Self-Generated Notations: A Suggested Methodology of Introducing Movement Literacy

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Self-Generated Notations: A Suggested Methodology of Introducing Movement Literacy

Abstract

The purpose of this paper is to present a method aimed at enabling the acquisition of movement literacy in a communicative-creative manner that does not require long-term expertise. The paper opens with a brief history and description of Eshkol Wachman Movement Notation (EWMN), followed by a discussion of the notion of Movement Literacy and its defined components–conceptualization, representation and kinesthetic performance, as have emerged within the EWMN system. Two additional educational ideas are also mentioned–the constructionism and the independent development of visual representations by learners. Together, these ideas establish a theoretical background for a non-formal study, in which dance-teaching students guided a process of independently developing movement symbols by their pupils, as part of their dance curriculum. Findings from these self-generated movement symbols exemplify the effective links between the conceptual, representational and practical aspects of movement studies. Teaching movement literacy as suggested is a communicative, effective, and creative process, available even for teachers at the beginning of their professional careers.

Keywords

This paper is dedicated to the memory of my teacher,
Tirza Sapir,
with hope for and commitment to
continuing the development of the legacy that she left behind.

The invitation to an open discussion on the various applications of movement notations and the opportunity to share knowledge and ideas are the main thrust of this paper. In my current position as the head of a dance department in the largest teacher-training college in Israel, in which I am responsible for the training of future dance teachers, it is vital for my colleagues and me to include the studies of movement notation—in this case, Eshkol-Wachman Movement Notation—as an integral part of the students' education. However, my experience shows that even after three or four years of formal training, the graduates' use of this system in its formal and orderly structure (i.e., its symbols and rules of grammar as known and agreed upon) is limited, and is executed only by a small number of those with a special interest in the subject.

This accumulated experience has led me to develop new ways to enable novice teachers to integrate movement notation thinking in their instruction and to appreciate, together with their pupils, the added value of implementing dance-movement literacy in any dance curriculum.

In this paper, I will present the core aspects of movement literacy as I perceive them, expanded by two supportive educational theories. These theories have led to the implementation of a methodology focused on self-generated notations as part of the notation-literate experience—an idea that will be discussed and demonstrated following its application by a group of student teachers and their pupils. The paper concludes with discussion of the potential contribution of the self-generated notations methodology to dance studies, as well as education in general.

Theoretical Framework

Movement Notation: A Personal View of Four Generations

My introduction to movement notation goes back to my own training as a dance teacher, when I met my teacher and mentor Tirza Sapir. Sapir was one of the senior disciples and the personal assistant of Professor Noa Eshkol, the co-creator together with Professor Avraham Wachman, of the Eshkol-Wachman Movement Notation (EWMN). As someone who was close to the creators (generation I), and took part in the design and refinement of the system, Sapir (generation II) was familiar with the ideas, considerations, and debates that took place during the

formation of EWMN. Sapir shared with us, her students (generation III[1]), some of these, including the various stages of the evolution of the symbol design and grammar rules, as well as other concerns leading to the current shape of the system.

For those who are not familiar with this system, I will emphasize here that since its publication[2] in 1958, dozens of books, studies, and dissertations using the EWMN have been published, including original choreographies, studies of human and animal movement, visual art based on EWMN principles, specialized software for notating, applications for educational and therapeutic purposes, as well as the meta-analysis of the system itself. A link to the Noa Eshkol Foundation website is found here,[3] where the interested reader may find more information concerning the system and its applications.

EWMN was created, as Eshkol stated, for the purpose of making original compositions, breaking conventions and habits of movements, and facilitating the composing of original movement sequences that could not have been created otherwise.[4] The system, thus created, is based on a conceptual-theoretic analysis of the human body and its movement, of the space around it, and the time in which the movement occurs. I will mention here that Eshkol was familiar with Kinetography Laban, and some of her ideas with EWMN are based on her knowledge of this and other notation systems. However, the system, thus created, brought about one of the major characteristics of the EWMN system, as based on a defined conceptual scheme: on the one hand, the motivation to compose movement fragments within this system is based on analytic-quantitative thinking; while on the other hand any movement phenomenon can be described as a collection of discrete and defined elements, with the full body being a synchronized polyphonic system. From a graphical aspect, this notation can be likened to an orchestral score: each body part gets its own row of movement instructions, and the movement of the entire body is represented like an orchestra. A set of graphic symbols, mostly simple and familiar in shape (e.g., numerals, arrows) was adopted to enable the written aspect of the movement instructions.

