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Toward the Transdisciplinary Learning of Dance Choreography

– Understanding Interactivity –*

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I. Introduction

The existence of the dance world depends on choreographers; therefore, the primary objective of dance education at the tertiary level is to teach people to choreograph.[1] With the growth of the digital information age has come the exploration of technology in dance choreography, which is shaping a new landscape by creating a new vision for performances.[2] Through this transdisciplinary evolution of dance, a new culture[3] is emerging that informs a new type of education that considers all the possibilities of choreography in the digital era.

The convergence of dance and technology began back in the 1960s. However, technology was only adopted in dance education in the 1980s. Despite its potential for other applications, technology was predominantly used to enhance the teaching and learning of dance.[4] Recent developments in research

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1) L. Predock-Linnell, and J. Predock-Linnell(2001), From improvisation to choreography: The critical bridge, *Research in Dance Education* 2(2), pp.195-209.

2) J. Birringer(2008), After choreography, *Performance Research* 13(1), pp.118-122; I. Santana(2006), Ambiguous zones: The intertwining of dance and world in the technological era, *International Journal of Performance Arts and Digital Media* 2(2), pp.153-169; E. C. Warburton(2008), Editorial, *Research in Dance Education* 9(2), pp.111-112.

3) 오선명(2017), 융복합 예술개념에서 무용의 양식적 특성에 대한 담론 -「소아페라(Soape′ra)」,「에스카톤(Eskaton)」,「거리에서(En route)」를 중심으로-,『무용예술학연구』67(5), pp.73-83.

have emphasised the need to incorporate technology education, which identifies and develops the knowledge of technology for creative applications to the dance curriculum.[5]There have been developments in the areas of research that define transdisciplinary learning and that promote a transdisciplinary approach in teaching and learning. However, transdisciplinary approaches in dance education have been under explored.

This study considers the research on implementing a transdisciplinary approach in the teaching and learning of choreography in a tertiary dance curriculum. This study aims to identify the transdisciplinary competencies that are necessary for choreographers to effectively adapt to the complex creative environment of the future. The transdisciplinary approach is defined as,

> ···creating different futures by way of improving choices, heightening reflexivity and inclusivity, generating new languages, designing new structures, and devising new pluralistic and more complex knowledge structures.[6]

This study attempts to classify new knowledge and skills through an examination of the multifaceted and multidimensional dynamic processes of dance and technology convergence. This classification is achieved by examining transdisciplinary works and identifying knowledge and skills for adoption. The following questions are investigated to aid this identification: (i) What are the educational objectives of the transdisciplinary learning of dance choreography in tertiary education? (ii) What are the educational contents, new knowledge and skills in the transdisciplinary learning of dance choreography in tertiary education?

II. Transdisciplinary learning and Mode 2 knowledge production

Tertiary education is constantly challenged to adapt to the times and connect the school curriculum to the real world. A recent phenomenon has blurred disciplinary boundaries and genres and adopts multidisciplinary, interdisciplinary and currently transdisciplinary learning.[7] This development in education attempts to help students increase their capacity to construct their learning across the

4) M. Parrish(2007), Technology in dance education, L. Bresler(Ed.), *International handbook of research in arts education*(Dordrecht: Springer), pp.1381-1397.

