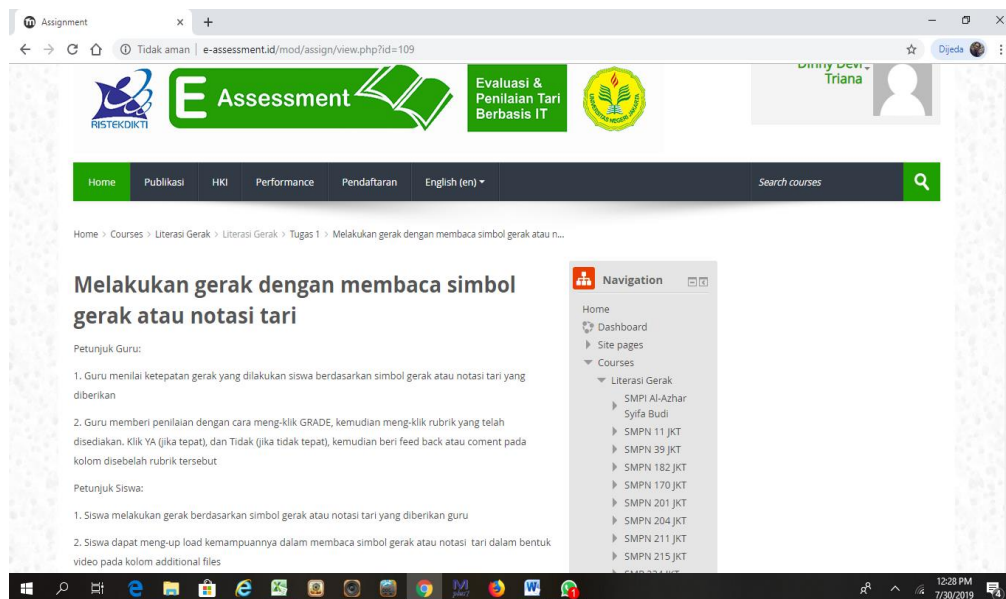


Figure 4. Task 2: Describe or write down the description of motion by seeing symbols of motion or dance notation