My familiarity with the EWMN system has led me as a teacher to evaluate and adapt it for young learners, and later to use its intrinsic qualities in the education of teachers in training. While experiencing EWMN as students, the teachers in training had usually appreciated the richness of the system and its potential, but subsequently found it difficult to apply its principles in practice as

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1. This group currently includes: Orly Ya'akov, Lilach Shalit, Tali Ronen, Shlomit Ofer, Sharon Reshef Armony, Nira Al-Dor, Hagar YomTov, and Aya Sadot.

2. Noa Eshkol and Avraham Wachman, *Movement Notation* (London: Weidenfeld & Nicholson 1958).

3. See the Noa Eshkol Foundation website, http://noaeshkol.org/.

4. Eshkol and Wachman, *Movement Notation*, viii.

new teachers. These students, which I refer to as EWMN generation IV, grew up in an atmosphere of rapid communication in daily life and, hence, require a somewhat different attitude and approach toward appreciating the wealth of instructional possibilities embedded in the system, especially when sharing them with their pupils.

In the following sections, I will present the concept of movement literacy that I have developed, as well as its application for dance teachers in the beginning of their professional journey.

Dance Literacy, Movement Literacy, and Complementary Educational Theories

Because this paper is not intended to present a theoretical thesis in depth, I will briefly present background information regarding the parallel concepts of movement literacy and dance literacy, their similarities and the possible differences between them. Following this comparison, I will present the components of movement literacy and corresponding approaches to education and learning.

Dance Literacy

The concept of dance literacy is part of an ongoing debate regarding two major concepts: one that defines dance literacy as only related to the use of notation systems and the other that wishes to expand the definition to include theoretical and embodied forms of knowledge that dancers, teachers, and scholars possess.[5] Without siding with a position in such a complex debate, I will focus here on those concepts that employ graphic symbolic representations, where several tracks may be found. Numerous dance educators and researchers refer to dance literacy in the context of the abilities achieved while integrating an accepted movement notation system (generally Labanotation or one of its developments) in the processes of learning and analyzing a specific dance genre or piece of repertoire. In such cases, both the movements and the notation symbols are given, and the process is aimed to ensure maximum accuracy through analysis, description, graphical representation, interpretation, and/or performance regarding the two modes of representation. Learning processes of this kind were found to improve the performance of those elements of dance that have been captured and represented in the notation used, such as timing, shape making, direction, and

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5. Rachael Riggs Leyva, *Dance Literacy in the Studio: Partnering Movement Texts and Residual Texts*, PhD diss., (Ohio State University, 2015): 3.

movement dynamics.[6] It was also found to support general types of learning, including the cognitive, kinesthetic, and affective aspects.[7] Yet, when dance notation systems are implemented, the unique learning methods required may challenge some students, who are driven outside their learning comfort zones and require adjustments and modifications to their learning routines.[8]

A somewhat different variation leading to dance literacy is in use during Creative Dance classes and composition practices, when a set of given symbols, mostly simplified notations (e.g., Motif symbols, Language of Dance® (LOD) approach[9]), are used as a tool for the composition of original movement segments. Here the dance students/educators/artists are invited to discover the power of connecting the symbolic representation of movement ideas to the actual practice of dance as leading to create original movement phrases or pieces and reading Motif notation scores, thus establishing literate foundations in the field.

A third path in the discourse that gave rise to the concept of dance literacy is wider, more general, and theoretical in essence. For example, McCutchen sees dance literacy as an ability that leans upon four major principles, including performance, composition, cultural context, and analysis;[10] Teresa Heiland includes and highlights the component of proficiency in the professional language and the terminology in use;[11] and Tina Curran adapted UNESCO's general definition of literacy and included in it a reference to the processes in which the individual dancer constructs meaning and fulfills its potential, both for oneself and within the framework of the society in which she or he lives.[12]

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6. Beth Megill, "Dance Literacy in Search of a Curricular Home," in *Proceedings of the 13th conference of the National Dance Education Organization*, edited by Leslie Elkins (Minneapolis, Minn., October, 2011): 31–35.

7. Susan Gingrasso, "Functional Literacy Applied to Dance Literacy," proceedings of the 13th conference of the National Dance Education Organization, Minneapolis, Minnesota (2011).