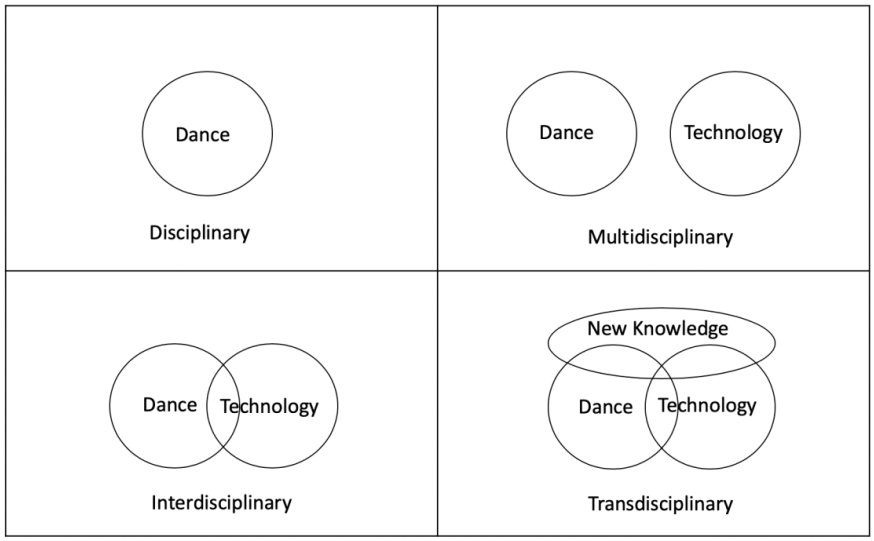
5) S. Doughty, K. Francksen, M. Huxley, and M. Leach(2008), Technological enhancements in the teaching and learning of reflective and creative practice in dance, *Research in Dance Education* 9(2), pp.129-146; D. Risner, and J. Anderson(2008), Digital Dance Literacy: an integrated dance technology curriculum pilot project 1, *Research in Dance Education* 9(2), pp.113-128; I. Santana(2006).

6) J. T. Klein(2000),What is transdiscipinarity? M. R. Somerville, and D. J. Rapport(Eds.), *Transdisciplinarity: Recreating integrated knowledge*(Oxford: EOLSS Publishers), p.127.

7) M. O'Reilly(2004), Educational design as transdisciplinary partnership: Supporting assessment design for online, *Beyond the comfort zone: Proceedings of the 21st ASCILITE Conference*(Perth, Australia: ASCILITE).

curriculum and between disciplines,[8] which ultimately provides students with the tools to understand reality and the ability to solve problems in the ever-changing modern landscape. This is the new vision and learning experience in tertiary education that aims for sustainability.[9]

Disciplinary learning focuses on the knowledge, skills and methods within the boundaries of a discipline. Multidisciplinary learning concerns the learning of various unrelated disciplines simultaneously, while interdisciplinary learning involves the learning of related disciplines to solve a problem. Transdisciplinary learning advances beyond interdisciplinary learning with collaborative learning and a common goal towards a common conceptual framework.[10] Thus, transdisciplinary learning is characterised by generating new knowledge through participatory collaboration that goes across and beyond disciplines.[11]



<Figure 1> The difference among disciplinary, multidisciplinary,interdisciplinary and transdisciplinary learning[12]

Gibbons[13] identifies new knowledge that is constructed through transdisciplinary learning. Knowledge in a disciplinary and primarily a cognitive context is categorised as "Mode 1 knowledge"[14]

8) A. Seaton(2002), Reforming the hidden curriculum: The key abilities model and four curricular forms, *Curriculum perspectives*(journal edition) 22(1), pp.9-15.
9) E. Morin(1999), *Seven complex lessons in education for the future*(Paris: UNESCO).
10) E. Jantsch(1970), Towards interdisciplinarity and transdisciplinarity in education and innovation, G. Michaud(Ed.), *Interdisciplinarity: Problems of teaching and research in universities*(Nice: Centre for Educational Research and Innovation, OECD), pp.97-127.
11) B. Tress, G. Tress, and G. Fry(2005), *Defining concepts and the process of knowledge production in integrative research*(Heidelberg: Springer).
12) A. Seaton(2002).
13) M. Gibbons(1997), *What Kind of University?: Research and Teaching in the 21st Century*(Melbourne: Victoria University of Technology).

whereas "Mode 2 knowledge is created in broader transdisciplinary social and economic contexts".[15] Mode 2 knowledge is further characterised as knowledge that is constructed through transdisciplinary applications and functions. Research and knowledge production occurs when a network of people temporarily come together to define or solve a problem and disperse thereafter.

