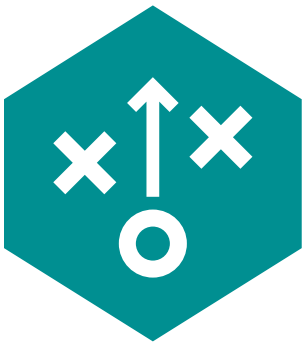

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Labankido©: The Evaluation of a Multimedia Tool Designed for the Teaching of Basic Skills and Concepts in Dance Education

Aspasia Dania, National and Kapodestrian University of Athens, Greece
Vasiliki Tyrovola, National and Kapodestrian University of Athens, Greece
Maria Koutsouba, National and Kapodestrian University of Athens, Greece
Dimitrios Hatziharistos, National and Kapodestrian University of Athens, Greece

Abstract: According to modern learning theories, multimedia applications can serve as media for the simultaneous activation of the dancer's visual and verbal system of receiving and processing incoming information relative with motor performance. The aim of the present research is the evaluation of the impact of a new computer multimedia application: Labankido© on beginner dance students' performance. Labankido© is a ten unit computer tutorial specially designed for the needs of the Laban-Notation teaching method (Dania 2013), and according to the principles of Mayer's Multimedia Learning Theory. Its main innovation is the use of Labanotation symbols (symbols for the notation and analysis of movement), for the representation of the four basic movement concepts: knowledge of body, spatial awareness, sense of effort, relationships, as these are defined by the Laban theory of Movement Analysis (LMA). 52 second-year university beginner dance students participated in the research. All participants were taught Greek traditional dance for five consecutive weeks by the Laban-Notation teaching method. A 30-minute period of the main part of every lesson was video-recorded and the participants' motor responses to Labankido©-lesson activities were analyzed by expertly trained observers with the duration recording method. From the results, it was proved that when the cognitive load of the digital material was low, the use of multimedia represented Labanotation symbols promoted the dancers' perception and thus made their performance more proficient.

Keywords: Labanotation, Laban-Notation Teaching Method, Multimedia Learning Theory, Greek Traditional Dance

Introduction

In the era of digital communication, multimedia computer products are widely used in education for the teaching of concepts and skills. The term "multimedia" is broad enough so as to include any kind of computer presentation that includes words and pictures set up in a way so as to promote learning (Mayer 2002). The words may be in a written form (i.e. text on a computer screen), or in an audio form (i.e. narration), while the pictures may be static (i.e. photographs, graphs, symbols or maps), or dynamic (i.e. video, animation). Researchers argue that such learning environments provide opportunities for personalized instruction, cooperation, feedback and creative interaction between the medium and the user (Mayer & Moreno 2003). Knowledge that is presented in such a way is communicated through many different information channels and thus learning is turned into a less arduous process.

During the last ten years, a large number of physical and dance education researchers have tested the influence of teaching methods that use computer multimedia on students' performance (both motor and cognitive), in various educational levels (Dania et al. 2011). Their tests involved interpretive evaluation of questionnaires and interviews, as well as comparisons between teaching media. Despite the researchers' initial expectations, the impact of those methods proved to be moderate compared with traditional ones. Factors like the deficiencies of the technological devices, the high cost of the suggested applications, the low quality or the complexity of their graphics, the limited familiarity that teachers had with technology, seemed to be the most often reported weaknesses and limitations of the methodological designs (Dania et al. 2011).

Technology is not a new pedagogy and thus there is no guarantee that any multimedia product - no matter how innovative - can promote the learning process. Before such products are

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used as teaching tools in the practice of motor skills, their instructional design should be organized in such a way so as to facilitate the modulation and embedding of those motor schemata that are necessary for movement performance. The ultimate benefit will be determined by how effectively the proposed applications are organized so as to support the human learning processes.

Modern learning theories, building upon the principles of cognitive psychology, study the conditions under which the learner can become an active information processor in his attempt to make sense of the taught material. Research has shown that memorization and subsequent recall are facilitated when information is communicated and processed by audiovisual codes in comparison to only written or oral ones (Rieber 1994). According to Mayer's Multimedia Learning Theory (2002), learning is an active process when students can select from a lesson the most meaningful information, organize it in relevant mental representations and eventually integrate it with their already structured and embedded knowledge. Learning depends on the ability of learners to build links between visual and verbal representations of movement in their short-term memory.

