

Collaboration in the arts for interdisciplinary practice at the Institut Kesenian Jakarta, Indonesia



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ABSTRACT

In recent years, the interdisciplinary approach to art has gained popularity in the field of art studies. Numerous art studies transcend creative disciplines, allowing for the production of novel ideas and works. This study aims to understand the multidisciplinary art and design processes at the Institut Kesenian Jakarta. The data were acquired by observation and a review of the literature. Observations were made in order to collect field data about the work of art. This observation method was employed while visiting numerous exhibitions and performances at the Institut Kesenian Jakarta, and the literature was sourced by reading articles published in foreign magazines. The examination focuses on the difficulty inherent in diverse art practices. This study discovered that collaborative work increases the process of knowledge exchange between members and groups. As a result, an art ecosystem is developed from the standpoint of art creation and study. This research contributes to the discovery of new creative models or value chains and the provision of fundamental knowledge to develop a diverse art ecosystem. Art colleges can also contribute to interdisciplinary understanding and culture by fostering knowledge and abilities in art creation that are applicable across fields and are not constrained by the nomenclature of a single 'subject of arts'.



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1. Introduction

The world has changed dramatically since the invention of the steam engine in the 18th century, resulting in changes in social, economic, and cultural conditions. These shifts have an impact on science's development; in its early stages, for example, in the fields of agriculture, manufacturing, mining, transportation, and information communication technology, science is typically monodisciplinary, with a single point of view and a predetermined scope limit with one theory [1]. Procedures (logic) based on a monodisciplinary truth aim can no longer address changes and the fast order of life in an increasingly complex environment. In today's world of openness, global connectivity, and technological disruption, it appears to be possible to influence the nature of science, which is no longer monodisciplinary [2]–[4], for example; (1) Economic Clusters, which affect economic growth, employment, and the nature of work; (2) Business Clusters, influencing consumer expectations, changing products with better data, collaborative innovation and new business (operations) models; (3) Clusters of National-Global Relations, Government Relations, State, Region and City Relations, and International Security; (4). Community Clusters have an impact on increasing social inequality, decreasing the standard of living of the middle class, and the proliferation of communities; (5). Individual Clusters, have an impact on issues of moral and ethical identity, human relations, and the regulation of public and private information. These developments, of course, need problem-solving from a variety of perspectives or disciplines. Interdisciplinary problem solving is



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when you use a multidisciplinary approach to solve a problem [5]–[7]. This interdisciplinary method may be classified into four categories based on its characteristics: interdisciplinary, multidisciplinary, transdisciplinary, and cross-disciplinary [8]–[10]. Interdisciplinary is the integration of disciplines, which can only happen if various fields of science, whether allied or not, can submit the truth and limit their scope and duties collectively by referring to a strategy accepted by all, according to various interdisciplinary terminology [11]–[13]. The application of science to find a solution to a problem. To put it another way, interdisciplinary is a method that involves the collaboration of people from multiple disciplines to solve a problem or generate a product or piece of work [14]–[16].

In the field of art and design, the multidisciplinary approach has recently come up a lot in various conversations. Interdisciplinary work in the field of art and design is not new in theory, but it is new in practice [17]-[19]. Initially, this approach may have gone unnoticed since, in the realm of art and design, producing works or solving issues carried out collaboratively in other research sectors is more commonly referred to as collaborative work. Collaboration is a process in which two or more people/groups work together to develop new ideas or solve problems in order to achieve a common goal [20]. Collaboration in the creative and intellectual arenas, according to Moirano, is a process of interdependence between intellectuals in the development of knowledge and between partners in organizations [21]. In collaborative art, the artist is one of a group of individuals who collaborate on a project, and the work they produce is a significant element of the final product. Vera John-Steiner also uses Lev Vygotsky's core theory to underline the necessity of collaboration in art [22]; it is concerned with the human-sociocultural interaction, in which a person acts and interacts via exchanging experiences. So that each individual may create knowledge independently via social contact with others or with more capable individuals, the practice of working collectively or collaboratively becomes vital as part of the development of individual learning. There will always be intensive communication and a feeling of oneness throughout the collaborative work process. Each individual in charge of his or her portion will endeavour to comprehend what the other person is doing. As a result, the success rate of cooperation is affected by knowing the character of cooperating partners, respect for knowledge, and competency. Because an issue will be tackled from numerous viewpoints, combining people with varying cultures, educations, and experiences will provide entirely different views. In addition, this study contributes to the discovery of patterns or models of collaboration in art production and a description of interdisciplinary understanding in Indonesian art studies.

