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**DEVELOPMENT”**

**Developing an Evaluation Model for**  
**Achievements in Didactic Dance**  
**Performance**

**Doctoral Thesis**  
**Long Abstract**

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## **I. INTRODUCTION**

**Key Words: evaluation, assessment, rubric, classical Ballet Matriculation**

### **I.1. Preface**

The focus of this research study is the development of a rubric for assessing achievement in the framework of the classical ballet matriculation examination administered in Israeli high school dance departments. For this purpose, the study focused on the process of constructing a rubric, ways of assessing by the examiners, problems arising from the evaluation process and ways of rendering it valid, reliable and sensitive.

The literature review in the full thesis is presented in two separate chapters. The first chapter deals with evaluation in general and evaluation of the arts and dance in particular. The chapter opens with a presentation of the basic concepts of evaluation, offers an explanation of educational evaluation and goes on to the principles of rubric construction. The next section deals with theories and strategies of dance assessment, particularly classical ballet assessment. The chapter concludes with a critical view of arts assessment. The second chapter (in the full thesis) deals with the integration of dance into the school curriculum in general and into Israeli schools in particular, including a deep analysis of the structure of Israeli dance departments.

The literature review and problems involved in the assessment process form the basis for the methodological and the discussion sections of the research study.

### **I.2. Theoretical considerations**

Does a rubric influence the accuracy level of an assessment, and in what manner? To what degree is a rubric likely to influence the subjectivity of the examiner? These questions lie at the heart of the present research study.

Evaluating achievement in the artistic disciplines is an extremely complex activity (Lund, 2006; Mohnsen, 2006). Dance is an art form that may be understood or viewed differently as it passes through the prism of the viewer or the examiner (Morrow et al., 2000; Shuman & Zervopoulos, 2010).

One of the central difficulties in assessing dance performance is that performance is difficult to quantify [See Chapter I.5 in the full thesis]. Dance belongs to the physical realm, which encompasses both body image and non-verbal qualities

(Oreck, 2007). In practical dance testing, one must take into consideration variables unique to the field of dance, including the examiner's degree of subjectivity (Shuman & Zervopoulos, 2010), who by direct real-time viewing must assess a group of learners performing the assignment.

Assessment process used as high-stake (such as a matriculation exam) must rest on data that are gathered by means of reliable and valid measurement instruments. [See Chapter I.2. in the full thesis] The rubric that is currently employed in the Israeli Classical Ballet Matriculation Exam (Appendix 8 in full thesis) has never been validated by research. [Appendix 5 in full thesis]. This makes it imperative to conduct research that will result in the construction and validation of a rubric which will make it possible to systematically measure and document performance according to unified dimensions and criteria determined by theoretical considerations.

Cone and Cone (2011) suggest evaluating anew demands (criteria) and assessment instruments (rubrics), in order to reveal if the assessment provides significant evidence that reflects the results of the performance of a large number of students performing together within a limited time. Krasnow et al. (2009) indicate the lack of consistent method for assessing quality dance performance (p. 108). As Oreck (2007) states: "More research about assessment in dance education would help clarify the types of assessment tools that are most effective for evaluating the dance experience" (p. 342). According to Lund (2006), when constructing a rubric it is necessary to relate to two main components: clarity and sensitivity. In an attempt to fulfill these requirements, the rubric must indicate how various aspects of standards/requirements are represented in the curriculum. Burt, Schroeder and Hurley (2008) claim that rubrics can aid in determining clear expectations from learners by detailing requirements, thus minimizing possible bias on the part of examiners. [See Chapter I.1. in the full thesis]

Very few research studies have been directly related to developing assessment rubrics for dance, while even less attention has been paid to summative evaluation. A well designed rubric could influence testing accuracy as well as improving teaching processes. Policy setters in the Ministry of Education would be able to extrapolate from the rubric to the nature of exams, the manner of awarding grades, the grade range, etc. Research validating the rubric would allow examiners and other related parties to rely on it and use it.

### **I.3. The research objective**

The purpose of the study is to develop a rubric for evaluating high school students' achievements in the Classical Ballet Matriculation Exam.

### **I.4. The research questions**

1. To what extent will the rubric answer the criteria of content validity, construct validity and generalized validity?
2. Will there be differences in the inter-rater reliability measures in the successive pilot studies?
3. To what extent will employing the rubric for the assessment of performance achievement on the ballet matriculation exam influence grade distribution compared to that obtained by the traditional rubric?
4. To what extent will employing the rubric for assessing performance achievement in the ballet matriculation exam affect the average grades obtained as compared to those obtained by the traditional rubric?

### **I.5. The research hypotheses**

Hypothesis regarding validity:

1. A positive connection will be found between the degree of validity (content validity, construct validity and generalized validity) of the new rubric and the satisfaction level of the examiners employing it at the various stages of rubric construction.

Hypotheses regarding reliability:

2. A positive connection will be found between the stages of constructing the rubric and the level of inter-rater reliability.
3. A stronger positive connection will be found between the stages of constructing the rubric and the level of agreement among examiners regarding assessment of the three dimensions: physical, psychomotor and personal expression.

Hypotheses regarding sensitivity:

4. The grade distribution obtained by the new ranking method will be greater compared to that obtained by the traditional one.
5. The grade averages obtained by the ranking method of new rubric will be lower than those obtained by the traditional method.

### **I.6. The research variables**

The dependent variables:

1. Satisfaction of the examiners
2. Grade distribution according to the rubric
3. Average grades obtained by the new ranking method.

The independent variable:

The utilization of the rubric

### **I.7. Research methods**

This research method combines qualitative and quantitative methods in what is called triangulation or "mixed methods". The core argument for a "mixed method" design is that the combination of both data forms provides a better understanding of a research problem than either quantitative or qualitative data on its own (Bocoş, 2007; Creswell, 2008; 2012). The importance and justification for using mixed methods in the present research stems from a number of considerations:

1. The qualitative methodology contributes to constructing the rubric form with the aid of content analysis (from questionnaires, interviews etc.).
2. Qualitative methodology is extremely suitable for the present research since the sample is relatively limited.
3. The quantitative methodology examines the results and allows comparison of numerous grades that were collected, making it possible to test the research hypotheses.

### **I.8. The population**

1. The sample for Questionnaire No. 1:
  - a. 19 Classical ballet teachers out of 35 responded to the questionnaire (54%).
  - b. 7 external examiners out of 15 responded to the questionnaire (47%).21 secondary examiners out of 35 (60%). Altogether, 28 out of the 39 active examiners responded (71%). In total 32 responded (68%).
2. Sample of examiners in the various pilot studies:

14 examiners. Ten out of 15 (66%) external examiners and 4 others serve as secondary examiners. The considerations for sampling the examiners were their availability on the dates that were set for the pilot studies.