One of the most demanding motor skills, included in the Greek physical education curriculum, is dance performance. Considered as a kind of complex motor activity that evolves in time and space, dance performance involves the simultaneous activation of both cognitive and motor systems. Every student, in order to reach excellent dance performance, must learn to work both kinesthetically (movement awareness) and cognitively (mental perception and apprehension of movement) (Fugedi 2003).

Research has shown that at a cognitive level the use of multimedia teaching tools can foster the formation of mental representations of movement, otherwise called mental models. These models concern knowledge about a) the structural relationships between a task's component elements and b) the way these elements interact with one another (Cañas, Antolí & Quesada 2001). The more efficiently these mental models are constructed, the more solid the dancer's motor base will be (Fugedi 2003). On the other hand, contemporary research data confirm that dance students become kinesthetically aware only when their motor skill acquisition is based upon teaching practices that promote the physical exploration of a specific dance-movement vocabulary (Hare & Graber 2007; Oreck & Nicoll 2010). The dancers' familiarization with fundamental movement concepts and principles is the one that will guarantee their subsequent understanding and performance of dance form (Warburton 2008).

Therefore, the aim of the present research is the evaluation of the impact of a new computer multimedia application: *LabanKido*©, on beginner Greek traditional dance students' performance. Its main innovation is the use of Labanotation symbols (symbols for the notation and analysis of movement), for the representation of the four basic movement concepts: *knowledge of body, spatial awareness, sense of effort, relationships*, as these are defined by the Laban theory of Movement Analysis (LMA) (Laban & Lawrence 1974). *LabanKido*© is a ten unit computer tutorial which was specially designed for the needs of a new dance teaching method: the *Laban-Notation teaching method* (Dania 2013). This method combines the teacher's demonstration of fundamental dance-form elements with the students' rhythmic, symbolic and motor exploration of the four basic movement concepts (rhythm and movement activities, read and dance exercises).

The present research is the second phase of a two-stage pilot research project. The first phase involved observations of Greek traditional dance classrooms and interviews with teachers and students. The purpose was to identify those components which, when incorporated into the design, would make *Labankido*© an educationally effective and a motivationally appealing multimedia product. Putting in practice the findings of the first phase, the present research a) presents and theoretically supports the instructional design and technical characteristics (graphics, animation, sounds) of the new multimedia product according Mayer's Multimedia Learning Theory (Mayer 2002), and b) proceeds to the evaluation of its implementation and

applicability on a sample of 52 second-year university beginner dance students (men and women, 19-22 years old)[1] . The authors' basic conviction is that dance performance cannot improve only through the accumulation of technical knowledge. The simultaneous facilitation of the cognitive mechanisms that underline its kinesthetic embodiment is a basic prerequisite.

Labanotation: A System for Recording and Analyzing Movement

Labanotation is a system of symbols which was developed in the early 20th century by Rudolph Laban (1879-1958) and is used for the notation and analysis of the structure of human movement. Labanotation can combine in a single picture, information relative with the movement's direction, level, distance, duration and under certain conditions its quality. Its symbols are placed along a three-line staff which is read vertically (from the bottom to the top). The central line of the staff (support column) represents the center line of the body as well as the line of the flow of time. The symbols for the right side of the body are placed to the right of this line, and symbols for the left side of the body are placed to the left. Symbols placed within the three lines indicate supports, gestures or leg movements, while symbols placed outside the three lines indicate movements of the trunk, upper limbs or head movements (Hutchinson-Guest 2005) (Figure 1).

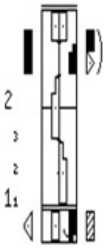

Figure 1: Labanotation: Example of a Dance Score on the Three Line Staff

The basic Labanotation symbol is a rectangle which informs the reader about:

1. The direction of movement, according to its shape.
2. The level of movement, according to its shading (Figure 2).
3. The timing of movement, according to its length.
4. The part of the body that moves, according to its place in the three line staff.