2. Method

The use of an interdisciplinary approach and the practice of cooperation are two issues that are frequently discussed and regarded as significant in creative endeavours. However, at the Institut Kesenian Jakarta, these two things have been done for a long time. This research is fundamental research that uses a qualitative method to better comprehend the subject under investigation. Researchers assemble highly complicated data due to the variety of genres of art examined. Data gained via observation techniques are extensively categorised, and literature searches are conducted to get insights and patterns of comparable studies. The publishing search strategy looks for the most recent papers published in international journals over the previous five years and archives of performances and art exhibitions housed by the Institut Kesenian Jakarta. The data are then described and analyzed using the perspective of interdisciplinary art practice. The investigation includes the creation of concept maps in order to determine the distribution pattern of collaboration between creative disciplines. Art group data that is interconnected will be plainly seen if this approach is used.

3. Results and Discussion

3.1. Interdisciplinary in Art and Design

Following the advancement of technology and user society, art and design are always expanding and growing. In art and design, an interdisciplinary approach is taken by applying ideas, concepts, and even methodologies from other relevant and essential disciplines of study to the content of the problem at hand. Not just social sciences and humanities, such as anthropology, history, sociology, psychology, economics, communication, and politics, but also exact disciplines like engineering, mathematics, biology, chemistry, and even physics, are frequently applied interdisciplinary art, and design

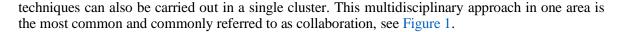




Fig. 1. Integration between arts and humanities

Interdisciplinary work can also be done between branches of science in a more limited sense. Design sub-clusters are an example of multidisciplinary work in the applied sciences (see Figure 2). Design as science is divided into many clumps. Product design, interior design, and visual communication design are examples of these. Each branch of science focuses on a specific field of study and refers to design principles that are appropriate for that field of study, such as product design emphasizing the function of use, interior design emphasizing the function of space, and visual communication design emphasizing the function of communication. The interdisciplinary or integration of the three areas will result in a new type of design or media [23]. For example, to create exhibition designs, integration between visual communication design and interior design and other disciplines like architecture and civil engineering is essential. Another example is the creation of packaging by combining visual communication design with product design. The rise of new media in the design industry in the form of digital media is influenced by disruption in the technology sector. Digital Products / Apps, Game Design, Website Design, UI (User Interface) Design, UX (User eXperience), and Digital Products / Apps are some examples of digital media that are the outcome of combining design science with digital technology (informatics/multimedia).

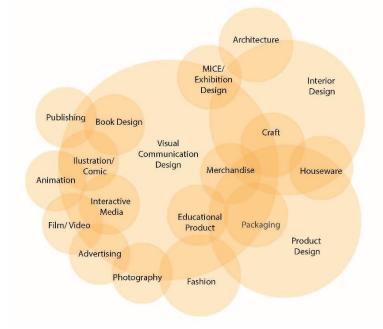


Fig. 2. Integration between the fields of design, sub-clusters of applied sciences

Interdisciplinarity in an ecosystem in the field of art and design is extremely near to the industrial world in practice [24]; this fact is not sufficient simply via the approach of art or design itself, but also through other science disciplines. Figure 3 depicts the art and design ecosystem's creative value chain. The ecosystem begins with the invention, then moves through production, distribution, and marketing, with each science family involving a variety of specialities.