8. Teresa Heiland. "A Path to Literacy: Action Research of Dancers Working with American Dance Legacy Initiative Etude to Use Literacy to Learn and Master a Dance," in *Proceedings of the Twenty-Eighth Biennial ICKL Conference,* edited by Marion Bastien and János Fügedi, (Toronto, Canada, 2014): 145–15

9. Ann Hutchinson Guest and Tina Curran, *Your Move* (New York: Routledge, 2008).

10. Brenda Pugh McCutchen, *Teaching Dance as Art in Education* (Champaign, IL: Human Kinetics, 2006): 125–292.

11. Teresa Heiland, "Dance-Based Dance Literacies" in *proceedings of the 13th conference of the National Dance Education Organization*, Minneapolis, Minn. (2011): 36.

12. Tina Curran, "Perspectives on Literacy and Dance Literacy" in *proceedings of the 13th conference of the National Dance Education Organization*, edited by Leslie Elkins, Minneapolis, Minn., October, 2011): 27–28.

Movement Literacy

My own journey with the idea of movement literacy began during the 1990s, and I first published it in my Master's thesis[13] in Hebrew. The first English-language publications were in the 2010s.[14,15] The key points are presented here based on those publications, as a basis for further development. I wish to emphasize here that along with many common elements with dance literacy as presented, there are several aspects that distinguish between these close concepts, as will be presented next.

The term movement literacy refers to the complex representations of movement, emphasizing options for users to conceptualize, write-read, and kinesthetically perform the movement representations, thus leading to an in-depth understanding of the field.[16] This concept is based on a broad understanding of literacy as "a way of conveying meaning through and recovering meaning from the form of representation in which it appears."[17] While the concept of literacy, including dance literacy, usually refers to an understanding of a single type of representation, movement literacy also deals with the transformation and translation among modes of representations as a core aspect of the process of learning. Another aspect distinguishing the concept of movement literacy is its implication toward, and generalization of, a broad range of movement phenomena, in addition to the world of dance, such as different branches of sport, animal movement, movement of astronauts in outer space, and so forth. The key components of movement literacy–conceptualization, representation, and kinesthetic performance are discussed next.

A. Conceptualization

While movement (including dance) is usually perceived as a holistic, continuous phenomenon, the need to represent it symbolically requires the conceptualization of distinctions and definitions of its components. Conceptualizing and labeling—meaning creating ideas and notions by making them up and then connecting them

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13. Shlomit Ofer, "Movement Literacy: Development of the Concept and Its Implications for Curriculum. (Master's thesis, University of Haifa, 2001).

14. Shlomit Ofer, "From Movement Literacy to Visual Literacy," in *the 2013 Selected Readings of IVLA: Re-conceptualizing Visual Literacy*, edited by N. Valanides (2014): 45–56.

15. Shlomit Ofer, "Movement Literacy: Implementing Dance Notation Studies into Educational Dance Curriculum," in *The Wisdom of the Many—Key Issues in Arts Education*, edited by Shifra Shonmann, (Munster: Waxman Publications, 2015): 117–121.

16. Ofer, "Movement Literacy" 58–63.

17. Eliot Eisner, "Cognition and Representation: A Way to Pursue the American Dream?" *Phi Delta Kappan*, 78, (January 1997): 353.

to the movement elements—make it possible to think of movement using movement-specific terms.[18]

The conceptualization process organizes the knowledge of the elements of movement—body, space, and time (as well as the qualitative-dynamic and aesthetic dimensions in some systems)—into a chosen resolution of observation. This mental process greatly enhances our ability to perform actions such as naming, describing, discussing, documenting, composing, and instructing dance and movement, using pre-defined, unambiguous terms. Parallel to the way that using different languages brings out unique modes of conceptualization, reference, and communication, applying different dance/movement notations may reveal a variety of conceptual frameworks relative to movement.

B. Representation

By the term representation, I am referring, on the one hand, to the graphical encoding and symbolization, and, on the other hand, to the process of de-coding the symbols. These two components embody the act of translation between the representations—the conceptual, the graphical, and the kinesthetic. Here one faces the major challenge of turning the four-dimensional, constantly changing and personally interpreted movement experience into a static, two-dimensional representation. The representational process has two main sub-aspects:

B.1. Symbolizing (notating, writing). The process of encoding the components of movement into an agreed-upon—or a newly and independently generated—set of graphical symbols. Doing this is not simply a technical process; as in spoken languages, each system normally offers more than a single option, and the writers need to "choose forms of expression to convey what they have in mind, forms which they see as most apt and plausible in the given context."[19] As with any notation system, for example musical notes, the score itself cannot capture all aspects of the phenomenon's expression, but it is expected to relate to its essence. Those differences and gaps in information can result in different interpretations, which, despite the differences between them, are all, according to Nelson Goodman,[20] authentic. To overcome this challenge, some systems tend to include supplementary notes in order to assure an adequate interpretation.