Figure 2: Labanotation: Symbols for Directions and Levels of the Arms

[1] This particular sample was the experimental group A of a bigger research project which took place during the spring of 2012, at the Faculty of Physical Education and Sport Science, of the National and Kapodestrian University of Athens, in Greece (106 second-year university students assigned in two groups: experimental group A and experimental group B). This project compared the effectiveness of two different teaching methods: a) the traditional reproductive teaching method – lesson delivered only through the teacher's oral instructions and practical demonstration and b) the Laban-Notation teaching method, on beginner dance students' performance.

In the field of dance education, it is a common ground for most researchers that Labanotation is an important tool for the development of dance literacy, even at the beginning stages of movement learning (Warburton 2004). Labanotation symbols serve as tactile means for the guided discovery of concepts like time, space, level and directions, and serve as media of definite thought and visual representation of the structural elements of the dance elements being taught.

However, research in Labanotation-centered human–computer interaction, has since now focused on complex technological innovations which cannot be implemented in everyday dance classrooms. *Labankido*© is an attempt to fill this gap, since its design and use addresses to the characteristics and needs of beginner dance students. Labanotation symbolic animated activities and exercises are designed in such a way as to act as intermediary links for recognizing and recalling abstract concepts and connecting previous or newly acquired knowledge with definite actions. Designed according to a playful approach, the integration of Labanotation symbols in a computer application is expected to promote meaningful learning adapted to the needs of 21st century's "digital native" students.

Methodology

Labankido©: The Ten-unit Tutorial

LabanKido© is a user-friendly computer teaching resource. It is a PowerPoint 2007 edutainment material (education and entertainment) (Lund, Klitbo & Jessen 2005), suitable for supporting the dance teacher's daily work in the classroom. It is divided in ten thematic units and can be introduced either as a part of the lesson's introductory activities or after the kinesthetic exploration of the day's main topic. The content of the ten units is based various combinations of the four movement concepts (*knowledge of body*, *spatial awareness*, *sense of effort*, *relationships*), as these are defined by the Laban theory of Movement Analysis (LMA) (Laban & Lawrence 1974). The basic axiom of this theory is that the performance of every kind of movement is the result of combinations between the four concepts. As a result, these concepts can provide a comprehensive vocabulary for the differentiation of each motor skill's component elements and the identification of the multiple ways that such elements can be organized in movement or dance sequences.

Labankido© uses the four concepts for the analysis and symbolic representation of fundamental Greek traditional dance motifs. The content of each unit is connected to previous learned skills and concepts. Students are gradually introduced to basic dance elements and sequences so that they can make appropriate connections between them. Particularly, the content of the ten units is the following:

1. **Body**: Parts of the body (right and left side).
2. **Space-Body**: Supports and transference of body weight in space (movement directions).
3. **Space-Body-Effort**: Levels of movement, turns on support indexes, weight of movement (heavy or light).
4. **Space-Body-Relationships**: Levels of transference of body weight in space, types of gestures, relationships between body parts during movement.
5. **Body-Effort**: jumps, dance handholds, timing of movement, movement flow.
6. **Effort-Body**: Movements with different timing (isochronous and non-isochronous movements).
7. **Effort-Body-Space**: Movements of different body parts with an adversative use of time and space (i.e. slow/fast, right/left).
8. **Review [Effort-Body-Space**]: Movements of different body parts with an adversative use of time and space (i.e. slow/fast, right/left)].
9. **Effort-Space**: Floor plans, movement pathways (lines/curves) and body front.

10. **General review**: Application of movement concepts in new dances/dance motifs.

Each unit combines animation, music and Labanotation symbols with "*see and do*" team games and exercises. The teacher is the one who helps the students navigate through the digital e-symbol material using various complementary media such as card-games, digital-puzzles, pair or group dance-composing and symbol-reading-decoding exercises or rhythmic-movement activities. Simple graphics and user appealing slide-animation are used, since the basic aim is the development of a learning material and not a high tech toy. *Labankido*© involves the use of many other media included in the *Laban-Notation teaching method* (i.e. books, video or music resources) (Dania 2013). Therefore, its utility should not come as a result of its exclusive use but via its combinational use with all these media.