3. 12<sup>th</sup>-grade students in the various 5 dance departments that participated in the pilot studies (the students were not the direct research population, but without their participation in the various stages of the research, it would not have been possible to examine the rubric and its validity.)

## II. Research procedure

Developing a rubric for assessing achievement in the Classical Ballet Matriculation Exam is characterized by determining dimensions and criteria: determining rankings, weight/percentages that are suitable for the aims of assessing the matriculation exam (which were derived from the syllabus of the Ministry of Education [Chapter II.2.2. in the full thesis] and reflect the richness and multi-dimensional aspects of intelligence, skill and knowledge involved in dance (Chapter I.4.2 in the full thesis).

### II.1. Stages of the research study

**Table1: Stages of the research study**

Stage	Date	Description
1.	December, 2007	First focus group
2.	March, 2009	First semi-structured interview with Ms. Mignon Furman and Ms. Merle Sepel
3.	August, 2010	Second semi-structured interview with the Dance Supervisor, Dr. Nurit Ron
4.	11.10.11	Questionnaire No. 1 (open and anonymous) presented to Classical Ballet teachers and examiners
5.	From October, 2011 to January, 2012	Analysis of the results of Questionnaire No. 1 as the basis for constructing the rubric
6.	January, 2012	Expert consultation
January–April, 2012		Development of the rubric in stages
7.	12.2.12	Using the rubric in Pilot No. 1
8.	12.2.12	Focus group at conclusion of Pilot No. 1
9.	12.2.12	Satisfaction questionnaire after Pilot No. 1
10.	27.2.12	Using the rubric in Pilot No. 2
11.	27.2.12	Focus group at conclusion of Pilot No. 2
12.	27.2.12	Satisfaction questionnaire after Pilot No. 2

13.	1.3.12	Using the rubric in Pilot No. 3
14.	1.3.12	Focus group at conclusion of Pilot No. 3
15.	1.3.12	Satisfaction questionnaire after Pilot No. 3
16.	27.3.12;29.3.12	Assessing matriculation exams using the rubric in its final form
17.	27.3.12;29.3.12	Satisfaction questionnaire after using the rubric in the exam
18.	April-November, 2012	Data analysis

## **II.2. Documentation of changes in light of the pilot studies**

### Changes that were made as a result of the first pilot study on February 12, 2012:

- The rubric form is presented on one page instead of three pages.
- Reduction of the number of grades to be recorded during the test.
- A grade range of 70-100 points instead of 60-100 points.
- Two columns were added to the rubric form, one indicating the average grade from 1-5 and the second the average grade from 70-100 points.
- Addition of details of the criteria included in each dimension on the rubric page.
- The class level appears only once at the bottom of the rubric form.
- Removal of the weight in percentages for each dimension.
- An extensive change in column size in direct relation to the quantity of grades that should be collected for each student.
- The addition of a page with the students' numbers (according to their number tags) for free recording of comments.
- Changes causing the conceptual tables to be more precise.

### Changes that were made as a result of the second pilot study that took place on February 27, 2012:

- The rubric form is comprised of two pages. The first one indicates the positioning of the students for assessing performance at the bar and the second is the main form to be used throughout the exam. (On the previous rubrics, the position page was separate, not part of the rubric form.)
- Changes in the dimensions.
- Changes in the criteria included in each dimension.
- Changes in the precision of the definitions.

- Removal of the numerical representations of each performance level, in order to encourage the examiners to relate to the verbal description of the level (very good, excellent, etc.).
- Addition of weights in percentages to each dimension.
- Changes in the width of the columns in direct relation to the number of grades that it is possible to collect for each student.

Changes that were made as a result of the third pilot study that took place on March 1, 2012:

- Changes in the explanations provided for the rubric. Sharpening of the definitions of the concepts, especially in the psycho-motor dimension.
- Addition of a title to the second page of the rubric.
- Addition of a column entitled “Bar grade,” where this grade should be copied from the first page.
- Distribution of weights on the second page: 70% for the center exercise and the diagonal variations in the studio (corner) and 30% for the exercise at the bar.
- Addition of a page presenting a key to the grades.
- A grade range set between 76-100 points.
- Detailed instructions to the examiners to record four grades on a scale from 1-5 for each of the dimensions on the second page of the rubric form, which will later be entered into an Excel table including formulas that will exactly compute the final grade according to the different weights.

### **II.3.The final rubric**

#### **Rubric for assessing achievement on the Classical Ballet Matriculation Examination, March 27.2012, March 29, 2012**

**The rubric includes a few pages to facilitate performance assessment:**

- Page 1 presents a diagram of the students<sup>1</sup> according to their position at the bar. On this page, the students’ performance during exercises at the bar is assessed according to specified dimensions and criteria as they appear.
- Page 2 presents the main rubric. On this page, the students’ performance during the exercise in the center and the diagonal is assessed according to specified

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<sup>1</sup> The rubric is in the feminine, as most of the examinees are girls.



dimensions and criteria. This page concentrates all the assessment data up to the final computation. The numbers in the left-hand column represent the students participating in the exam, who are bearing the corresponding numbers.

- Page 3 contains a table including the students' numbers that provides space for writing comments and free associations during the exam.
- A key is provided for transferring the grades on a scale of 1-5 to a scale of 76-100.

### **Assessment dimensions**

The students will be assessed according to three performance dimensions: (A) the physical dimension; (B) the psycho-motor dimension; and (C) the personal expression dimension. The weights of the dimensions in the final grade are 50%, 40% and 10% respectively. A detailed explanation of the concepts and requirements for each of the three dimensions (in accordance with the evaluation objectives that were described in Chapter II.2.2) appears on the pages below.

### **Performance level**

The characteristic and/or average level for every dimension and part of the lesson will be assessed on a scale of 1-5 (when necessary, a grade may be given between these numbers, i.e. 1.5).

Following is a description of the verbal significance of every performance level and its appropriate grade range:

Level	Characterized by application	Grade range
1	below the expected level	76-81
2	on a basic- intermediate level	82-87
3	on a good level	88-93
4	on a very good level	94-99
5	on an excellent level	100

Grades from 1-5 will be transferred according to a set formula to grades from 1-100.

### **Instructions for using the rubric:**

#### Assessing the exercise at the bar

The examiner will assess the students' performance of the exercises at the bar on the diagram on page 1 of this rubric according to the dimensions and criteria that are detailed below. It is recommended to collect enough grades to give an indication of the student's performance level throughout the exercise at the bar. Finally, it will be

necessary **to choose one grade** that reflects the typical and/or average performance at the bar and to circle that grade. With the completion of the exam, the grade must be copied to Page 2, the main page of the rubric, to the column marked “Bar Grade”. The weight of the bar grade in the students’ final grade is 30%.