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18. Brenda Farnell, "Movement Notation Systems," *Journal for the Anthropological Study of Human Movement* 13, no. 3 (Spring 2005): 145.

19. Gunther Kress and Theo van Leeuwen, *Reading Images: The Grammar of Visual Design* (London: Routledge, 1996): 11.

20. Nelson Goodman, *Languages of Art: An Approach to a Theory of Symbols* (Indianapolis/Cambridge: Hackett Publishing Company, Inc., 1976): 9; 178.

B.2. Deciphering (decoding, reading). The process of translating the graphic information into movement. This process usually poses challenges for readers; some are unique to dance-notation. One must not only decipher a sequential set of signs, but also mentally combine them into meaningful instructions for the body to perform. In order to be able to move fully, performers must memorize the movement sequence and free themselves of the paper and the symbols: "The notation score cannot be passively read. The symbols must be moved and their relation on the page undone and rearticulated in concert through the body."[21]

C. Kinesthetic Performance (Dancing)

The process of re-combining the discrete movements-represented-by-symbols into an organic whole gives rise to the need for improved movement abilities, among which I will emphasize the coordinative ability[22] that enables the combination of the defined discrete components into a synchronized movement sequence. This ability joins the routine dance work, which is of a physical and artistic-expressive nature, and poses a regular encounter with the body's constantly changing physical and mental abilities in order to bring out the shapes, feelings, and aesthetic expressions through the body.

Alongside the aforementioned movement literacy components, I am guided by two additional educational theories. These two theories emerged separately in different theoretical fields and are implemented here as complementary ideas.

The Constructionist Theory

The constructionist theory of Seymour Papert[23] holds that learning can happen most effectively when people are active in making tangible objects in the real world. As emerged from Piaget's constructivist view, here also learners are regarded as the builders of their own cognitive tools, and knowledge is considered as a personal experience to be constructed, rather than a product that may be transmitted, encoded, preserved, and re-used.[24] Constructionist learning involves students drawing their own conclusions through creative experimentation and the

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21. Victoria Watts, "Dancing the Score: Dance Notation and *Différance*," *Dance Research* 28, no. 1 (2010): 14.

22. Nira Al-Dor, The Impact of Learning Eshkol-Wachman Movement Notation (EWMN) on the Developing of Coordination (PhD Diss.: Eötvös Loránd University, Budapest, 2004).

23. Seymour Papert and Idit Harel, "Situating Constructionism," in *Constructionism* (New York, NY: Ablex Publishing Corporation, 1991): 193–206.

24. Edith Ackermann, "Piaget's Constructivism, Papert's Constructionism: What's the difference?" In *Conference Proceedings of the Research Center in Education, Constructivism: Uses and Perspectives in Education,* (Geneva, Switzerland, September, 2001): *Vols. 1 and 2*., 85–94.

making of social objects (such as self-generated movement notations, as is described next), which in turn will be used for discussion and partnership in the field being studied.

Following this educational agenda leads the teacher to take a mediational role rather than an instructional role and to assist processes of understanding problems in a hands-on way.[25]

Students' Independent Development of Visual Representation

The idea of asking learners to develop symbolic representations themselves was originally developed in the domain of science and mathematics education (e.g., by Andrea diSessa et al.;[26] Bruce Sherin[27]) This method holds that a better understanding of visual representation in any system can be achieved by first asking learners to develop their own modes of representation for the material under study. The aim of this method is filling a gap in most accepted teaching approaches, where young learners are required to learn and memorize an enormous number of visual representation systems and symbols, such as graphs, tables, chemical formulas, etc. The underlying rationale of these representational systems usually remains hidden and may lead to a distorted understanding of both the subject matter and general ideas regarding the process of representation, i.e., the understanding that "the map is not the territory." As suggested, a preliminary process of the learners inventing their own modes of representation is not a substitute for future learning of the codified representation. However, this invitation to participate in an open-ended, problem-based, and creative learning experience provides an opportunity for learners to experience a Discovery kind of learning before moving on to the Reproduction kind (as based on definitions by Muska Mosston[28] and Heiland.[29]) In addition, it might help bridge the gap between the knowledge and its visual symbols, base the learning process on existing internal resources, and enhance the learning of both specific content and the general idea of symbolic representation, in this case, the study of movement notations.