The instructional design of *Labankido*© meets the requirements and the organizational structure of Mayer's Multimedia Learning Theory (Mayer 2002). According to this theory students who are receiving visual and verbal information during instruction (images/animation with written/spoken words), are 75% more capable than students who are receiving only verbal information, in their ability to retrieve from memory those mental representations that are necessary for solving cognitive and motor problems. This kind of instruction is especially effective for novices and students with high spatial awareness (Clark & Mayer 2011). A multimedia effect seems to arise for these students, who manage to build referential connections between the two presentation modes, mentally organize the material into coherent structures and finally perform better in new situations where knowledge transfer is required. In order to support the human learning mechanisms, the design of *Labankido*© was based on the following eight theoretical principles, which are put forward as prerequisites by the Multimedia Learning Theory. Particularly:

1. **Multiple representations principle.** *Students learn better from animation and narration than narration only*. All *Labankido*© digital tutorials combine animated Labanotation symbols and stick figures with written instructions and narration from the teacher for the presentation and clarification of the four LMA movement concepts.
2. **Spatial contiguity principle**. *Students learn better if pictures and their corresponding words in a multimedia lesson are presented near on screen.* Labanotation symbols contain in a single picture information relevant with the level, direction and timing of each different moving body part. While the oral guidance from the teacher gradually decreases along the units, students learn to communicate and dance only by using symbols.
3. **Temporal contiguity principle**. *Students learn better when pictures and accompanying words are presented simultaneously on screen rather than one after another.* Symbols and their accompanying words or sounds are presented simultaneously on each *Labankido*© screen and students are asked to tap and/or move in space with music.
4. **Coherence principle.** *Students learn better when only key-words or sounds are included in a multimedia presentation and every other extraneous item (that will raise a high cognitive load) is excluded.* The graphics and pictures used in each *Labankido*© slide mainly involve Labanotation symbols, while the sounds that accompany them concern Greek traditional dance rhythmic cues and sequences. Overly stylized typefaces, fonts and backgrounds are not used and only individual words or short phrases point out to certain commands.
5. **Modality principle**. *Students learn more deeply from animation and narration than from animation and on-screen text.* The only read instructions in *Labankido*© tutorials are those included in the drill and practice quizzes, where the students are asked to recognize symbols on the three line staff and perform Labanotated commands (dance sequences).

6. **Redundancy principle**. *Students learn better from animation and narration than from animation, narration and on-screen text.* All *Labankido*© presentations replace wordy spatial instructions with animated symbols.
7. **Personalization principle.** *Students learn better when the words in a text or a narration are presented in a friendly rather than in a formal language.* In every *Labankido*© slide conversational like messages are used (i.e. "shall we try this exercise together" or "do you think you can recognize where in space you should be moving to?"), to keep up with the teacher's formal and friendly language.
8. **Individual differences principle.** *The effects of multimedia lessons are more prevalent for low-knowledge students and for high-spatial learners.* All *Labankido*© thematic units are designed according to a behaviorist rationale (skill based transmission software), with the intention to be integrated into the dance curriculum in a purposeful manner which fits to the skill level of the beginning dance students.

Data Collection

52 second-year university beginner dance students (men and women, 19-22 years old) of the Faculty of Physical Education and Sport Science (National and Kapodestrian University of Athens, in Greece) participated in the research. According to the university curriculum, the participants were divided in two groups: group A_1=male students (n_1= 25) and group A_2=female students (n_2= 27). Both groups were taught separately Greek traditional dance by the same teacher, according to the same practices and activities of the *Laban-Notation teaching method* (Dania 2013). The prerequisite for all participants was their oral consent and anonymity.

The lessons were carried out for five consecutive weeks, during which 20 course-hours were conducted (5 weeks x 4 hours per week). Each lesson lasted 100 minutes and was divided in four parts: a) introduction, b) main part I, c) main part II, and d) summary. In the main parts I and II of each lesson, students learned to recognize and perform various combinations of the four movement concepts, as these appeared in the form of the Greek dances they were taught. *Labankido*© together with its accompanying media was used as the main teaching tool in the main part II of all the lessons. For the purposes of the present research, this part of every lesson (30 minutes) was video-recorded and analyzed by expertly trained observers with the duration recording method (Thomas, Nelson & Silverman 2011). This method is used when the temporal aspect of any observed behavior is set as the main unit of analysis. For example, with the use of the duration recording method the researcher can obtain data about the time that students practice in a given motor activity, the time that their interest is distracted by external factors (e.g. class environment, fellow students, etc.), the amount of time the teacher needs to give instructions relative with teaching and non-teaching activities, the time students spend waiting in lines to perform a skill, etc.) (van der Mars 1989).