Assessing the exercise at the center and the diagonal in the studio (corner)

The examiner will assess the students’ performance in the center and variations on the diagonal of the studio (corner) in the table on Page 2. In every square of the table, it is recommended to collect as many grades as possible, which will give an indication of the student’s performance level throughout this part of the lesson for the assessed dimension. It is necessary to choose one grade for each square, which reflects the student’s typical and/or average performance level, and to circle that grade. Finally, three grades will be obtained for each student, representing their performance level in the three dimensions (physical, psych-motor and personal expression). The weight of the grade for center and corner in the student’s final grade is 70%.

The manner of computing the final grade:

$70 + 6 * \text{grade between } 0-5$

70 points (determined as the minimal grade) + 6 points (the difference between 70-100 divided into 5 levels) \* the average of the student’s grades in the range of numbers between 0-5.

**A detailed operationalization of the concepts and requirements included in each of the three dimensions of the rubric as related to optimum performance (Level 5):**

**Dimension A – The physical dimension, Performance according to the principles of classical ballet (50%)**

This dimension examines the level of physical performance of the student examinee in relation to the agreed principles of classical ballet [See Chapter I.4.2.3. in full thesis] and in relation to the relatively optimal performance of the class being tested. The criteria included in this dimension are posture, strength and flexibility, balance, turnout, movement of the foot, precise positioning of the limbs, precise movement of the limbs, jumping quality and quality of the turn (Lawson, 1984; Ptak, 1984; Fitt, 1996):

<b>General Concepts</b>	<b>Focused and detailed concepts</b>	<b>Concepts focused on elements</b>
<p><b>Posture (initial stance)</b> – The student pays attention to the placing of the shoulders above the hipbones and above the center of the feet in relation to the vertical line and pays attention to holding the center of the body. [An explanation of this in relation to classical ballet may be found in Appendix 7] The student’s lengthening and uprightness in relation to the line of gravity indicates increased muscle tone and organizing the limbs as close as possible to the line of gravity.</p> <p>The student pays attention to preserving the alignment of the shoulders above the pelvis bones and both keep aligned to the same front.</p>	<p><b>Turn out</b> – The student pays attention to the amount of turning out that passes through the hip joints in an optimal manner. The turning of the thigh joints is done while maintaining the correct mechanical line between the foot joints in a way that the angle formed by opening the thighs is equal to the angle between the feet and the knees. This is to prevent injury to the knees, the spine, etc. The student preserves consistency when turning the thighs throughout the various parts of the lesson.</p>	<p><b>Jumping quality</b> – The student pays attention to the order of movement of the foot during the jump and the landing. The student pays attention to the correct position of the body (shoulders aligned with pelvis) during jumps and landings. The student pays attention to the height of the jump, the image of the arc in the air and the direction of the jump. The jump is performed with attention to correct preparation in relation to the body and the space, preserving organization of the limbs during the jump (bending the upper back) and a precise, controlled landing (first on the toes, the balls of the feet and finally the heels).</p>
<p><b>Strength and flexibility</b> The student maintains a balance between strength and flexibility. The student pays attention to regulating power and invests the appropriate amount of power in performing each part of the exam. The student demonstrates flexibility in her joints as required by each exercise.</p>	<p><b>Movement of the foot</b></p> <p>The student makes correct and gradual use of the ankle and the base of the toes (breakdown of the movement) and stretches the foot from the ankle, while the toes complete the arch. The foot maintains its direction in continuation of the pivotal movement of the lower leg (tibia and fibula) and does not deviate from it (sickle).</p>	<p><b>Quality of the turn</b> – The student pays attention to the correct use of the limbs in the various phases of the turn: the student holds the center of her body steady while performing the turns, and maintains focus and control during the turn. The turn is performed with attention to correct preparation in relation to the body and the space, maintaining organization of the</p>

		limbs during the turn and ending with a precise ending in regard to the front and the final position.
<p><b>Balance</b> – The student maintains the correct amount of balance (static or dynamic) required by every exercise, while maintaining correct posture and consistency throughout various parts of the lesson.</p>	<p><b>Precise positioning of the limbs</b> The position of arms, legs and head are in accordance with the rules of classical ballet. The student is precise in the position and form of the various limbs. For example, the arms work from the torso muscles, while paying attention to the correct position of the shoulder blades and in correct proportion to the front of the body, while preserving continuation of the forearm joints. The hands are rounded for most of the lesson except in the arabesque. The head – the student concentrates on the free movement of the head and in keeping with the position of the head required by the various exercises while paying attention to the correct focus/ gaze.</p>	
	<p><b>Precise movement of limbs:</b> The student is precise in her movements and in transitions between different positions (hands, feet, back and head).</p>	

**Dimension B – The psycho-motor dimension: Cognitive, coordinative and emotional aspects according to the principles of classical ballet (40%)**

Body, movement and emotion are one interactive system. Motor skill is one of the forms of thinking. Motor thinking involves physical coordination, which relates to physical and social space. The cortex contains a structural and developmental combination of the sensory, emotional and motor systems and the centers of perception and cognition (Morrow et al., 2000; Al-Dor, 2004).

This dimension examines by means of the cognitive aspect the level of knowledge, memory, comprehension and application of the examinee in relation to agreed principles of classical ballet [See Chapter I.4.2.3.] and in light of the relatively optimal performance of the class being tested. Regarding the coordinative aspect (the ability to coordinate among various movements in order to create uniform balance in movement in order to achieve a certain goal (Ben-Sira et al., 1998) and regarding the emotional aspect, this dimension relates to harmony in movement including musical coordination and movement of the student, as well as her spatial perception.

<b>Cognition</b>	<b>Coordination and emotion</b>
<b>Knowledge</b> – The student knows the content being tested throughout the exam lesson, for example the exercises, their flow, direction, emphases, etc.	<b>Harmony of movement</b> – This reflects the manner and quality of performance demonstrated by the student. Harmony of movement includes musical coordination, coordination of movement and the student’s space perception.
<b>Memory of movement</b> – The student remembers the individual exercises and the order of the lesson, for example the flow of the exercises, positioning, etc..	<b>Musical coordination</b> – The student pays attention to the following: <ul style="list-style-type: none"> <li>• the internal musical division of the exercise (rhythm)</li> <li>• musical meter</li> <li>• the connection between what is emphasized in the music and its expression in movement.</li> </ul>
<b>Comprehension and application</b> – The student comprehends and applies the techniques of classical ballet and its aesthetic principles. The student distinguishes between the different exercises and their varied nature. The student transfers the knowledge she has acquired in exercises at the bar, through the center	<b>Coordination of movement</b> – The student demonstrates harmonic, controlled and flowing coordination between the roles played by different limbs, including eye focus, according to each exercise and the principles of classical ballet (a constant connection between eyes, hands and legs).