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25. Papert and Harel, Situating Constructionism.

26. Andrea diSessa et al., "Inventing Graphing: Meta-Representational Expertise in Children," *Journal of Mathematical Behavior* 10 (1991): 117–160.

27. Bruce Sherin, "How Students Invent Representations of Motion: A Genetic Account." *Journal of Mathematical Behavior* 19 (2000): 399–441.

28. Muska Mosston and Sara Ashworth, *Teaching Physical Education*, PDF, (First Online Edition, 2008): 55–56.

29. Heiland, Dance-Based Dance Literacies, 36–37.

Integration of Movement Literacy through Self-Generated Representations

These concepts and ideas have led me to develop a methodology aimed at improving learners' understanding of bodily movement and its representation. This methodology, developed and applied during my doctoral research,[30] is a five-step process focused on movement experience and communication using self-generated symbols.[31]

Methodological Basis

The methodology is presented here with added notes to illuminate each of the phases of the five-step process:

1. Theoretical and kinesthetic instruction and training. All learners together are taught relevant movement concepts and are trained in diverse modes of performance to enable conceptualization of the movement independently from a specific mode of motoric enactment. For example, the body-relative directions, forwards-backwards-right-left, refer to the mover's body; movement in these directions is not dependent on the type of action (e.g., jumping right vs. rolling right) or on the spatial direction the body is facing (e.g., facing the door vs. facing the window). In this phase, the participants acquire and practice the concepts that will be used as a basis for symbolization in the next steps.

Following the instruction and training phase, the learners are divided into groups of three or four participants, which will go unchanged for the remainder of the process. In each group, two or three participants are assigned to be "developers" and one to be the "decipherer." The developer and decipherer roles may be switched *within* the group.

2. Source sequence demonstration to "developers" only. A movement sequence is presented to all developers, while the "decipherers" remain outside the classroom (having another activity with a teaching assistant, if possible), so as not to be exposed to the movements they will need to decipher. This movement sequence consists of a series of up to nine movements based on the material learned in step 1. Following the previous example, this sequence could be a series of movements in the body-relative directions; for example: back–back–right–forward–back–left. The sequence should be presented several times (to enable a

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30. Shlomit Ofer, "Development of Symbolic Language to Represent Movement among Fourth Graders" (PhD diss., University of Haifa, 2011), 46–49.

31. In the course of the original study using this research method, an approval of all the relevant authorities was received regarding ethical aspects, including the consent of the Chief Scientist of Israel's Ministry of Education, who is responsible for providing authorizations for studies involving children, the parents of children, the school in which the study was conducted, and the participants, who volunteered to join the process and were free to leave it at any stage.

good retention of it) and from different angles, both front and back views (to avoid the need for mental rotation). The sequences may be filmed beforehand and the clips shown, in addition to the live demonstration, to allow repeat viewing (if there is technical possibility), and to reduce the effort of the memory system.

3. Developers' generation of their movement symbols and creation of a group "script." Each group of developers (not yet involving the decipherers) collaborate together to create a "script," which is a series of symbols marked on a blank sheet of paper that represent, according to the group members, the presented movement sequence.

Some notes for this step: (a) The group collaboration is aimed to enable continuity of the process, in case one member was absent, as well as a means to explicate and expose the reasons for the symbol choices through group discourse. However, sometimes the group dynamics that evolve may complicate and inhibit the process because of intra-personal differences and personal wishes of the participants to influence the design final script. (b) Each group should meet separately so as to prevent cross-influence and to enable each group to tackle the problem independently. (c) The teacher should avoid giving hints, suggestions, or critiques to the developers and serve mostly as a facilitator of the learning process. (d) It is recommended that the teacher collect all the scripts for follow-up to ensure continuity in process among the learners.

4. Decipherers' decoding and performance. The decipherers then receive their group's script and attempt to decode it and perform the movement sequence. Each decipherer performs the sequence for their group, which is asked to confirm the correctness of performance without a discussion.