In the present case, the main focus was the 52 participants' response to *Labankido*© lesson activities, which was recorded according to the form shown in Table 1. The total duration of three different behaviors-episodes was recorded, for each participant separately. These behaviors were the following:

1. *On task student behavior:* Students are appropriately engaged with the dance/motor task assigned by the teacher.
2. *Motor engaged:* Students are actively involved with the lesson activities, but they don't seem to comprehend the teacher's instructions. As a result, they don't perform accurately the scheduled dance/motor activities.
3. *Off task behavior:* Students seem absentminded and perform completely different activities from those that are planned.

Table 1: Coding Form that was used for the Duration Recording of Dance Student Behavior

Dance student:	Date:	Class:
Lesson:	Time started:	Time ended:
Length of observation:		
Observed behaviors:		
1. On task student behavior		
2. Motor engaged		
3. Off task student behavior		

(sec) 2	4	6	8	10
(sec) 12	14	16	18	20
(sec) 22	24	26	28	30

Total time in:		Percent of time in:	
1.	(min/sec)	1.	%
2.	(min/sec)	2.	%
3.	(min/sec)	3.	%

Source: Data Adapted from van der Mars (1989).

According to Table 1, the percentage of each observed episode-time in the length of the 30-minute observation period was calculated across all participants by the following equation:

$$\text{Percentage of observed time} = \frac{\text{Episode total (seconds)}}{\text{Total time of observation}} * 100$$

The main purpose was to record the participants' responses (cognitive, motor and affective) to the scheduled *Labankido*© activities, according which the implementation and applicability of the new multimedia resource would empirically be evaluated.

Results

Starting from the first lesson, it was proved that the percentage of the students' on-task behaviors ranged around 50% (in the length of the 30-minute main part II lesson period). During the same period, motor-engaged behaviors seemed to occupy 10% of the observation time, while off-task behaviors 40%.

Different results were recorded for lessons 2-6, during which on-task behaviors ranged from 70% (group A_1) to 80% (group A_2), while the respective percentages for motor-engaged behaviors were set between 20% and 30%.

From the 7^{th} to the 10^{th} lesson, on-task behaviors ranged around 70%, while relatively high was the motor-engaged behavior percentage, which ranged from 30%-40%. Finally, for lessons 2-10 the off-task behavior percentage took values from 0%-10% (women occupied the lowest values of this interval).

Table 2: Percentage of Observed Behaviors across All Participants

	Behaviors[a]		
	On-task	Motor-engaged	Off-task
Lesson 1	50%	10%	40%
Lessons 2-6	70% (A_1) - 80% (A_2)	20% (A_1) - 30% (A_2)	0% (A_1) - 10% (A_2)
Lessons 7-10	70%	30% (A_1) - 40 % (A_2)	0% (A_1) - 10% (A_2)

[a] *Total time of observation: 30 minutes*

Discussion

Starting the observation from the first lesson, it was proved that the use of *Labankido*© together with its accompanying media initially confused the participants and made them feel rather uncomfortable. All of them had come with predetermined expectations to the Greek traditional dance class, as far as the way they would be taught was concerned (teacher placed at the center of the class showing the dance and students following his steps). Solmon and Lee (1996) suggest that the experiences, knowledge and skills that students bring in performance classes (i.e. physical education and dance classes), will probably interfere with their learning and affect the quality and outcome of their performance. This finding seemed to be valid in the present research, especially in the male students' dance class. The male students' attitudes towards dance proved to be different (from female attitudes) during their first contact with dance, since they were filtered by their more intense sport past experiences, a fact also pointed out by McCormack (2001). However, during the first lesson the embarrassment continued to be prevalent for all the students, especially during play-game activities and symbol-reading or dance-composing exercises. This fact contributed to the 40% increase of the off-task behaviors (i.e. laughter, teasing, chats), which obstructed the teaching process.