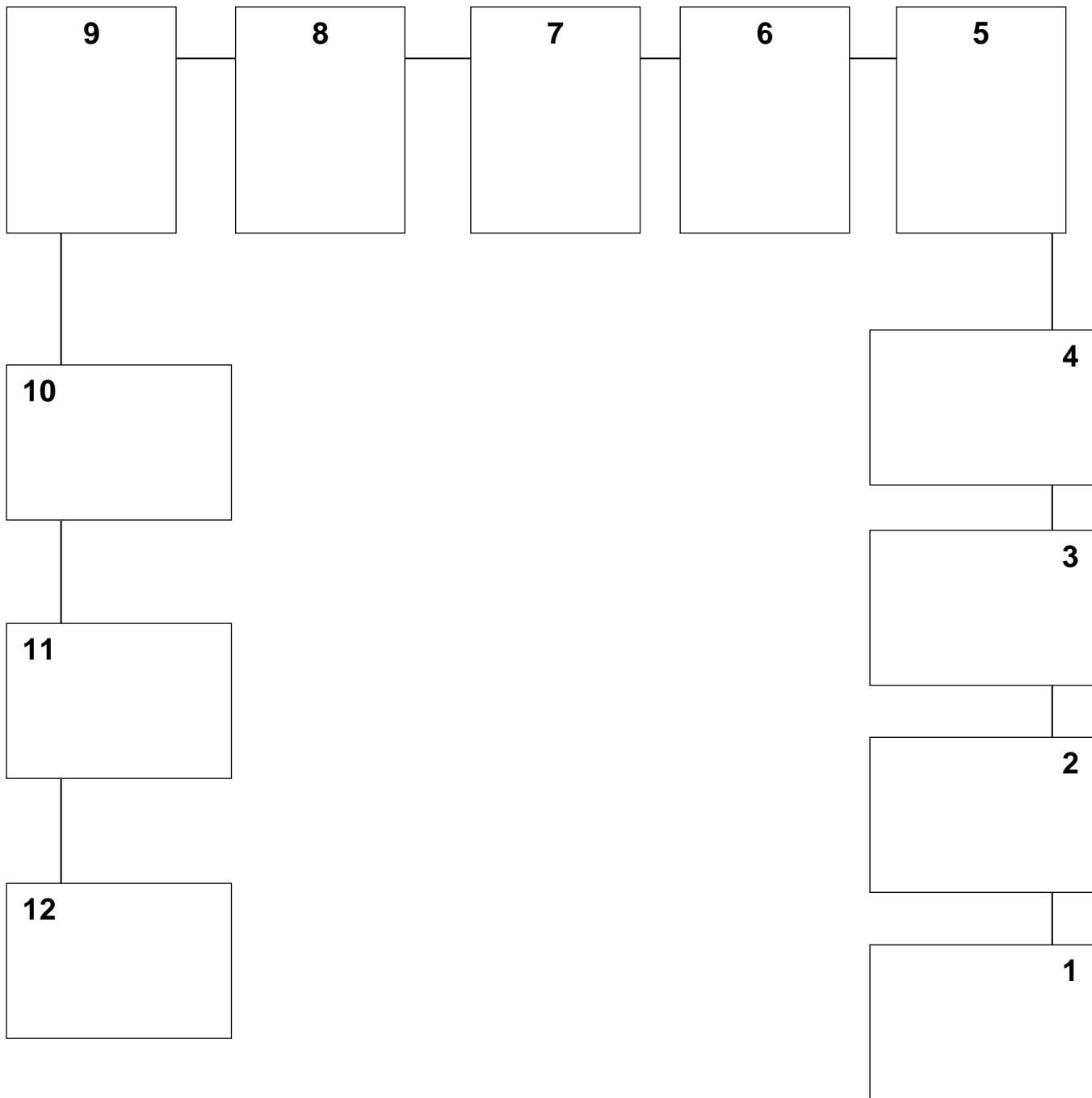
<p>and in the diagonal. The student utilizes this knowledge to apply a developing complexity throughout the lesson.</p>	
	<p><b>Coordination and space perception</b> – The student organizes her movement in space relative to her body, to the studio's space and to additional dancers according to the principles of classical ballet.</p>

**Dimension C – Personal expression – The holistic aspect (10%)**

This dimension examines the holistic aspect that includes the subtle nuances of the student’s personality as expressed in movement. These subtle holistic nuances are the “added value,” an element that is difficult to define and quantify. Concepts such as the student’s stage presence, emotional interpretation attractiveness in movement, “dancing with soul,” expression, “dance-ability,” etc., are the qualities that characterize and single out the excellent from the very good student. These concepts are difficult to conceptualize uniformly, but they are what distinguish quality of performance from technical proficiency in the art of dance. This dimension, like the ones preceding it, is assessed according to accepted principles of classical ballet and in relation to the optimal performance of the class being tested. Assessing these elements involves a considerable degree of subjectivity and the relation to them is, as stated above, necessarily holistic. The central concept is expression.

<p><b>Personal expression – The holistic aspect</b></p>
<p>A high ranking of the holistic aspect includes: A holistic understanding of movement made possible by coordination and precision of movement according to the classical style. This variable combines all the other components that appeared above on the rubric, in addition to concepts such as:</p> <p><b>Expression</b> – The student personally and uniquely combines interpretation of movement and performing movement that is expressed in breathing, facial expression, etc.</p> <p><b>Stage presence</b> – The student demonstrates presence and total commitment to dance. This may be expressed in eyes and facial expression.</p> <p><b>Charisma</b> – The student arouses admiration due to her performance, her personality and her impressive performance.</p> <p><b>Dance-ability</b> - It is impossible to quantify or exactly measure these concepts. Thus the holistic aspect does not measure the components described above in isolation, but relates to the examiner’s complete impression of this holistic variable.</p>

**Page 1: Assessment rubric for bar exercises**




Physical			Psycho-motor		Personality
<ul style="list-style-type: none"> <li>• Posture</li> <li>• Strength</li> <li>• Flexibility</li> <li>• Balance</li> </ul>	<ul style="list-style-type: none"> <li>• Turnout</li> <li>• Footwork</li> <li>• Precision of position</li> <li>• Precision of movement</li> </ul>	<ul style="list-style-type: none"> <li>• Quality of turn</li> <li>• Quality of jump</li> </ul>	<ul style="list-style-type: none"> <li>• Knowledge</li> <li>• Memory of movement</li> <li>• Comprehension</li> <li>• Application</li> </ul>	<u>Harmony of movement</u> <ul style="list-style-type: none"> <li>• Musical Coordination</li> <li>• Coordination of Movement</li> <li>• Space perception</li> </ul>	<ul style="list-style-type: none"> <li>• Personal expression</li> <li>• Charisma</li> <li>• presence</li> </ul>