The convergence of dance and technology is a collaboration and exploration between, across and beyond disciplines and produces new knowledge through praxis.[16] Accordingly, this study explores Mode 2 knowledge production in the transdisciplinary learning of choreography.

III. Methodology

Qualitative research is a methodical process of describing, analysing and interpreting insights that are discovered in everyday life.[17] Qualitative research offers different methodologies that can be utilised in providing different perspectives according to the question that is being researched. This study investigates the convergence of dance and technology to identify a transdisciplinary approach to the teaching and learning of dance choreography in tertiary education. To achieve this purpose, this study adopts a grounded theory research method. As defined by Creswell,[18] grounded theory is based on discovery, and a theory is generated through an analytical method to understand the "process within the context [that] the process [is]occurring in".[19] Consequently, this research attempts to understand the process of dance and technology convergence for choreography education. Furthermore, I am influenced by Charmaz's[20] constructivist approach because it practices the incorporation of multiple social realities, distinguishes the co-creation of knowledge by the viewer and the viewed, and therefore aims to discover interpretive rather than analytical meanings.

The purpose of this research is to identify the new knowledge in the convergence of dance and technology by examining the transdisciplinary performances of renowned choreographers and artists. To achieve this goal, the research phase was largely divided into two stages, as described in this section. The initial stage was conducted between July and December 2014 when theoretical research was pursued. This period identified research questions through textual analysis of the literature that

14) Ibid., p.7.
15) Ibid., p.1.
16) J. Birringer(2008).
17) H. F. Wolcott(1988), Ethnographic Research in Education, R. M. Jaeger(Ed.), *Complementary methods for research in education*(Washington, DC: American Educational Research Association), pp.187-249.
18) J. Creswell(2013), *Qualitative inquiry and research design: Choosing among five approaches* (3rd ed.)(CA: Sage Publications).
19) J. M. Morse, and P. A. Field(1995), *Qualitative research methods for health professionals*(CA: Sage Publications).
20) K. Charmaz(2014), *Constructing grounded theory*(CA: Sage Publications).

served as a guide for this research. The literature review provided information regarding how and what research had been previously undertaken. The literature review also helped to identify what knowledge would be feasible in the context of the convergence of dance and technology research and to clarify emerging new knowledge. For this purpose, the literature on dance and technology, choreography, and transdisciplinary education was thoroughly examined to obtain in-depth understanding of the current position of dance and technology. Thereafter, a research design, research methods and participants that were appropriate for the research were chosen. Before this study began, peer review and debriefing were conducted to attain feedback and assistance to detect any foreseeable problems and ensure the practicability of the research.

The second stage was pursued between January and June 2015. During which data was collected through in-depth interviews, self reports and documents. First, insight into the choreographers' objectives of choreography and the content that is utilised for choreography were sought by ultimately exploring the artists' works on dance and technology convergence. Second, an investigation of the transdisciplinary knowledge of dance choreography was identified and clarified.

The strategy that was used for the selection of the research participants was based on both reputation and criteria,[21] and participants were sought who could most effectively contribute to this research.[22] The literature review, pilot study and peer debriefing refined the criteria for selecting the participants who could best inform this research. The objective of performance and/or choreography is a creative outcome which is assessed by perceivers and evaluated on its innovative approach.[23] In this respect, the participants were selected based on their creativity as evaluated by the performing arts community and the public and then categorised based on these criteria. Accordingly, the selected participants were the active creators in the field who adopted the convergence of dance and technology in their works. To identify the new knowledge and skills from the works of dance and technology convergence, it is essential to gather insight from the artists who practice a transdisciplinary approach in their art and performance, which ultimately aids in the identification of educational objectives and content for new choreography education. Ten artists were selected for in-depth interviews. All the names in this research are presented as pseudonyms.