From the analysis of lessons 2-6, it was proved that all the students' response and adaptation to the multimedia scheduled activities substantially improved. The instances of off-task behaviors decreased to 10% and continued to be observed only in a minority of students who seemed to maintain a similar attitude in other physical education classes. On the other hand, on-task behaviors ranged around 80% both for male and female students. They all seemed to improve their dance skills and better understand the instructions given by the teacher or the activities scheduled in each multimedia tutorial. However, the curriculum planned concepts and skills seemed to progress at a slower pace for group A_1. Male dancers were the ones who adopted avoidance learning strategies and ways of minimizing their share of class work. On the contrary, the learning environment was more active in group A_2 where motor-engaged behaviors remained stable at 20% and off-task behaviors were missing. The greatest interest that female students continued to demonstrate for the course (compared with male students) seemed to maintain their performance indexes at higher levels. A similar finding has been proved by a research project carried out by Shen, Chen, Tolley and Scrabis (2003) on high school dancers.

Finally, in lessons 7-10 on-task behaviors decreased to 70% (for both male and female dancers), while the motor-engaged behavior percentage ranged from 30% to 40%. The curriculum planned rhythmic-symbolic activities had increasing difficulty and the information included in each Labanotation performance exercise were rather dense, especially for those students that had missed one of the e-symbol tutorials. According to the eight multimedia design principles suggested by the Multimedia Learning Theory (Mayer 2002), it was proved that even though animation and a user-friendly language of communication was used in every *Labankido*© slide, the cognitive information load of lessons 7-10 was rather high. The new language that the dancers were called to learn (Labanotation language), required a more detailed theoretical

explanation and practical discovery, which was impossible due to the university planned curriculum and the time constraints of the research.

The fact that all participants were novice Greek traditional dancers, both in terms of motor skills and in terms of knowledge about dance (i.e. terminology relevant to the elements of dance), created gaps in communication. These gaps seemed to be mainly present in notation reading and performing exercises, and subsequently made the transition between teaching activities slow and demanding (relatively high percentages of motor-engaged behaviors). For this reason, in a future research project a longer duration period should be devoted to each one of the ten *Labankido*© tutorials (possibly two courses per each tutorial), so that the cognitive information load would be minimized (Clark & Mayer 2011) and the subsequent motor embedding of the dances can be guaranteed.

Concluding Remarks

Preparing multimedia resources for physical education is a challenging and enjoyable undertaking. The incorporation of new skills and knowledge into an entertainment-first and hands-on-activity approach is absolutely necessary, before such products are used as enjoyable and motivating teaching tools in the classroom. However, the organization of the digital learning material should be theoretically based so as to address realistic outcomes connected with human learning mechanisms and dance students' experience.

In dance education, the call for accessible and cost-effective teaching resources is constantly raising. *Labankido*© is a teaching tool of this kind designed to promote dance skill and knowledge acquisition. Its multimedia characteristics are organized according to the eight theoretical principles of multimedia learning theory (Mayer 2002). Accordingly, the interface of every unit is a non-threatening or competitive environment, which has the potential to promote interaction and teamwork. Its design follows a learner-centered approach, where technology is shaped according to the target group's needs. For this reason, the presentation of the multimedia messages is relatively simple, since these messages are designed to serve as cognitive guides and not as complex computer based technologies. The tutorials follow a performance oriented scenario with an emphasis on rhythm-and-movement exercises.

The major strength of the presented material lies in the simplified use of the Labanotation system for the visual clarification of abstract concepts. Acting as movement simulations, Labanotation symbols are used to promote high order thinking and thus contribute to bridging the gap between classroom learning activities and concepts. The interaction between the medium and the user involves reproduction of specially designed dance steps and sequences, participation in team games and activities and practice on comprehension tests and quizzes. Delivered by the teacher as a separate part of the *Laban-Notation teaching method* (Dania 2013), *Labankido*© offers a playful environment for practicing on concepts and movement principles that underlie dance performance.