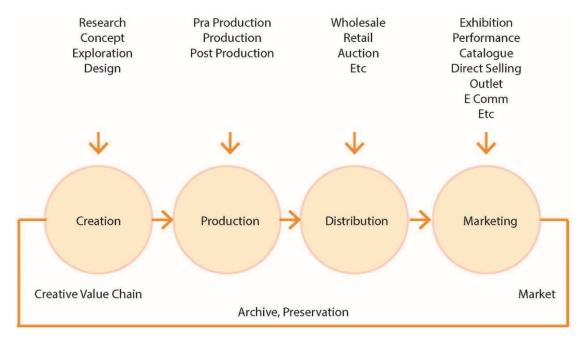


Fig. 3. The ecosystem of art and design

Understanding and knowledge of customer want are required while creating a product design or solving design difficulties. It also considers the requirements of those who will utilize it [25]. The design process steps, from conception (research, pre-production) to manufacturing (product testing, up to the finished product), cannot be completed alone by design science [26]. Design designers must pay attention to the distribution process to the market, and each stage requires the role of the relevant field of science [27]. For example, research is required during the creation stage; at this point, the design designer requires additional sciences such as anthropology, sociology, ergonomics, marketing, and maybe statistics [28]. The production stage, for example, necessitates the involvement of the areas of production management science and production technology—similarly, the stages of distribution and marketing. Technological disruption and the emergence of a global pandemic have also resulted in changes in the function of communication media [29]. In order for artists to interact with the wider community, they must adapt to digital platforms. Art and design activities as knowledge transfer, discussion forums, discourse development events and performance venues using virtual platforms [30]. All performances and exhibitions that were previously held in person have become distant and require the assistance of a special virtual platform [31], see Figure 4. This fact shows that interacting to spread artistic ideas requires integration with other fields of science; in this case, it is a digital platform in informatics engineering.

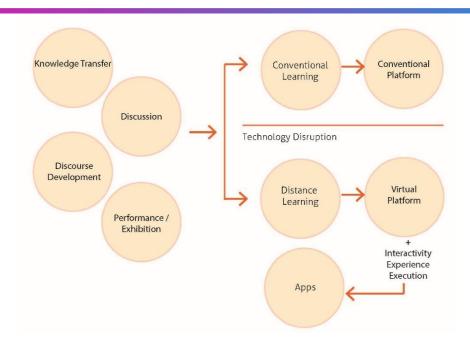


Fig. 4. Interaction of art and design in non-virtual and virtual platforms

3.2. Interdisciplinary Practice in Collaborative Work at the Institut Kesenian Jakarta

The interdisciplinary approach at the Institut Kesenian Jakarta has unwittingly occurred since its inception under the name of the Jakarta Arts Education Institute (Lembaga Pendidikan Kesenian Jakarta/LPKJ). The initial concept of LPKJ was a joint studio or studio, a meeting place for artists and aspiring artists, without a structured education system and methodology. In this study system, the artists/maestros share their experiences and expertise with aspiring artists in their own way, without being burdened with strict formal requirements. Bambang Bujono [32] stated that LPKJ created the atmosphere mentioned by Umar Kayam as its first chairman (rector): "formal education with a workshop approach." So at that time, there was no formal separation between art academies. Then, with the Law on Higher Education and the Decree of the Directorate General of Higher Education 1967, which stated that new universities must be registered with the Coordinator of Private Higher Education (Kopertis). LPKJ must also become a registered university and meet certain administrative requirements like other private universities according to government regulations, which also changes the organizational structure. Five departments into three faculties, where each faculty has many departments (currently study programs), each with their own specialization of expertise. In the subsequent development of Institut Kesenian Jakarta, this interdisciplinary approach becomes the vision and mission of the institution, which is implemented in the activities of the Tridharma Perguruan Tinggi (Tridharma of Higher Education). In Education, interdisciplinary understanding is carried out through a curriculum that requires students to take elective courses in other study programs and faculties. Currently, even with the implementation of the MBKM curriculum (Merdeka Belajar Kampus Merdeka/Independent Learning Independent Campus) [33], it will be possible for students to take courses at other universities with different fields of knowledge so that students get enrichment from other sciences needed to support the main competencies that must be mastered. Although Institut Kesenian Jakarta is currently divided into many study programs in three faculties, the early art education methods at LPKJ have reflected strong colours and characteristics. This character became the basis for the development of LPKJ until it became the current Institut Kesenian Jakarta. Currently, the atmosphere of collaborative work between specializations in the fields of art and design continues to be developed. The following are three examples of collaborative activities on a local (internal), national and international scale at Institut Kesenian Jakarta that produce works that demonstrate interdisciplinary understanding.