Grounded theory implicates the generation or discovery of a theory.[24] Strauss and Corbin[25] explain that the value of grounded theory is not only in generating a theory but also in grounding this theory in data. The data analysis method of grounded theory analysis allows the researcher to identify

21) J. P. Goetz, and M. D. LeCompte(1984), *Ethnography and qualitative design in educational research*(New York: Academic Press).
22) M. Q. Patton(1990), *Qualitative evaluation and research methods*(CA: Sage Publications).
23) D. Best(1985), *Feeling and Reason in the Arts*(London: George Allen and Unwin).
24) J. W. Creswell(2013).
25) A. Strauss, and J. Corbin(1990), *Basics of qualitative research*(CA: Sage Publications.)

themes and core categories by classifying the data into themes and core categories. The extracted themes are constructed together to conceptualise the data into a theoretical perspective by the reflexivity of the researcher.[26] The collected and transcribed data in this study were analysed in three stages, namely, open, axial and selective coding.[27]

IV. Findings and discussions

1. Transdisciplinary choreography educational objective: dance choreography for sustainability

The findings in this study on transdisciplinary dance choreography education objectives resonate with Nicolescu's [28] adaptation of UNESCO's four pillars of learning. The four pillars of learning that were created by UNESCO, when it was chaired by Jacques Delors,[29] are learning to know, learning to do, learning to live together and learning to be. These pillars were proposed to renew educational objectives and content to develop key competencies that were necessary for the 21st century. Nicolescu[30] considers adopting and implementing UNESCO's four pillars of learning with the transdisciplinary approach.

The transdisciplinary approach is understood as operating between, across and beyond disciplines. The transdisciplinary approach is further explained as the transcendence of a subject that signifies the Subject-Object interaction.[31] Traditionally, dance education in higher education has largely been based on cultivating the "performer's physical virtuosity and body intelligence, shaping and disciplining the body for the execution of choreography, and not for interaction with mediated and unstable environments".[32] Transdisciplinary performance, such as in the case of dance and technology convergence, essentially goes "beyond disciplines" by understanding Subject-Object interaction, such as body-mediated unstable environment interaction.

Directing the attention of dance and/or choreography to the Subject-Object interaction broadens the idea from the creation of dance as a discipline to the creation of interactivity between subject and object. Therefore, the educational objectives should extend beyond specialising in movement to also

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26) R. S. Schreiber, and P. N. Stern(2001), *Using grounded theory in nursing*(New York: Springer Publishing Company).

27) A. Strauss, and J. Corbin(1990).

28) B. Nicolescu(1999), The transdisciplinary evolution of learning, *Symposium on Overcoming the Underdevelopment of Learning at the Annual Meeting of the American Educational Research Association*(Montreal, Canada: AERA).

29) J. Delors(1998), *Learning: The treasure within*(Paris: UNESCO).

30) B. Nicolescu(1999).

31) B. Nicolescu(2010), Methodology of Transdisciplinarity-Levels of Reality, Logic of the Included Middle and Complexity, *Transdisciplinary Journal of Engineering & Science* 1(1), pp.19-38.

32) J. Birringer(2004), Dance and Interactivity, *Dance Research Journal* 36(1), pp.88-111.

include understanding digital contexts.

The 4 pillars of learning have been identified as useful tools in encouraging adaptable choreographers to explore beyond the discipline of dance and to promote an understanding of dance as a discipline that can interact between, across and beyond disciplines. In essence, the transdisciplinary choreography educational objective pursues dance choreography for sustainability.

1) Learning to know: artist

"Learning to know means being capable of establishing bridges—between the different disciplines and between these disciplines".[33] This aim in knowing thus allows the body to connect to a new environment, such as a technologically enhanced environment. The interactive and generative environments ask the choreographer to re-think the significance of and the approach to the physical body in choreography. The thought regarding the body must shift with the change of the performance space from a forward-oriented proscenium stage to the diverse possibilities in orientation. The interaction of the body and environment requires a new vocabulary of movement than the vocabulary that was received in training. The interactive design engages the body differently and reacts to the senses and tactile extensionality.