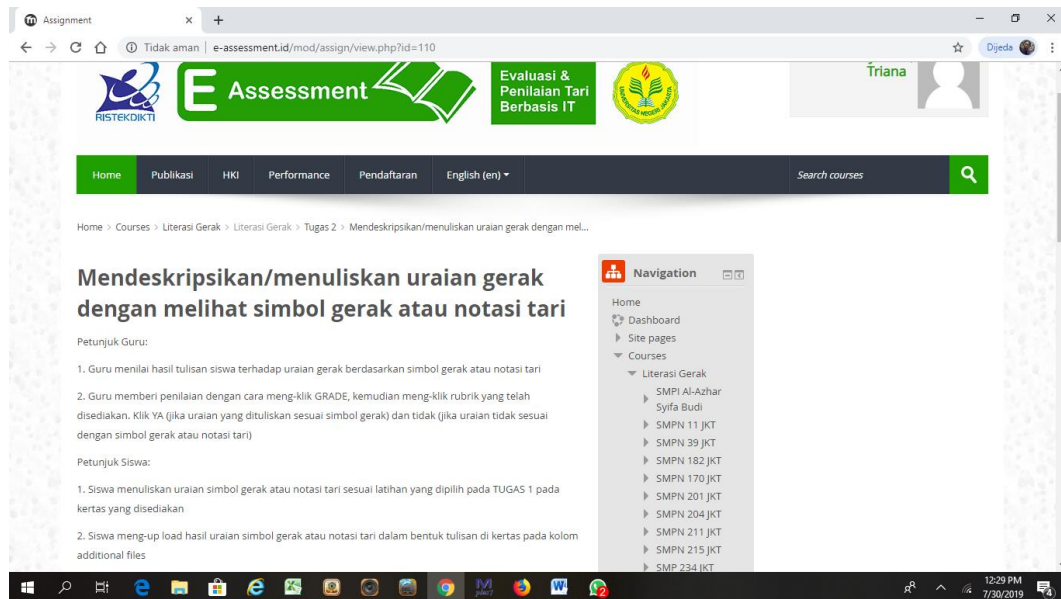


Figure 5. Task 3: Write a description the dance script into a symbol of motion

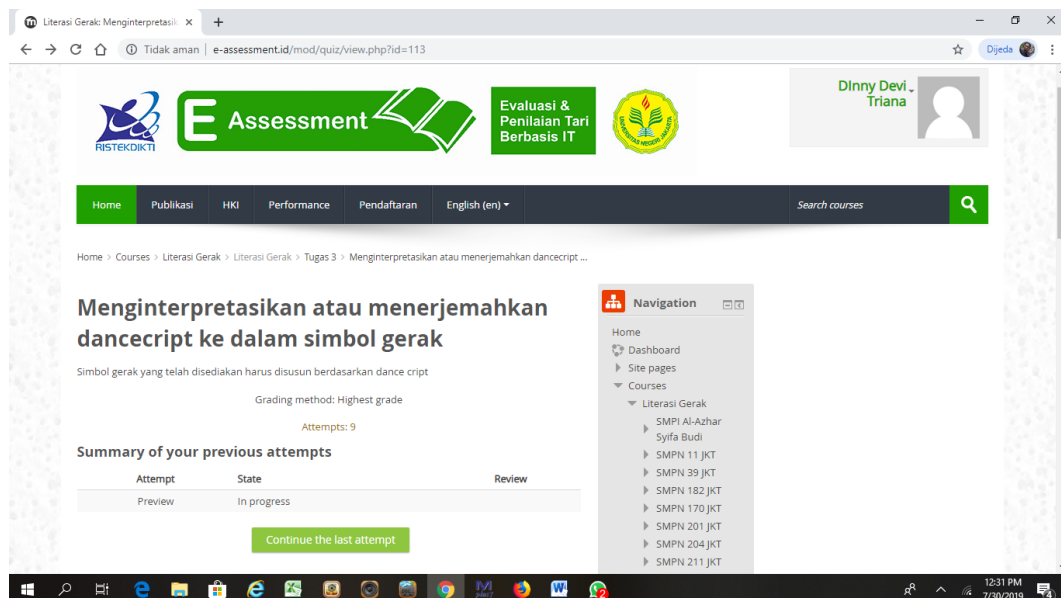


Figure 6. Task 4: Interpret or translate the dance script into a symbol of motion

The next step is to test the effectiveness of using the assessment using a web site. Based on the calculation results obtained from 10 dance teachers in conducting motion literacy assessments using a web site against 100 junior high school students 80,37% expressed their opinion that the web-based motion literacy assessment instrument was easy, practical, and effective to be used practically and effectively.

The results of the data analysis show that the web site-based motion literacy assessment is appropriate to be used, in accordance with a study (A. Buzzetto-More & Julius Alade, 2006) is an ongoing process that involves planning, discussion, building consensus, reflection, measuring, analyzing, and improving based on data and artifacts collected about learning objectives. Further described technology offers new steps for assessing learning that will produce a rich source of data and expand the ways in which educators understand mastery of learning, and the effectiveness of teaching (Vendlinski & Stevens, 2002). E-assessment (Joint Information Systems Committee (JISC), 2007), including the use of computers as part of each

activity related to assessment, such as summative, formative or diagnostic, including submission of online assignments in the form of e-portfolios or reflective blogs, feedback delivered audio files recorded on computer. Technology-based assessment or enhanced technology is a computer-assisted assessment that is often referred to as e-assessment.

E-assessment as a partner for e-learning (MacKenzie, 2003) which offers alignment of teaching and assessment methods (Jordan, 2013). This provides a solution, for students to study at a distance. e-assessment enables students to understand their weaknesses (Miller, Hooper, Rose, & Montalto-Rook, 2008) and feedback that is considered to be impersonal (Northcraft & Earley, 1989) and non-judgmental (Jordan, 2012). Thus the use of digital can open a 'window' the thinking of students who provide information, both for students and teachers (West & Turner, 2016).

CONCLUSION

Motion literacy is the ability to read, write, and translate symbols of motion in dance, which integrate thinking skills, movement skills, and behavioral skills. In web site-based motion literacy assessment, it has three literacy abilities, namely: 1) technology literacy as the ability of teachers and students to use computers to learn new things about motion symbols, 2) data literacy, where documented student work results in the web site, both in terms of scoring and feedback, and 3) basic literacy, namely the ability to read and write in the form of symbols described in written form.

These 3 literacy accumulate in understanding the symbol of dance movement known as Laban Notation, so that it can be referred to as motion literacy. The motion literacy symbol created by Rudolf van Laban is adjusted to the present, namely by simplifying symbols and codes. This is because the understanding of symbols that are perceived, and then expressed in motion requires high-level thinking skills, so that expected learning of motion notation becomes interesting.

The use of the web site in conducting motion assessments is expected to motivate students to continue to develop their plural literacy skills, and students can be motivated, because of the teacher's assessment documented in the motion literacy e-assessment web.