It is important to remember that the symbolization refers to the conceptual level—the ideas and/or labels that define the movement—and the success of decoding is judged accordingly. Continuing with the example of body-relative directions, the important task is movement in the correct directions, while the modes of performance may differ from the original sequence (e.g., jump, roll, run). Young learners tend to have difficulty grasping this concept.

5. Performance approval or script refinement. If the developers approve the performance—i.e., it was conceptually accurate—the class could move on to a new cycle, referring to another set of movement concepts. If the performance was inaccurate, the developers should attempt to improve their script based on the observed inaccuracies, either by corrections and additions to the original script or by the creation of a new script. For this last step, it is important to emphasize that, during the entire process, the target is not finding "correct" vs. "incorrect" representations, but rather to promote communication by using symbols that represent movement and, recursively, movement concepts that represent the symbols. If the decipherer does not interpret the sequence correctly, it means that the symbolic representation should be revised, even if it is "correct."

These five-step cycles of learning-practicing-symbolizing-deciphering-performing movement elements may be implemented in dance classes on a single occasion or as part of a continual routine, in order to promote and improve movement literacy skills. This methodology differs from other experiences and approaches presented in the literature for the development of movement literacy from two main aspects: one aspect relates to the creative freedom inherent in the development of the symbols themselves, which are developed and deciphered among the groups of participants; and the other is the aspect of assessment and control over the symbolic product, which in this case was also done by the learners themselves and not by an outside expert, either a professional (e.g., a teacher) or by comparison to a known criterion (i.e., a codified notation system).

Implementing the Movement Literacy Methodology by Novice Teachers

During the academic year of 2016–17, in a seminar class focused on implementing movement literacy ideas, I required the participants—dance teaching students—to implement the methodology described above as part of their first-year teaching experiences. This application could have been done either in a formal dance class or with a volunteer group in their social circle, e.g., friends, colleagues, or family members. The general setting was not by any means a formal study, but rather a guided experience accompanied by student–written research papers—written alone or in pairs—detailing their experiences, connecting their findings to a larger theoretical framework, and to their first year of instruction experiences.

All the movement content taught by the students was related to different aspects of spatial knowledge, such as movement to the relative body directions (e.g., left, forward, up); relative placement in space (e.g., near to- or far from-); levels of movement (i.e., low, middle, high); paths of movement in space (e.g. straight, curved, meandering paths), forms and shapes of the body (e.g., closed, open), and so forth.

Examples of Pupils' Self-Generated Symbols Regarding Movement in Space

Based on a common conceptual framework regarding spatial aspects of movement, each of the novice teachers modified the conceptual content and adapted the dance-movement practices to answer the learning needs and the dance technique of his/her class. As explained earlier, the learning process was accompanied by the creation of independently generated movement symbols and their decipherment by peer learners. Some examples are presented and discussed next. These examples, which are organized here in three distinct categories, have been chosen to illustrate the range of knowledge possible that arose from such an

experience. These examples relate to both general aspects of learning processes, as well as to the challenges embedded in the symbolic representation of the movement.

Symbols Reflecting "Situated Learning," Daily Experiences, and Associations

According to the "Situated Learning" theory,[32] meaningful learning always occurs in a specific context and with relevancy to learners. Two good examples can be seen in the self-generated symbols presented in figure 1.
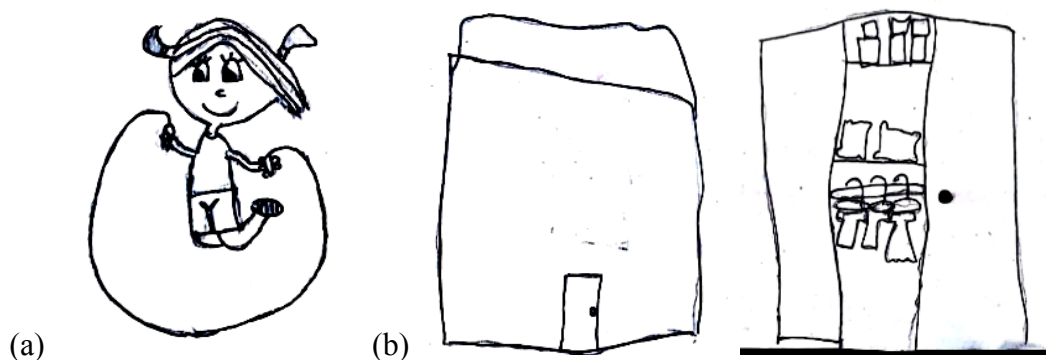