> It is not about dance technique, that is not what is important. It's about communication between bodies and the environment. Listening, connecting through the senses in finding a relationship with the space and the interactions within space (Ho-D-150529-1).

The role of the artist in this study refers to a catalyst for creative activity rather than the traditional notion of being a specialist in one's own discipline.[34] A transdisciplinary artist explores and investigates beyond his or her own discipline of dance and movement and functions as an initiator in creatively solving problems among disciplines.

2) Learning to do: technician

Learning to do is described as the acquisition of a profession through a phase of specialisation.[35] This objective then allows the artist to gain knowledge and skills in the new technology. It is insufficient to only know about technology. To utilise it, one must become familiar with technology to create a relationship. One participant stated that,

33) B. Nicolescu(1999), p.4.
34) S. Cornock, and E. Edmonds(1973), The creative process where the artist is amplified or superseded by the computer, *Leonardo* 6, pp.11-16.
35) B. Nicolescu(1999).

> If you do not know the tools that you are utilising, it is hard to create a relationship. When you create, you must understand the need for it, which means that you should understand and know the tool that you are utilising to create a relationship. You should not use it because it is trendy (Song-I-DM-150518-1).

Similarly, this participant mentioned that,

> It was hard for me at first, because I was so used to drawing on paper, but when I learned to draw digitally, because I was not familiar with the tool, I couldn't express what I could do on paper. But now that I have mastered it, I can go beyond what I couldn't do on paper. It takes time to learn the technology, but in digital art, it's a necessity (Seul-DA-150529-1).

The motivation to use technology should not be that everyone is using technology. One must have in-depth or thorough knowledge to be able to choose and find the right motivation for utilising technology. Therefore, it is insufficient to simply bean artist. When artists become technicians, they continually investigate the tools that they can use to expand to new territories by acquiring new vocabularies that can be appropriately incorporated into their work.

3) Learning to live together: researcher

Learning to live together is "negotiating between the in's and out's of innumerable conflict; definitively separating interior from exterior life".[36] As a creator, this skill is essential to research. However, this skill should not stop at research but is a constant negotiation between interior and exterior conflict. Thorough research is necessary to make choreography come alive through art. Creators research so that they can express their thoughts and feelings. With technological enhancements, artists are closer to producing their inner thoughts and feelings as accurately as possible. One participant mentioned that "For me as a creator, I draw on all the technology that is available to me because I want to make my thoughts and feelings into a reality to share with others" (Jun-I-D-150625-2). To achieve convergence between dance and technology, the differences among the uniting disciplines must be identified and researched so that artists can negotiate the realising of their inner thoughts and present them to the outer world.

4) Learning to be: practitioner

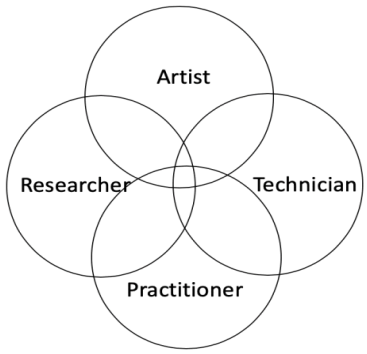
Learning to be is discovering how to exist. Nicolescu explains this concept as follows,

36) Ibid., p.5.

> The word 'exist' means for us: discovering our conditioning, discovering the harmony or disharmony between our individual and social life, testing the foundations of our convictions in order to discover that which is found underneath.[37]

When UNESCO first conceptualised this type of learning, it transpired from the fear that technological change will cause dehumanisation.[38] Therefore, this type of learning ultimately refers to learning to be human. In the context of dance and technology convergence, there are parallel concerns "that these technologies extend rather than constrain practice".[39] One's own identity must not be lost in the integration and collaboration among disciplines. A participant responded that,

> At first, honestly, I think the reason for utilising technology was because it was a novel concept. I experimented with different types of technology, but now, I am back to questioning my identity and the justifications of the necessity of technology in my work (Jun-I-D-150625-2).