1) Yellow Submarine Performance, 1977

Putu Wijaya made a review in Tempo magazine, about the success of the big performance "Yellow Submarine" (a farewell ceremony with Governor Ali Sadikin), as a collaboration of dance, Theater, music, film and art way that involved all LPKJ academics in 1977:

"Even the stage, which is constantly changing subtly, suddenly becomes the bottom of the ocean when a diver looks like he is swimming around (this diver is wearing an acid gas cylinder -- and a *sarung*). No less than a restaurant waiter pacing back and forth with drinks. Then some dancers danced funny. This variety is followed by a scene depicting the eviction. It is all mixed up and hilarious. Towards the end, a mother was seen bathing her two children, who were then beaten by the evictions. Soon a conductor appeared and led them to sing a song; while simultaneously spraying a documentary about Jakarta onto the stage behind them, a total Theater arose. Moreover, the distance to the audience was then revealed: the flags not only danced on the stage but also touched the audience's nose".

According to Bambang Bujono, Putu Wijaya's review implies an audiovisual spectacle that reflects the level of success of an arts education institution in responding to the times. "Yellow Submarine", which is based on a Beatles song, reflects an urban art, where a big city culture whose boundaries between ethnic and national boundaries are thinning, in an era when the term "globalization" was unimaginable. Whether we realized it or not at the time, this product called "Yellow Submarine" reflected that LPKJ was in the middle of a big city with all the developments and confusion of things that were visible (technology, inter-ethnic relationships) and the invisible (ideas about culture, social, economics, as well as politics). Collaborative performances directly prove the reliability of LPKJ lecturers and students and indirectly the success of the educational process. However, as in general education – as happened with LPKJ – the process must continue to be adapted to the development and needs of the community. The Yellow Submarine show shows how collaborative work is to produce performing arts products/works involving various fields of art, namely dance, theatre, music, film, and fine arts. This collaboration is an approach that is currently understood as an interdisciplinary approach. In this show, the integration between disciplines that occurs is between cognate disciplines (Figure 5).

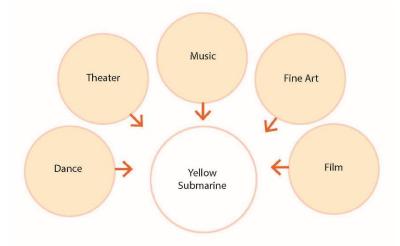


Fig. 5. Collaboration with an integrated approach between cognate disciplines

2) Fashion Show - CiFFest 2017

The 2017 Cikini Fashion Festival, known as CiFFest, is a collaborative program between the Faculty of Fine Arts, the Institut Kesenian Jakarta and Bekraf in the Bekraf Creative Lab (BCL) program, which is intended as a forum for creative economy players to meet in the fashion sector, which is targeted to be a barometer of the latest developments related to research, works and art and data on the Indonesian fashion sub-sector. The CiFFest series of events that lasted for two days at the Jakarta Theater included seminars, masterclasses, exhibitions and fashion shows. The Fashion Show, which carries the 2017-2018 'GREYZONE' Fashion Trend Forecasting concept, is designed to collaborate with various other arts fields, namely dance, music, stage planning, and video mapping, so that fashion shows are presented as performing arts. The Fashion Show presented 55 designs by 7 Indonesian Designers, students of Fashion from the Institut Kesenian Jakarta and LPTB Susan Budihardjo, including Deden Siswanto, Lenny Agustin, Sofie, Sav Lavin, Aji Suropati, Ray Anjas Maulana, and the label Random by, performed with dancers and dancers. Choreographer Rosmala Sari Dewi and Video Mapping Creator Arif Yaniadi from the Postgraduate School of the Institut Kesenian Jakarta. See Figure 6.



Fig. 6. The environment of the fashion show at CiFFest 2017, source taken from the FSR Archives of the Jakarta Arts Institute

This collaborative work to produce a fashion show that is displayed as a performing art involves the fields of fashion, visual communication design, architecture, video mapping, multimedia technology, and performing arts in the form of dance, music and stage setting. In this fashion show, the integration between disciplines that occurs is between the humanities, applied, and science disciplines (Figure 7).