**1** (Low perf. level) **2** (basic-Intermediate. perf. level) **3** (Good perf.level) **4** (Very good perf. level) **5** (Excellent perf. level)

**Position of examiners**

**Page 2: Assessment rubric for the Classical Ballet Matriculation Exam**

Exercises in the center and on the diagonal in the studio – corner (70%)				Bar (30%)	Grade on scale to 100	
Dimension	Physical	Psycho-motor	Personality	Bar Grade 1 - 5		
Student No. 	<ul style="list-style-type: none"> <li>• Posture</li> <li>• Strength</li> <li>• Flexibility</li> <li>• Balance</li> </ul>	<ul style="list-style-type: none"> <li>• Turnout</li> <li>• Footwork</li> <li>• Precision of position</li> <li>• Precision of movement</li> </ul>	<ul style="list-style-type: none"> <li>• Quality of turn</li> <li>• Quality of jump</li> </ul>	<ul style="list-style-type: none"> <li>• Knowledge</li> <li>• Memory of movement</li> <li>• Comprehension</li> <li>• Application</li> </ul>	<ul style="list-style-type: none"> <li><u>Harmony of movement</u></li> <li>• Musical Coordination</li> <li>• Coordination of Movement</li> <li>• Space perception</li> </ul>	<ul style="list-style-type: none"> <li>• Personal expression</li> <li>• Charisma</li> <li>• presence</li> </ul>
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						



**Page 3: Comments page**

<b>1 (Low perf. level) 2 (Basic-intermediate perf. level) 3 (Good perf.level) 4 (Very good perf. level) 5 (Excellent perf. level)</b>
Student No. 1 Comments
Student No. 2 Comments
Student No. 3 Comments
Student No. 4 Comments
Student No. 5 Comments
Student No. 6 Comments
Student No. 7 Comments
Student No. 8 Comments
Student No. 9 Comments
Student No. 10 Comments
Student No. 11 Comments
Student No. 12 Comments

**Key to grades**

Examples of translating grades from a scale of 1-5 to a scale of 1-100.

Performance level Scale of 1-5	Grade	Grade range
1	76	81 - 76
1.5	79	
2	82	87 - 82
2.5	84	
3	88	93 - 88
3.5	92	
4	94	99 - 94
4.5	97	
5		100

Level	Characterized by application	Grade range
1	below the expected level	76-81
2	on a basic- intermediate level	82-87
3	on a good level	88-93
4	on a very good level	94-99
5	on an excellent level	100

**III. Results and Discussion**

This section is based on the research questions, while providing an in-depth analysis of the hypotheses, findings and goals that were determined in constructing the rubric and validating it in light of the literature review. Throughout the discussion, comparisons will be drawn between assessment by means of the new measurement tool and the traditional one.

**III.1. In response to Research Question 1**

To what extent will the rubric answer the criteria of content validity, construct validity and generalized validity?

The rubric in its final form [II.3] includes three dimensions and ten criteria and takes into consideration both principles of rubric construction in general [Chapter I.3 in the full thesis] and professional pedagogical considerations from the field of Classical Ballet.

Validation is the most important consideration for measurement or assessment tools, especially if they are to be employed for the purpose of reaching crucial decisions (Birnbaum, 1997). Considerations regarding the objectives of using the tool - in the present case as a summative evaluation tool – led to an investigation of construct validity (including content validity, criterion validity and construct validity) and determined the order of priorities for gathering relevant evidence of validating usage. Validation is perceived as an extended process over time during which the assessment tool is developed and used (Birnbaum, 1997).

The discussion of the first research question will include an analysis of different types of evidence regarding validity: evidence based on **content** including topics, wording, delivery procedures and grading; evidence based on **performance processes**; evidence based on **internal structure**; evidence based on **other variables**; evidence based on **generalizability**; and evidence based on **results of use**.

#### 1. Evidence based on **content**

Evidence based on content [Chapter I.3 in the full thesis] reflects the degree to which the assessment tool represents the various content areas. The following subsections present the extent to which the assessment tool represents the following content areas: topics, wording, instructions for use and grading.

##### 1.1. The **topics** – considerations for determining **criteria and dimensions**:

A pre-condition for rubric construction is to **determine criteria** that provide a response to teaching objectives related to the syllabus [Chapter II.2.2. in the full thesis] (Moskal & Leydense, 2000; Metzger & Rom, 2002; Bargainnier, 2003; Glaubman & Kola, 2005).

On the one hand, the difficulty in determining criteria involves formulating accurate terminology and ensuring that every teaching objective is represented by a criterion; on the other hand it involves ensuring that no criterion repeats itself or is unconnected to a teaching objective or result (completeness and exclusivity) (Moskal & Leydense, 2000; Lund, 2006; Birnbaum, 2007). Birnbaum (1996) emphasizes that in order to achieve maximum objectivity, it is necessary to develop a set of detailed

standards and criteria for every question or performance task. Ross (1994) also emphasizes the necessary connection between task structure and assessment. The syllabus and the chosen criteria must reflect the students' knowledge and abilities to be evaluated by the examiners comprehending both the physical and the mental level (Lund, 2006). Criteria such as *posture*, *turnout* (the degree of turning out the thighs from the hips) and other elements that are not included in the rubric currently in use do appear on the new rubric. Responses to questionnaires following the pilot studies: "The rubric does include the criteria represented by the three dimensions"; "The content does indeed represent the topics to be observed by us during the exam."

In light of the data and the revised versions, much attention was paid to a suitable division of the criteria according to the different dimensions.

Considerations for **determining the dimensions**: The rubric is divided into three dimensions: physical, psychomotor and personal expression. The most significant changes were made regarding the second and third dimensions.

**The first dimension – physical** – includes the technical elements and demands of the classical ballet lesson (Ross, 1994; Chatfield, 2009).

**The second dimension –psychomotor** – as it was phrased anew in the course of the study, stemmed from the realization that it was necessary to consolidate two taxonomies: Blum's Taxonomy, which includes knowledge, understanding, analysis, synthesis and assessment, together with the taxonomy for categorizing psychomotor objectives, including basic reflexive movements, perceptive abilities including kinesthetics, visual, auditory and tactile perception and coordination, efficiency in performing complex movements and non-verbal communication (Birnbau, 1997).

**The third dimension – personal expression** – is the one that distinguishes each examinee from her peers and includes her own unique personal expression. This is a more abstract dimension than the other two, making it more difficult to accurately define and conceptualize (Krasnow & Chatfield, 2009).

The dimensions reflect a developing structure of the rubric that is both cohesive and coherent. In the validation test by experts that was conducted at an advanced stage of designing the rubric, it was found that the tool included all the content relevant to the classical ballet matriculation exam, cognitive processes and various responses of the learners, thus negating the under-representation of the structure.