<Figure 2> Transdisciplinary choreography education learning aims.

In transdisciplinary learning, one of the defining key characteristics is participation. Through participation, the general quality of a conceptual framework and learning outcomes can be organised.[40] Therefore, continuous practice and participation is key. As illustrated in Diagram 2, in exploring the Subject-Object interaction, an interaction between the roles of artist, technician, researcher and practitioner is needed for transdisciplinary learning in choreography.

2. Transdisciplinary choreography educational content: Mode 2 knowledge production

Another key characteristic of transdisciplinary learning is in the production of knowledge.

37) Ibid., p.6.
38) E. Faure(1972), *Learning to be: The world of education today and tomorrow*(Paris: UNESCO).
39) K. Chappell(2006), Conference report: dance and the Child international (daCi) conference, *Research in Dance Education* 7(7), pp.221-223.
40) J. Y. Park, and J. B. Son(2010), Transitioning toward transdisciplinary learning in a multidisciplinary environment, *International Journal of Pedagogies and Learning* 6(1), pp.82-93.

Transdisciplinary learning generates new knowledge by participation and solving problems through interdisciplinary collaboration.[41] Therefore, learner participation and new knowledge creation is driven by interactivity, as shown in Table 1.

<Table 1> Learning modes and interactivity[42]

Learning mode	Interactivity	Student Identity	Teacher Identity
Subject	Topic-driven	Knowledge receiver	Knowledge deliverer
Disciplinary	Subjects-driven		
Multidisciplinary	Discipline-to-discipline-driven	Knowledge consumer	Knowledge facilitator
Interdisciplinary	Learner-collaboration-driven	Knowledge collaborator	Learning designer
Transdisciplinary	Learner-participation- and new-knowledge-driven	Knowledge producer	Interactive learning designer

Next, to better understand transdisciplinary performance, it is necessary to first understand what performance is and how it is perceived. Performance refers to the work that is conducted by performers of prefigured text. In theatre, performers perform the words of a playwright at the will of a director. Similarly, in dance, dancers perform the actions that are prescribed by a choreographer. Performance then is a premediated production by bodies in front of spectators. In contrast, from the 1960s to the present day, the word performative has referred to the creative arts that refigure the relationship between subject and object, observer and observed and artist and audience and draw attention to the act of performance. Performance is a "deliberate" act in theatre production, where as performativity is explained by Butler as,

> not a singular 'act', for it is always a reiteration of a norm or set of norms, and to the extent that it acquires an act-like status in the present, it conceals or dissimulates the conventions of which it is a repetition.[43]

Bolt[44] further explains that performativity can be understood as the iterative and citational practice that creates the form that it names. Performativity clearly involves repetition rather than singularity. Through this repetition, as it is explained, no subject precedes the repetition. Butler argues that "there is no performer prior to the performed, the performance is performative."[45]

In this respect, the concept of performance has seen changes and shifts from the traditional sense of

41) M. Gibbons, C. Limoges, H. Nowotny, S. Schwartzman, P. Scott, and M. Trow(1994), *The new production of knowledge: The dynamics of science and research in contemporary societies*(London: Sage Publications).
42) J. Y. Park, and J. B. Son(2010), p.85.
43) J. Butler(2011), *Bodies that matter: On the discursive limits of sex*(London: Routledge), p.12.
44) B. Bolt(2009), A performative paradigm for the creative arts, *Working Papers in Art and Design* 5.
45) J. Butler(2011), p.24.

performance. Transdisciplinary performance is yet another shift and development in theatre and performance. This study identified an interaction between these two paradigms of performance and performativity with the introduction of technology, and these two concepts were identified as the object.