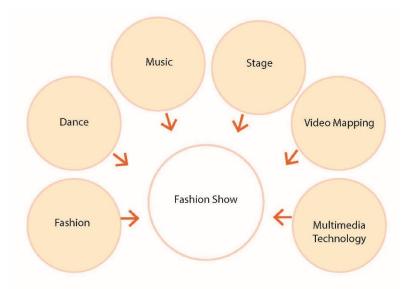


Fig. 7. Collaboration with an integrated approach between humanities, applied and science disciplines

3) Animated Performance 'Exploring Root of Identity'

International collaborations are also often carried out by the Institut Kesenian Jakarta. One example is with the California Institute of The Arts (CalArts). The collaboration, which started with the Artist Residency activity, involved many Institut Kesenian Jakarta students and lecturers from the faculties of fine arts, performing arts and film with CalArts students and lecturers as participants worked on a joint work which was then staged. This collaboration resulted in an animation, music and dance performance with the theme Exploring Root of Identity, with an emphasis on intercultural dialogue and cross-discipline to enrich the experience and understanding of participants through collaborative art creation and cultural dialogue. This performance was staged three times, (1) performance at the Graha Bakti Budaya Taman Ismail Marzuki in 2009 as a series of the VI Indonesian Arts Festival; (2) 2010 Show at the California Institute of Art Main Gallery as Artist Residency series; and performances at the Jakarta Luwes Theater Institute of the Arts; (3) ISI Surakarta Performance Building 2011 as part of the VII Indonesian Arts Festival, see Figure 8.



Fig. 8. The environment during the discussion and the final result of the collaboration, the source is taken from the Visual Communication Design Archives of the Institut Kesenian Jakarta

In collaborative work involving visual communication design in the production of animated films, multimedia, dance performances, music, and stage setting, the integration between disciplines occurs between the humanities, applied and science disciplines (Figure 9).

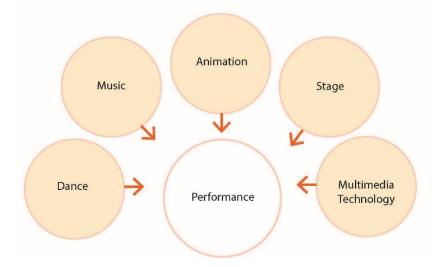


Fig. 9. Collaboration with an integrated approach between the humanities, applied and science groups

3.3. Interdisciplinary Versus 'Science Discipline' at the University of the Arts

Considering that this interdisciplinary practice has become unavoidable, the position of the arts university in building this interdisciplinary understanding and culture is very important. However, let us look at the disciplines that are regulated through the Decree on the nomenclature of the clumps of knowledge set by the government for higher education in the arts and design fields. It still shows the dividing lines. There it is regulated that the arts are in the humanities family, while the design is in the applied sciences (see Figure 10).

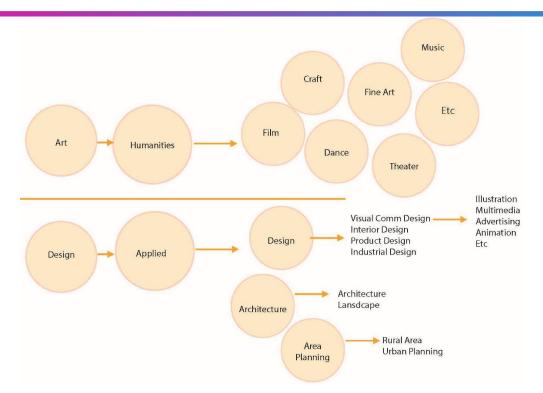


Fig. 10. Nomenclature of disciplinary grouping in art and design

The nomenclature of science divides art and design into their respective fields of science and makes each field of science seem to have a dividing line. Whereas, as previously explained, solving problems of creation and research in art and design is rarely done with a monodisciplinary approach. The more complex the problem, the more different perspectives from other fields of science are needed. The university, in this case, has the task of developing scientific and innovation capabilities by increasing research capabilities and being able to work across scientific disciplines, producing collaborative innovations, and creating job opportunities. In addition, it also improves aspects of data literacy, technological literacy and human literacy. This means that university policies have a focus on improving the quality of human resources (HR) and the formation of their ecosystem, which requires cross-disciplines. The stipulation of the nomenclature of 'Science Discipline' in certain scientific groups does not provide flexibility for universities to develop science in accordance with very fast technological developments, especially in the fields of art and design. Each university has its own characteristics according to the external and internal conditions of the university to determine its relative position. For this reason, it is necessary to have the freedom to determine the nomenclature according to the relative position and direction of education determined by each university.