## 1.2. Wording

The wording of various rubric items, such as dimensions, criteria and explanations, is a crucial element in rubric development, which ensures that the tool will be clear, understandable and usable. In addition (Glaubman & Kola, 2005; Wesolowski, 2012), the wording must be unambiguous and understandable for the examinee as well as for the examiner, so that the rubric may be employed as both an instructional and an assessment tool. The wording of the different variables was frequently changed in the course of developing the rubric, having been approved by experts and professionals in the field of classical ballet.

The terms **clarity** and **sensitivity** must be an integral part of the discussion about wording (Lund, 2006). The more detailed and exact the rubric is, the more precisely the grades will reflect the learner's ability.

**Sensitivity:** The extent of the rubric's sensitivity was examined by the fourth research question (below) relating to the extent of grade distribution on a single exam.

**Clarity:** From the research results [Chapter IV.1 in the full thesis], it may be concluded that the examiners emphasized that the clear and understandable wording facilitated more exact assessment. From questionnaires response's: "The wording of the dimensions exactly reflects the demands and criteria that are to be tested."

## 1.3. Delivery procedures

Delivery procedures of the rubric to those meant to employ it play a central role. When care is taken in training raters to use well-defined rubrics, reliabilities improve (Parkes, 2010). Also Burt, Schroeder and Hurley (2008) warn that without counselors that understand and clarify exactly what is demanded of learners and how those demands should be carried out, the assessment tool will be invalid. Boston (2002) emphasizes the importance of an anchor paper accompanying the rubric and including details of every grade level. Explanatory pages [See above] appear before the rubric and represent the structure of the tool and how to use it. Several examiners attested that additional practice and in-depth familiarity with the rubric rendered it more usable. Regarding this point, examiners responded to the questionnaire as follows: "The concepts and the elements organized into outlines facilitate usage and understanding of its concepts for the examiner/reader. "It is essential to become familiar with the various aspects of the rubric in order to use it in an efficient and cohesive way among examiners"; "I am convinced that the guidance that was given

before the exam was very helpful in using the rubric”; “The specific explanatory pages contributed greatly to understanding the purpose of the rubric and the whole picture”.

#### 1.4. Grading

Grading involves presenting an assessment report using symbols (letters, numbers, other signs), which represent achievement according to an agreed key (Glaubman & Kola, 2005). In order for the grade to be meaningful, it must be relative and reflect by means of the rubric the criteria derived from the syllabus. Oreck et al., (2003) point out that the grading system of the rubric must be simple to use, facilitating quick judgments (during the students’ performance in the exam lesson).

One scoring method is to determine the performance level by means of establishing benchmarks, i.e., describing performance levels (Glaubman & Kola, 2005; Wesolowski, 2012). Most rubrics whose objective is to award a numerical value include from three to five benchmarks in order to characterize the students’ performance level for a particular task. Wang and Rairigh (2006) suggest including no more than five benchmarks.

In the present developed rubric there is a division into **five benchmarks**. This division makes it possible for the examiner from the start of the exam to roughly categorize each learner and locate each one in relation to others in the group (the norm) and relative to the criterion. On their answers to the questionnaires, the examiners indicated that the division into five levels aided them considerably in assessing learners. Each of the five benchmarks is accompanied by a verbal explanation (on the anchor paper). From examiners responses: “The scale helps and facilitates assessment”; “It is easy to rank the examinees according to the scale”; “Using the scale organizes the learners according to level and even adds the class level, while still allowing freedom to decide on the grade”; “The numerical ranking may be easily used during the exam”.

The process of **determining a grade range for each ranking level** underwent changes as a result of each pilot study until reaching its final form.

Translating a performance level of 1-5 to a grade of 0-100 is called **linear transformation**. Boston (2002) explains the importance of the decision maker’s (the rubric constructor’s) determining a comparable grade scale while justifying the division that has been chosen. Boston adds that there is no single correct way of doing

this, but whatever is decided needs to reflect evidence of the student's mastery of the targets of instruction.

A range of 76-100 was determined. The grade range is equal for every performance level (five points for each), as opposed to inconsistent grade range for each performance level that was employed in previous pilot studies. Only the highest level represents a performance of 100.

**Calculating the final grade** – According to the rubric under discussion, each examiner gives 4 grades from 1-5, one grade that summarizes work at the barre (30%) and three more that reflect performance for the three dimensions that were determined (70%). The grade is calculated and translated into a grade on a scale up to 100 using a formula (an innovation of this rubric) that was installed on an Excel table. Entering the four grades (according to their various weights) into the table yields the final grade after a linear transformation.

Description of the formula:

70 points (set as the minimum grade) + 6 points (the difference between 70-100 divided by 5 levels) \* the student's grade average in a range from 0-5. The formula combines the relative weight given to each dimension (detailed below). An example of a student's grade calculation: her average grade for each section of the exam was 3.5, so her final grade will be 91 according to  $70+6(3.5)=91$ .

According to the above results it may be determined that the rubric meets up to this standard and that it is valid regarding content.

## 2. Evidence based on **performance processes**

People who compose exams must show that the intellectual/performance skills that students must master in order to succeed in them are actually examined. Evidence based on performance processes depends on logical, empirical analyses of how a given task should be performed during the exam (Birnbaum, 1997). Among other things, the examiners claimed: "The rubric brought into sharp focus the parameters that we are examining"; "It includes all the elements necessary for the examiner presented in a clear way"; "I feel that as a result of using the rubric I relate to parameters".

## 3. Evidence based on internal **structure**

Analyzing the internal structure of the assessment tool can provide evidence regarding the degree to which the connections among the tool's items and components corresponds to the construct or theoretical model providing the basis for interpreting

the grades and the actions that are taken according to them (Birnbaum, 1997; Moskal & Leydense, 2000):

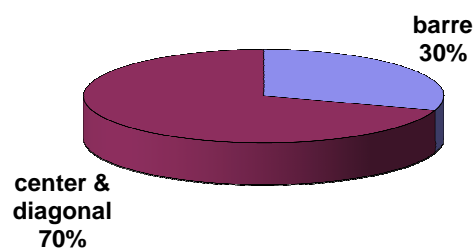
The **general structure** of the rubric: This relates to the number of pages and dimensions included in the rubric, their order etc., all of which influence the rating examiner, thus affecting the grade. Developing the rubric was characterized by constant changes in its structure.

**The number of pages** –changed from 3 pages to one to two according the focus groups and questionnaires following each pilot.

**Dimensions** - different models of assessing performance in the classical ballet lesson from around the world (described in Chapter I.4.2.4 in the full thesis) determine the dimensions differently, but the criteria appearing on various models are very similar and the same lesson components are common to all the rubrics.