For the subject, three types of content were found to interact, namely, body, environment and technology as illustrated in Table 2.

<Table 2> Transdisciplinary choreography educational contents

Object \ Subject	Body	Environment	Technology
Performance	Function	Communication	Experience
Performative	People	Use	Objects

The body as the subject of performance must be seen through a broader spectrum that may be informed or affected by the environment and technology by finding the interactivity within that shapes the performance. This view was evident from the participants.

> The way that we see the body is changing in performance. Personally, I am more interested in working with untrained bodies as opposed to the trained. The trained body does not intrigue me. I want to see more realness in how the body reacts and responds to environments (Ho-D-150529-1).

> The landscapes in which we create works are shifting to real-time, virtual reality, 3D and interactive telecommunications. How we react to this is opening up our investigations in how we look at performance (Seul-DA-150529-1).

> Technology is changing the ways that we perceive performance. It is changing the way that we work and approach creation and how we interact with people, society and culture (Ha-DA-150626-2).

In the performance objective dimension, first, the subject content begins with the interaction of the body in form. However, in a transdisciplinary setting, this form evolves into function through interactivity. Rather than seeking to have a body interact with form, the body is made to interact with the environment then with technology in an attempt to find relevance to people and society. In the subject content of environment, the traditional sense of environment as a function to gather performers and audiences develops into an environment of communication through response and reaction. Finally, the new subject content of technology interacts with the body and environment to offer an

experience beyond communication. Technology attempts to find a relationship and form an understanding between the communication performer and the object of technology.[46)]

In the performative objective dimension, first, the subject of body is person as opposed to dancer, performer, and/or actor. The person becomes the object, and the person also becomes the user. In this way, there is an interaction in the larger context that people inhabit the world, not performers. The subject of environment here refers to use. The environment is created with the user in mind. Because there cannot be users before there is something to use, the creation is user-centred and designed for the interaction of the user. Lastly, the subject content of technology is objects. The thought of identifying the use and the user can only exist with the prior knowledge of the user. A participant mentioned that "I generate the design to the space and the interaction of the design that it will have with the audience"(Ha-DA-150626-2).

V. Conclusions

The digital revolution in the mid-20th century ushered in the information age, which is characterised as the shift from industrial production to production that is based on information and computerisation. The responsibility of modern education is to empower students to be adaptable people and to prepare them for all the possibilities and choices in life at both the individual and social levels. Thus, new pedagogy must focus on how young people create new understandings and relationships and exist in the world of contingency rather than them being governed by traditional values, discarded values, old rules and fixed impositions.[47)]

Dance is inherently based on interdisciplinary learning, and the information age brings another discipline for exploration in the world of creative performing arts. Transdisciplinary learning is necessary because a) when dance meets science, it is an integration of and collaboration with a discipline that is unfamiliar to the performing arts disciplines, and b) when two disciplines that are fundamentally different in nature are integrated, problem-solving skills are necessary to transcend the dance discipline to create something new.

Therefore, this research set out to identify the newly found objective and content to cultivate 21st-century creators in the changing landscape of dance performance. Higher education in dance still heavily focuses on creating and generating movement and training the body for these specific movements. However, with the rise of technology, new territories have emerged in the field of

46) C. T. Mitchell(1993), *Redefining designing: From form to experience*(New York: Van Nostrand Reinhold).
47) B. Nicolescu(1999); M. Van Manen(1991), *The tact of teaching: The meaning of pedagogical thoughtfulness*(Albany: SUNY Press).

performance. Despite this potential, there is a gap between the field and education because the curriculum is not reflected or informed by artists and the works in the field.