(a)   (b)

Figure 1. Two examples of symbols designed as situated in their developers' lives, representing: (a) "closed" movement; (b) "closed" and "open" movements; generated by 10-year-old pupils.[33]

The symbols presented on figure 2 exemplify the tendency of children to connect and integrate their daily regular practices to the learning experiences. The conceptual movement basis, which served as a trigger for these symbols focused on "closed" and "open" movements/positions. Following, the symbolic representations designed by the developers brought images of children's daily lives: (a) a "closed" shape is created by a child holding a jumping rope, and (b) a closed wardrobe contrary to an "open" shape, where the hanging clothes can be seen. Here we can get a clear example of learning processes being "situated" in the social context, a feature that should be taken into account in the design of teaching programs in any domain. According to the student-teacher report, both symbols were well deciphered and performed.

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32. Jean Lave and Étienne Wenger, *Situated Learning: Legitimate Peripheral Participation.* (Cambridge: Cambridge University Press, 1991).
33. Ma'ayan Cohen and Dror Katz, students' paper presented in class.

Three-dimensional Movement Represented by Two-dimensional Graphical Means

The process of symbolizing, meaning encoding the elements of movement into graphical symbols, introduces a number of challenges. Among them is the need to convert a three-dimensional movement phenomenon (including the depth dimension) to a two-dimensional mode of presentation on the page. Two examples regarding this issue are presented below in figures 3 and 4.
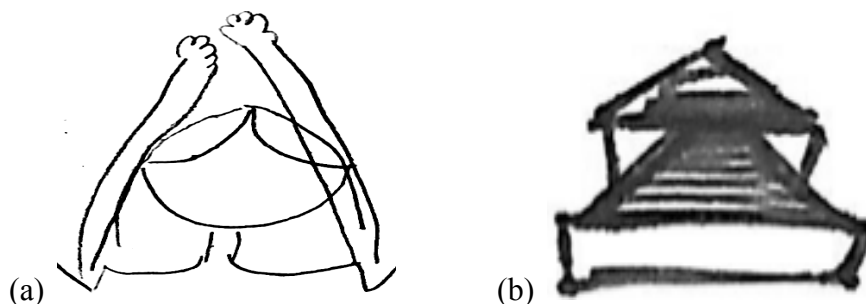

(a)   (b)

Figure 2. Two examples of symbols representing movements "backward" as generated by (a) a 10-year-old pupil and (b) an adult learner.[34]

In figure 2 above, we can see two different solutions for the representation of movement toward the "backward" direction. While a 10-year-old pupil tried to represent iconically the movement of the arms to the back (see figure 2a), the adult learner used a familiar symbolic convention–a "3D" arrow sign (see figure 2b). It should be noted that the two symbols, despite their differences, use the upward direction of the page to indicate the "back," while attempting to create the illusion of depth.
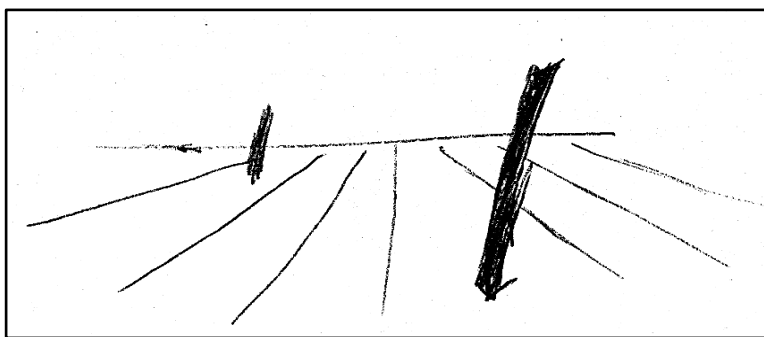

Figure 3. Symbols representing "far" and "near" positions using perspective drawing techniques, as generated by adult learners.[35]

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34. Ya'el Bena'im and Idit Cohen, students' paper presented in class.
35. Liron Swissa and Shiri Zilberman, students' paper presented in class.

A different strategy to overcome this two-dimensional representational challenge is presented in figure 3. Here the illusion of depth is based on the use of the perspective technique as was developed by Renaissance painters. Creating an illusion of depth enabled the symbolizers to represent the concepts of "near" versus "far" positions, despite the flatness of the surface of the drawing paper.