The MBKM (*Merdeka Belajar Kampus Merdeka*/Independent Learning Independent Campus) program provides flexibility for universities to set up a freer curriculum for students to master various disciplines directed at cross-disciplines that can support key competencies, makes rigid nomenclature determination through the division of 'disciplines' groupings become irrelevant. Universities must be freed to develop their knowledge and ability to work across disciplines without being burdened with 'Science Disciplines' limitations and give names freely according to their respective educational directions. With an interdisciplinary approach that moves across disciplinary boundaries, new understanding will always be found among the disciplines involved, generating new (innovative) thoughts and works. Figure 11 is a way of working in interdisciplinary practice to produce new (innovative) thoughts and works.

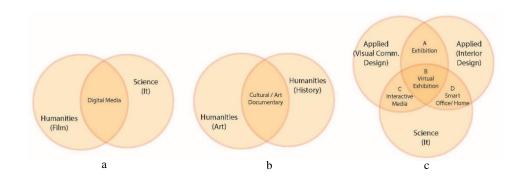


Fig. 11. Example diagram of 3 different ways of interdisciplinary practical work to generate new ideas/works

Figure 11 (a) Interdisciplinary practice, which integrates two disciplines, namely arts and engineering (humanities and sciences), can produce new ideas/works in the form of digital media. Figure 11 (b) Interdisciplinary practice, which is an integration between cognate disciplines in the form of arts and anthropology (humanities), can produce new genres in film, for example, cultural documentaries. Figure 11 (c) is an illustration of interdisciplinary practice, namely the integration between fields of science in one sub-cluster. In slice A, it shows that the applied science sub-clusters, namely DKV and interior design (design – applied), can produce exhibition products/works; slice B, explains the integration between fields of science in one sub-cluster, for example, the sub-cluster of applied sciences, namely Visual Communication Design and Interior Design (design - applied) coupled with other science clusters, namely information technology (science) can produce new ideas/works in the form of virtual exhibitions.

4. Conclusion

Interdisciplinary can occur because, in collaborative work, there is a process of sharing knowledge between members, as well as the groups involved, who are specialists in various allied disciplines, namely art and design, namely, dance, music, theatre, fine arts, film, and other fields of science such as design, technology (audiovisual, multimedia, digital). From these collaborative activities, it can be seen that there are two types of interdisciplinary practical work, namely; (1) Integration between cognate disciplines, problem-solving using various perspectives of allied sciences, seen in the 1977 Yellow Submarine show; (2) Integration between different disciplines, problem-solving with collaboration between different disciplines to unite various aspects needed, as seen in the 2017 CiFFest Fashion Show and 2010 Exploring Root of Identity Show. Interdisciplinary is needed to see and understand various other aspects, such as history, culture, economy, social/politics, and the environment, so that they can produce works of art and designs that can show cultural character and have more value in accordance with economic, social and sustainability principles. Higher education must be freed in scientific development and the ability to work across disciplines without being burdened with limitations in 'disciplines', including nomenclature grouping. Developing crossdisciplinary skills in higher education takes awareness of curriculum planners and material content. In addition, assignments and lecture activities that are interdisciplinary in nature must be practised by lecturers through leadership policies. Freedom of nomenclature must be fought for because freedom across borders will produce new (innovative) understandings, thoughts and works.

References

- L. Fergusson and L. van der Laan, "Disciplinarity and Work: Work-Based Learning as an Emergent Transdisciplinary Mode of Study," *World Futures*, vol. 77, no. 7, pp. 508–531, Oct. 2021, doi: 10.1080/02604027.2021.1984158.
- [2] H. Woiwode and A. Froese, "Two hearts beating in a research centers' chest: how scholars in interdisciplinary research settings cope with monodisciplinary deep structures," *Stud. High. Educ.*, vol. 46, no. 11, pp. 2230–2244, Nov. 2021, doi: 10.1080/03075079.2020.1716321.