This gap is producing choreographers with curiosity about new technology, but most performance remains interdisciplinary, where the choreography is still approached traditionally with aid from other disciplines. Interdisciplinary performance, then, is identified as lacking in interaction and interactivity between disciplines for convergence in creating new knowledge; rather, the disciplines simply co-exist.[48)]

The research identified transdisciplinary choreography educational objectives as dance choreography for sustainability with the 4 aims of learning to know, learning to do, learning to live together and learning to be. Additionally, transdisciplinary choreography educational content can be divided into the two interacting dimensions of the performance and performative paradigms. In these two paradigms, there are three interacting types of subject content, namely, body, environment and technology. The implementation of these educational objectives and content relies on understanding the interactions and interactivity that ultimately lead to transdisciplinary practice in creating new knowledge – Mode 2 knowledge.

With the identified objective and content, dance choreography education with a transdisciplinary approach should aim to cultivate artists who are technicians, researchers, and practitioners so that the research on creation can go beyond the current discipline to new territories.[49)]

To prepare students and immerse them in the changing landscape of performance, digital experiences must be available in dance education. Dewey[50)] asserts that good education must value experience and understand the effects of experience on the individual's future growth, thereby contributing to society. This goal resonates with transdisciplinary learning because one of its key characteristics is praxis. Therefore, transdisciplinary learning in education must provide for and promote practitioners.

Consequently, art reflects the phenomena of society and culture. Therefore, gaining an understanding of the transdisciplinary convergence of dance and technology provides a wider and improved view of society and culture. Ultimately, this knowledge justifies the importance and necessity of dance, specifically the role of choreography education beyond its importance in the dance world. The role of choreography education not only produces creative choreographers for the dance world but also allows students to learn about the surrounding society and culture by solving significant real-world questions or problems.

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48) J. Birringer(2004).

49) B. Nicolescu(2005), Towards transdisciplinary education, *The journal for transdisciplinary research in Southern Africa* 1(1), pp.5-15; 신민혜(2017), 대학 무용학과의 존립을 위한 선발-교육-진로 방향성 모색, 『무용예술학연구』 63(1), pp.67-85.

50) J. Dewey(1959), *Experience and education*(New York: Macmillan).

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Abstract

융복합 안무교육 프로그램 개발

- 상호작용성 분석 중심으로 -

김 나 이

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현 21세기 디지털 시대에 발 맞춰 무용공연에서도 무용과 테크놀러지의 융복합 공연이 활성화 되고 있다. 융복합이란 '융합'과 '복합'의 합성어이며, 여러 기술이나 성능이 하나로 융합되어 새로운 무언가를 창출해내는 일을 일컫는다. 현시대에 맞는 안무가 양성을 모색하기 위해 본 논문을 무용과 테크놀러지의 융복합으로 인해 발생하는 장르간의 상호작용성을 중심으로 탐구하여 융복합 안무교육 목적과 교육 내용을 탐색한다. 심층면담을 활용한 질적 연구방법론을 채택하여 명성적 사례표본 추출방법으로 융복합 공연에 대한 전반적인 지식, 경험, 안목을 갖춘 10인을 선정하였다. 연구결과로 융복합 안무 교육 목적은 지속 가능성을 목표로 유네스코 학습의 네 가지 기둥 기반으로 알기 위한 학습, 행동하기 위한 학습, 함께하기 위한 학습, 존재하기 위한 학습으로 나타났다. 융복합 교육내용으로는 퍼포먼스와 퍼포머티브의 상호작용성을 통한 몸, 환경, 기술로 구분되었다. 본 연구는 안무교육을 통한 지속 가능성에 대한 관점을 제공하고 개인과 예술 및 사회라는 더 큰 영역과의 연계를 심화시킴으로써 안무교육 패러다임의 전환이 필요함을 제안 하는데 의의가 있다.

Keywords: 융복합 학습(Transdisciplinary learning), 안무교육 (Choreography education), 유네스코 학습의 네가지 기둥(UNSECO four pillars of learning). 상호작용성 (Interactivity), Mode 2 지식생산론 (Mode 2 knowledge production)