The Flow of Time: Conveying the Sequence of Movement

Along with the challenge of representing the three-dimensional space, any symbolic representation of movement must find a solution to the presentation of a dynamic, continuous, and ephemeral phenomenon through static and discrete symbols. This aspect raises the need to analyze and break down the ongoing movement sequence to its defined units and arrange their corresponding symbols on the paper. Unlike the examples presented so far, the aspect of time units was not presented to the learners as a distinct independent conceptual component. Hence, in the process of analyzing each presented movement sequence, it was necessary to draw independent conclusions of the time component, as presented in figure 4.
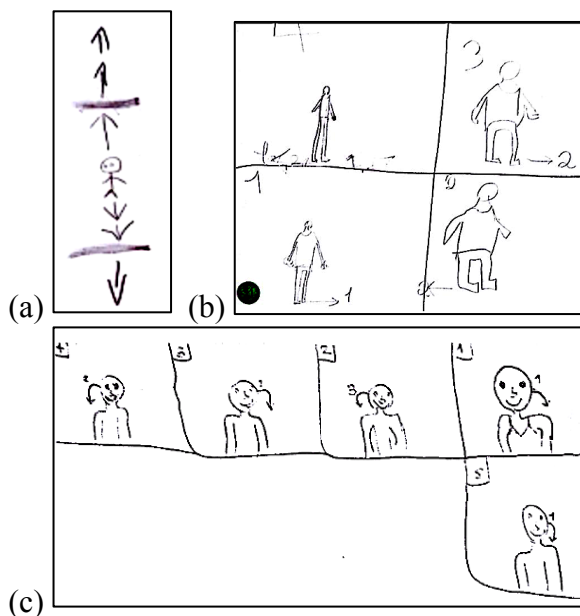
Figure 4. Three different arrangements of symbols representing the sequence of movement elements, as generated by nine-year-old learners:
(a) vertical, from the center toward the edges;
(b) circular, starting at bottom-left; and
(c) horizontal, starting from the right.[36]

36. Tzukit Eshkoli, student's paper presented in class.

Figure 4 shows examples of possible representations of the sequence of movement—the arrangement of subsequent events—by organizing the symbols in different settings on the script page. These examples may remind us that young learners are exposed to a great deal of graphic-visual information with different arrangement rules in the various languages they meet, the logic behind which is not always exposed and understood by learners. This is especially true for Hebrew and Arabic writers, whose mother tongue is written from right to left, in contrast to the professional languages they meet in various fields of knowledge (e.g., English, music, mathematics).

All in all, the examples presented above provide a glimpse into some educational possibilities that can be developed within the context of the three components—conceptualization, encoding-decoding, and performance of movement—together leading to engagement and improvement of movement literacy.

Conclusions

The teaching of movement and dance may have diverse goals, among them are performance-oriented goals, which focus on improving the skills of movement and the accuracy of its presentation, or goals of artistic expression, aimed at improving personal creativity with ideas, feelings, and information. At the root of each of these—or other types of goals—there is a conceptual basis of ideas and knowledge, an infrastructure that sometimes we, as teachers, tend to ignore or take for granted.

The introduction of the movement literacy concept, as well as the application of the methodology presented above, requires its adopters to examine and define the conceptual base of knowledge underlying the desired movement training. The continued experience of the translation of ideas and their transformation into graphical symbolic representations creates an opportunity for the improvement of movement skills, the expansion of cognitive-related abilities, as well as the added values of the development of communication, attention, and tolerance among the group of learners.

The core concepts in the experiences described earlier have emerged from EWMN and derive from the abilities to observe and analyze movement, which are immanent aspects of this system. However, this connection is not exclusive or necessary: those who wish to, may implement this kind of experience as a preliminary stage before moving to the formal notation system; others may connect it to the studying of other notation systems, either formal, such as Labanotation or Benesh, or shortened and processed, like the LOD Motif notation and the Movement Alphabet®.[37]

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37. Hutchinson Guest and Curran, *Your Move*.

I opened this paper with the genealogy of generations of the EWMN: the first generation invented the system and laid its foundations; the second generation included a number of selected "disciples," who dealt with the perfection of the system and its transmission to the third generation, also a small and dedicated group. Now it is the time of the fourth generation to take part in the field to expand and widely implement the movement literacy principles. The method suggested in this paper invites teachers and learners of all stages to share and communicate dance and movement knowledge and to experience personal development through movement literacy.

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