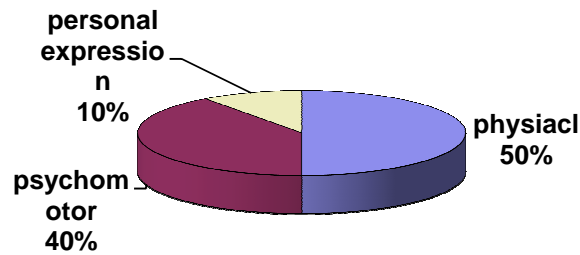
**The considerations for weighing the percentages for each dimension** – This topic like others reflects the educational approach and the purpose of the assessment and conform to a set policy, in this case that of the Ministry of Education. Determining the weight in percentages of each dimension changed in the course of developing the rubric.

**Figure 1: The distribution of weight between barre and center/diagonal in the cumulative exam grade according to the rubric form**





**Figure 2: Distribution of the weight of the three dimensions**



The above figures reflect the educational approach of dance departments, which is not only related to dance performance, but also social- and process-linked.

#### 4. Evidence based on **other variables** (external aspects)

According to Birnbaum (1997), external variables that influence assessment and that can provide another way of demonstrating validity may be divided into two types: convergent and discriminating evidence and the connection between the tool and an external criterion.

**Convergent and discriminating evidence:** **Convergent** evidence relates to the connection between the grades obtained by the assessment tool and other measures that are meant to measure the same construct, i.e., a comparison between the average exam grade and that of an identical test that was given to another group approximately at the same date. **Discriminating** evidence refers to the connection between the grades obtained by the assessment tool and measures meant to measure other constructs. In this case, a low correlation should be found between exam grades and measures meant to examine other constructs

It is also possible to determine validity by examining the connection between the assessment tool and an external criterion, i.e., a comparison of the exam grade with an **external criterion**. An additional significant external factor for assessing the classical ballet matriculation exam is the fact that the exam takes place in a group.

Another external factor influencing the examinees' grades: the fact that the exam is based on a norm rather than a criterion. The norm-based test emphasizes the **level of the class** being tested at a particular exam.

#### 5. Evidence based on **generalizability**

This aspect examines the extent to which the quality of grades and their interpretation may be generalized beyond populations, frameworks and tasks, as well

as the ability to generalize the connections between test and criterion. This theory offers an additional explanation for the researcher's decision not to include "personal impressions" as a dimension in its own right, since in any case this element is present at every stage of the assessment.

The dimensions included in the rubric –physical, psychomotor and personal expression – are general enough to be suitable for various dance styles and constitute evidence of central components to be observed by the examiner. Thus the rubric may definitely be generalized. It is also possible to generalize this rubric to be used to evaluate entrance exams to educational institutions teaching dance and of course for midterm exams as well as final exams, as was mentioned in Section 4 regarding external evidence.

#### 6. Evidence based on the **implications of the assessment** (outcome aspect)

According to Birnbaum (1997), this aspect of validity examines the utilitarian value of grade interpretation in light of the actual and potential results of using the tool. This type of validity focuses on examining sources of bias that influence assessment and also determines how fair it is.

The educational approach that is reflected in an interview with the dance supervisor from 2010 [Appendix 5 in full thesis] comes to expression in the formulation of the rubric form, as it combines both an analytic and a holistic approach.

In light of examining the evidence for determining the assessment rubric's validity, it appears to faithfully reflect and fully represent the content, the performance processes, the internal structure, the relationship among additional variables, the generalizability aspect and the assessment outcomes. It is thus possible to determine that the rubric is valid, although it appears that this holds true for most of its components, but not all of them to the same extent. The validation process continued during the entire period of developing the assessment tool and putting it to use.

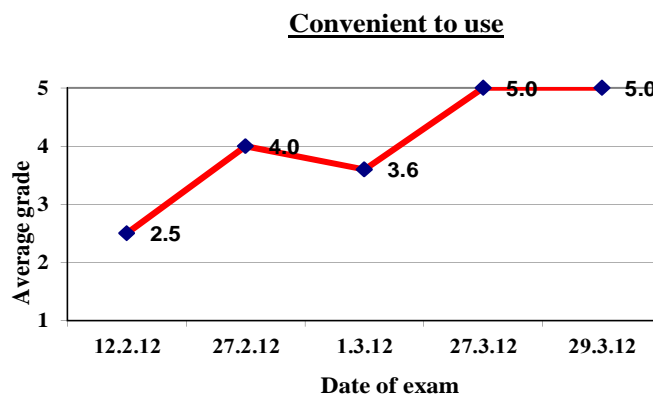
### **III.2. Conclusions regarding hypothesis 1**

From the first research question, derived **Hypothesis 1** regarding validity: A positive connection will be found between the degree of validity (content validity, construct validity and generalized validity) of the new rubric and the satisfaction level of the examiners employing it at the various stages of rubric construction

Hypothesis 1 related to the responses of the examiners who participated in the pilot studies for the developing rubric. The hypothesis was examined by means of seven questions ascertaining the rubric's degree of convenience, clarity and ease of use and the degree to which the rubric reflects the criteria and the examinee's level.

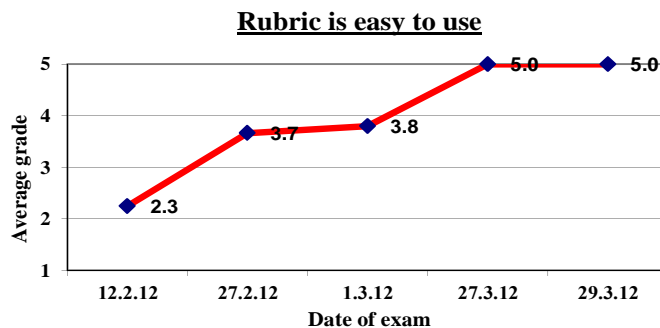
Regarding the parameters of convenience and ease of use of the rubric, the results showed a significant improvement in the examiners' satisfaction with the rubric as the versions succeeded one another: The satisfaction level of the examiners regarding **convenience** of use of the rubric form rose from 2.5 to 5.0.

**Figure 3: The examiners' degree of satisfaction with convenience of use of the rubric form at the five exams (Answer to Question No. 1)**



The satisfaction level of the examiners regarding **ease** of use of the rubric form rose from 2.5 to 5.0.

**Figure 4: The examiners' degree of satisfaction with the ease of use of the rubric form at the five exams (Answer to Question No. 3)**



Evidence based on the rubric's internal structure (as detailed in Section 3 above) underwent dramatic changes during the development process. At the first stage, the

rubric was very long (three pages), extremely unwieldy and with very little room for recording comments and impressions during the assessment. The following were among the replies to the satisfaction questionnaire after the first pilot study: “Too many pages to mark, summarize and calculate during the exam”; “There are so many sections and subsections and there is no time or possibility to navigate through them during the exam”; “the rubric is unwieldy, overloaded and it doesn’t leave time to receive a significant general impression of the learners”.