Based on the results of the present research, it was proved that the multimedia reading and decoding of Labanotation language trained the visual perception of the students, providing a clear framework for the identification, understanding and subsequent performance of Greek traditional dance motifs and sequences. As soon as the students became familiar with the use of symbols, the need for extra instructions by the teacher was confined to the minimum. Particularly, the use of animated Labanotation symbols promoted their memory functions to higher levels and thus allowed a more effective control of the desired movement behavior. According to Vygotski (1978), people remember more actively with the help of symbols. In the present case, the digital symbols acted as intermediaries between the stimulus (dance exercise) and the response to it (dance performance). This observation was especially true for those units that the e-symbol information was organized in a non-cognitive load way (Moreno & Mayer

2000). In these units, the students' ability to read and dance was much more proficient and their occupation with the teaching tasks proved to be much more effective.

Furthermore, the combination of media and practices (i.e. animated symbols, stick figure rhythmic cues, dance-notation exercises, and digital quizzes) created a wide range of dance learning strategies and practice conditions which made the taught material more interesting and appealing, even for male students. Each course required active participation, since everything that was taught required individual or group exploration, analytical and synthetic thinking and concentration of attention. The authors' conviction is that if the present research had lasted for a longer period of time, all students (both male and female) would have been more acquainted with the new method's teaching practices and media and their motor and dance behavior would have further been improved.

However, before such claims are supported with greater certainty, the reproducibility of the present findings should be tested. The reliability of the present research results will further be judged by the conduction of similar research projects on different samples. The application of the *Laban Notation teaching method* and the use of *Labankido*© with different beginner student populations (i.e. children, ballet or modern dancers, high school students, other university male and female dancers, etc.), would certainly provide more evidence regarding the effectiveness of its use on students' dance performance. An interesting undertaking would also be to assess the students' progress in the field by the means of examining the development of certain motor abilities i.e. body balance, rhythmic ability, space awareness, movement flow, which form the basis of expert dance performance.

The need for continuous redevelopment phases and sophisticated pilot tests is suggested by researchers, before multimedia products are released in practice. The software of *Labankido*© is currently being processed by a group of multimedia instructional designers, so that its functional characteristics would further support the development of an innovative teaching resource. Undoubtedly, the present research set the base for its solid foundation according to the eight principles of Multimedia Learning Theory, a fact which makes its future application a promising undertaking.

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ABOUT THE AUTHORS

Dr. Aspasia Dania: Aspasia Dania is a physical education teacher currently working at the research lab of Sport Pedagogy, at the Faculty of Physical Education and Sport Science, National and Kapodestrian University of Athens, Greece. She has studied on Postgraduate level at the Faculty of Physical Education and Sport Science of the University of Athens, where she received her Msc (2009) in Dance Education and her PhD (2013) in Dance Teaching Methods and Pedagogy. Since 1997, she has worked as a physical education teacher in primary, secondary and higher education and has participated in many physical and dance education conferences. Her research interests and publications are on Laban notation and innovative dance teaching methods.

Prof Vasiliki Tyrovola: Vasiliki Tyrovola is a professor of Greek traditional dance at the Faculty of Physical Education and Sport Science, National and Kapodestrian University of Athens, Greece. She has studied on Postgraduate level in Ethnomusicology and Theatre in the Department of Literature in University of Crete and she has a PhD in Choreology at the Department of Musical Studies, Kapodestrian University of Athens, Greece. Her research interests include the structural-morphological and typological approach of Greek traditional dance, the analysis and criticism of dance (Aesthetic Morphology) and the fields of magic and symbolism in the frames of anthropological-social sciences.

Assoc Prof Maria Koutsouba: Maria Koutsouba received her Ph.D. in ethnochoreology from the University of London in 1997 and is currently an associate professor at the University of Athens writing and lecturing about Greek folk dance and dance studies. Her research interests and publications are on ethnochoreology, dance notation and movement analysis, and educational innovations in dance.

Prof Dimitrios Hatziharistos: Dimitrios Hatziharistos is a professor of Sport Pedagogy at the Faculty of Physical Education and Sport Science, National and Kapodestrian University of Athens, Greece. He is researching on the relationship between physical education and positive attitude towards exercise and health. His research interests include: application of information technology on physical education and sports, creation of multimedia products for organizing physical education lessons and evaluating students' progress in the field.