- [3] X. Liu, B. Yi, M. Li, and J. Li, "Is Interdisciplinary Collaboration Research More Disruptive Than Monodisciplinary Research?," *Proc. Assoc. Inf. Sci. Technol.*, vol. 58, no. 1, pp. 264–272, Oct. 2021, doi: 10.1002/pra2.454.
- [4] B. Caramiaux and M. Donnarumma, "Artificial Intelligence in Music and Performance: A Subjective Art-Research Inquiry," in *Handbook of Artificial Intelligence for Music*, Cham: Springer International Publishing, 2021, pp. 75–95. doi: 10.1007/978-3-030-72116-9_4
- [5] R. L. Skains *et al.*, "Bridging Research Silos: Approaches to Arts-Science Collaboration," in *Using Interactive Digital Narrative in Science and Health Education*, Emerald Publishing Limited, 2021, pp. 73–89. doi: 10.1108/978-1-83909-760-720211005
- [6] R. Diessner, "Review of Understanding Aesthetics, Creativity and the Arts: An Interdisciplinary Approach.," *Psychol. Aesthetics, Creat. Arts*, vol. 15, no. 2, pp. 386–387, May 2021, doi: 10.1037/aca0000386.
- [7] B. Wang and P. Li, "Interdisciplinary approaches to arts education: Exploring the link between creative thinking and mastering exact sciences," *Think. Ski. Creat.*, vol. 42, p. 100968, Dec. 2021, doi: 10.1016/j.tsc.2021.100968.
- [8] J. T. Klein, "Building capacity for transformative learning: lessons from crossdisciplinary and crosssector education and research," *Environ. Dev. Sustain.*, pp. 1–14, Oct. 2021, doi: 10.1007/s10668-021-01802-5.
- [9] A. Silvast and C. Foulds, "A Sociology of Interdisciplinarity," in *Sociology of Interdisciplinarity*, Cham: Springer International Publishing, 2022, pp. 91–120. doi: 10.1007/978-3-030-88455-0_5
- [10] A. Tolk, A. Harper, and N. Mustafee, "Hybrid models as transdisciplinary research enablers," Eur. J. Oper. Res., vol. 291, no. 3, pp. 1075–1090, Jun. 2021, doi: 10.1016/j.ejor.2020.10.010.
- [11] R. Bednarek, M. P. e Cunha, J. Schad, and W. K. Smith, "Implementing Interdisciplinary Paradox Research," 2021, pp. 3–24. doi: 10.1108/S0733-558X2021000073b002
- [12] C. Pohl, J. T. Klein, S. Hoffmann, C. Mitchell, and D. Fam, "Conceptualising transdisciplinary integration as a multidimensional interactive process," *Environ. Sci. Policy*, vol. 118, pp. 18–26, Apr. 2021, doi: 10.1016/j.envsci.2020.12.005.
- [13] R. Bednarek, M. P. e Cunha, J. Schad, and W. Smith, "The Value of Interdisciplinary Research to Advance Paradox in Organization Theory *," 2021, pp. 3–25. doi: 10.1108/S0733-558X2021000073a002
- [14] A. Cristal-Lilov, O. Erez, and A. Ben Salmon, "Utilisation of a Collaborative Research Methodology for a Critical Realist Inquiry Into the Feasibility of Knowledge Evolution in the Academy and the Production of Interdisciplinary Practical Knowledge.," *J. High. Educ. Theory Pract.*, vol. 21, no. 1, 2021. doi: 10.33423/jhetp.v21i1.4045
- [15] M. Fujita, T. Okudo, T. Terano, and H. Nagane, "Analyzing Two Approaches in Interdisciplinary Research: Individual and Collaborative," J. Adv. Comput. Intell. Intell. Informatics, vol. 25, no. 3, pp. 301–309, May 2021, doi: 10.20965/jaciii.2021.p0301.
- [16] J. M. Knapke, S. M. Schuckman, and R. C. Lee, "Interdisciplinary Collaboration in Appointment, Reappointment, Promotion, and Tenure Criteria: Does It Matter?," *High. Educ. Policy*, Jun. 2021, doi: 10.1057/s41307-021-00238-w.
- [17] J. Vrana and R. Singh, "NDE 4.0—A Design Thinking Perspective," J. Nondestruct. Eval., vol. 40, no. 1, p. 8, Mar. 2021, doi: 10.1007/s10921-020-00735-9.
- [18] I. Avital and C. Monga, "Created Method: Pedagogical Approach for Diversity in Creative Design Process," 2021, pp. 795–808. doi: 10.1007/978-981-16-0084-5_65
- [19] D. Fitzgerald and M. Wagner, *The Heart of Light: A Holistic Primer for a Life and Career in Lighting Design and Production*. New York: Routledge, 2021. doi: 10.4324/9781003022725
- [20] O. Weisel and S. Shalvi, "Moral currencies: Explaining corrupt collaboration," *Curr. Opin. Psychol.*, vol. 44, pp. 270–274, Apr. 2022, doi: 10.1016/j.copsyc.2021.08.034.
- [21] R. Moirano, M. A. Sánchez, and L. Štěpánek, "Creative interdisciplinary collaboration: A systematic literature review," *Think. Ski. Creat.*, vol. 35, p. 100626, Mar. 2020, doi: 10.1016/j.tsc.2019.100626.