REFERENCES

- A. Buzzetto-More, N., & Julius Alade, A. (2006). Best Practices in e-Assessment. *Journal of Information Technology Education: Research*. <https://doi.org/10.28945/246>
- Angioi, M., Metsios, G., Koutedakis, Y., & Wyon, M. A. (2009). Fitness in contemporary dance: A systematic review. *International Journal of Sports Medicine*. <https://doi.org/10.1055/s-0029-1202821>
- Bucek, L. E. (1998). Developing Dance Literacy: Integrating Motif Writing into Theme-Based Children's Dance Classes. *Journal of Physical Education, Recreation & Dance*. <https://doi.org/10.1080/07303084.1998.10605590>
- Buhr, D. (2015). Social Innovation Policy for Industry 4.0. *Good Society –Social Democracy # 2017 Plus*.
- Chatfield, S. J., Byrnes, W. C., Lally, D. A., & Rowe, S. E. (1990). Cross-Sectional Physiologic Profiling of Modern Dancers. *Dance Research Journal*. <https://doi.org/10.2307/1477737>
- Dutton, W. H. (2014). Putting things to work: Social and policy challenges for the Internet of things. *Info*. <https://doi.org/10.1108/info-09-2013-0047>

- Jitsoonthornchaikul, A. M. (2018). *The New Era of Learning*. 463–468.
- Joint Information Systems Committee (JISC). (2007). Effective Practice with e-Assessment. *Information Systems Journal*.
- Jordan, S. (2012). Student engagement with assessment and feedback: Some lessons from short-answer free-text e-assessment questions. *Computers and Education*. <https://doi.org/10.1016/j.compedu.2011.10.007>
- Jordan, S. (2013). Using e-assessment to learn about learning. *Proceedings of CAA 2013 International Conference*
- Krasnow, D., & Chatfield, S. J. (2009). Development of the “performance competence evaluation measure”: assessing qualitative aspects of dance performance. *Journal of Dance Medicine & Science: Official Publication of the International Association for Dance Medicine & Science*.
- Longo, F., Nicoletti, L., & Padovano, A. (2017). Smart operators in industry 4.0: A human-centered approach to enhance operators’ capabilities and competencies within the new smart factory context. *Computers and Industrial Engineering*. <https://doi.org/10.1016/j.cie.2017.09.016>
- MacKenzie, D. (2003). Assessment for e-learning: What are the features of an ideal e-assessment system. *Proceedings of the 7th CAA Conference*, 8–9. Retrieved from <http://hdl.handle.net/2134/1914>
- Miller, C., Hooper, S., Rose, S., & Montalto-Rook, M. (2008). Transforming e-assessment in American Sign Language: Pedagogical and technological enhancements in online language learning and performance assessment. *Learning, Media and Technology*. <https://doi.org/10.1080/17439880802323980>
- Mulgan, G. (2006). The Process of Social Innovation. *Innovations: Technology, Governance, Globalization*. <https://doi.org/10.1162/itgg.2006.1.2.145>
- Northcraft, G. B., & Earley, P. C. (1989). Technology, credibility, and feedback use. *Organizational Behavior and Human Decision Processes*. [https://doi.org/10.1016/0749-5978\(89\)90036-8](https://doi.org/10.1016/0749-5978(89)90036-8)
- Robinson, K. (2006). Do schools kill creativity? TED Talk. In *TED.com*.
- Roggema, R. (2016). Research by Design: Proposition for a Methodological Approach. *Urban Science*. <https://doi.org/10.3390/urbansci1010002>
- Sicilia, M., Ruiz, S., & Munuera, J. L. (2005). Effects of interactivity in a web site: The moderating effect of need for cognition. *Journal of Advertising*. <https://doi.org/10.1080/00913367.2005.10639202>
- Subiyantoro, S., & Nugroho, A. (2018). *Android-based Instructional Media Development Procedure to Enhance Teaching and Learning in The Age of Disruption 4.0*. <https://doi.org/10.2991/icas-18.2018.41>
- Teale, W. H., & Sulzby, E. (1986). Emergent literacy as a perspective for examining how young children become writers and readers. *Emergent Literacy: Writing and Reading*.
- Vendlinski, T., & Stevens, R. (2002). Assessing student problem-solving skills with complex computer-based tasks. *Journal of Technology, Learning, and Assessment*.
- WEF, Advantage, A. C., Nübler, I., Benedikt Frey, C., Osborne, M. A., Greenberg, E., ... Canadian Manufactures & Exporters Canadian Skills Training and Employment Coalition; (2018). The New Production Workforce: Responding to Shifting Labour Demands. *McKinsey Quarterly*. <https://doi.org/10.13140/RG.2.1.3063.8241>
- West, J., & Turner, W. (2016). Enhancing the assessment experience: improving student

perceptions, engagement and understanding using online video feedback. *Innovations in Education and Teaching International*. <https://doi.org/10.1080/14703297.2014.1003954>