- [22] M. Gauvain, "Vygotsky's Sociocultural Theory," in *Encyclopedia of Infant and Early Childhood Development*, Elsevier, 2020, pp. 446–454. doi: 10.1016/B978-0-12-809324-5.23569-4
- [23] A. Barry, G. Born, and G. Weszkalnys, "Logics of interdisciplinarity," *Econ. Soc.*, vol. 37, no. 1, pp. 20–49, 2008. doi: 10.1080/03085140701760841
- [24] R. Bhaskar, C. Frank, K. G. Hoyer, P. Naess, and J. Parker, "Interdisciplinarity and climate change," *Transform. Knowl. Pract. our Glob. Futur.*, vol. 1, 2010. doi: 10.4324/9780203855317
- [25] N. Boorsma, R. Balkenende, C. Bakker, T. Tsui, and D. Peck, "Incorporating design for remanufacturing in the early design stage: a design management perspective," *J. Remanufacturing*, vol. 11, no. 1, pp. 25– 48, 2021. doi: 10.1007/s13243-020-00090-y
- [26] A. Valencia, A. Pearce, and M. Ryan, "Design Authorship: an intrinsic driver of designer-entrepreneurs," Open Res. Eur., vol. 1, no. 133, p. 133, 2021. doi: 10.12688/openreseurope.14148.1
- [27] F. Chiarello, P. Belingheri, and G. Fantoni, "Data science for engineering design: State of the art and future directions," *Comput. Ind.*, vol. 129, p. 103447, 2021. doi: 10.1016/j.compind.2021.103447
- [28] K. Savolainen, "User-Centred Design without Involving Users: A Longitudinal Case Study in a Human-Centred-Design–Mature Company," Des. J., vol. 24, no. 6, pp. 887–905, 2021. doi: 10.1080/14606925.2021.1980267
- [29] O. Westlund, A. H. Krumsvik, and S. C. Lewis, "Competition, change, and coordination and collaboration: tracing news executives' perceptions about participation in media innovation," *Journal. Stud.*, vol. 22, no. 1, pp. 1–21, 2021. doi: 10.1080/1461670X.2020.1835526
- [30] F. L. F. Lee, H. Liang, E. W. Cheng, G. K. Y. Tang, and S. Yuen, "Affordances, movement dynamics, and a centralized digital communication platform in a networked movement," *Information, Commun. Soc.*, pp. 1–18, 2021. doi: 10.1080/1369118X.2021.1877772
- [31] V. Kamariotou, M. Kamariotou, and F. Kitsios, "Strategic planning for virtual exhibitions and visitors' experience: A multidisciplinary approach for museums in the digital age," *Digit. Appl. Archaeol. Cult. Herit.*, vol. 21, p. e00183, 2021. doi: 10.1016/j.daach.2021.e00183
- [32] Bambang Bujono, Retropeksi Dan Eksplorasi 40 Tahun Pengabdian Institut Kesenian Jakarta 1970-2010: Dari Lantai III DKJ Hingga Kampus Baru. Jakarta: Institut Kesenian Jakarta, 2010.
- [33] E. Purwanti, "Preparing the Implementation of Merdeka Belajar–Kampus Merdeka Policy in Higher Education Institutions," in 4th International Conference on Sustainable Innovation 2020–Social, Humanity, and Education (ICoSIHESS 2020), 2021, pp. 384–391. doi: 10.2991/assehr.k.210120.149