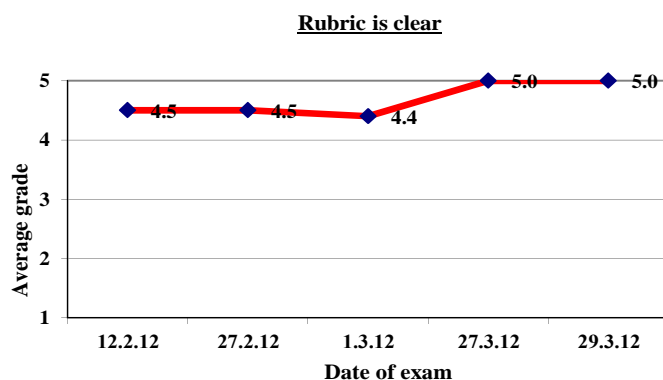
In the interim period after the third pilot study (March 1, 2013), they replied thus: “The rubric is still inconvenient, but it is clear and professionally sound”; “It has improved somewhat regarding convenience of use”.

Following are some replies to the satisfaction questionnaire after the final pilot study (March 29, 2013): “The transition to two pages and the division between the barre and the center reflected what really happens in the lesson”; “Practical for use”;

Regarding the parameters of **clarity, reflecting the criteria and use of the scale of 1-5** (representing performance levels) as contributing to assessment, the satisfaction level with the rubric form was relatively high from the first version, but even here satisfaction improved to the highest level by the final version.

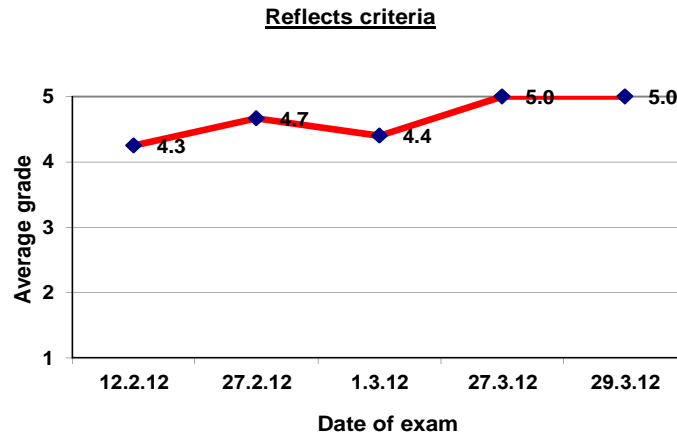
The satisfaction level of the examiners regarding **clarity** of use of the rubric form rose from 4.5 to 5.0

**Figure 5: The examiners’ degree of satisfaction with the clarity of the rubric form at the five exams (Answer to Question No. 2)**



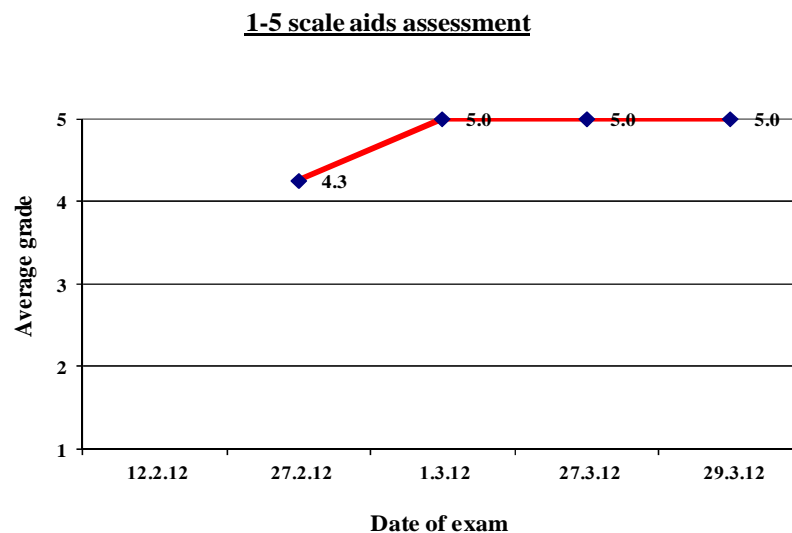
The satisfaction level of the examiners regarding the extent to which the rubric form **reflected the criteria** rose from 4.3 to 5.0.

**Figure 6: The examiners' degree of satisfaction with the degree that the rubric reflects the criteria (Answer to Question No. 4)**



The satisfaction level of the examiners regarding the extent to which the use of a **scale of 1-5 represented performance levels, thus contributing to assessment**, rose from 4.3 to 5.0.

**Figure 7: The examiners' satisfaction with the degree to which the scale from 1-5 aids assessment (Answer to Question No. 6)**



Evidence based on wording [Section 1.2 above] i.e., clarity, emphasizes the importance of clarity and understandability due to wording for the assessment process. Lund (2006) claims that a well-phrased rubric focuses the interpretation of the

assessment and aids to the examiner in the assessment process. Following are responses to the questionnaire that was distributed at the completion of the first pilot study (February 12, 2012): “The demands [of the rubric] are theoretically clear, as well as how to carry them out”; “The parameters are clear. Replies that were received after the third pilot study (March 1, 2012): “The rubric is very detailed and allows the examiner to relate to the parameters during the exam. They appear in clear view and at the correct location on the rubric page”; from the questionnaire distributed after the final pilot study (March 29, 2012): “It is very easy to find one’s way around the rubric”; “The demands are clear and the description of what is included in each category is presented clearly”.

Evidence based on content, i.e., criteria and dimensions [Section 1.1 above] emphasizes that the decision to divide the rubric into criteria and dimensions already from the outset of the research study was a correct one. The results correspond with studies of other researchers in the field, for example Abulafia (2004), Glaubman and Kola (2005) and Wesolowski (2012), who emphasize the importance of setting criteria and dimensions as early as the first developmental stages as signposts for the entire rubric. The descriptors should be detailed enough to limit subjectivity, yet concise enough to avoid confusion or ambiguity. Although the dimensions were changed, the approach of division into three central assessment components was suitable to the syllabus and to the examiners, as is obvious from their replies to the questionnaire that was distributed after the first pilot study (February 12, 2012): “Yes, it answers the criteria that are represented by the three dimensions”; “The content that is included represents the topics that we must observe during the exam”; “The degree of precision stopped me from seeing the girls and the general picture. I was caught up in details and couldn’t really see the girls themselves”. From the replies to the questionnaire after the third pilot study (March 1, 2012): “It represents all the parameters on which they are tested and presents them concisely”; “The rubric contains the main elements that should be present in an excellent performance”. From the replies to the questionnaire that was distributed following the final pilot study (March 29, 2013): “All the elements necessary for the examiner appear on it in a clear way”; “The rubric includes the criteria clearly and correctly divided, making it possible to internalize them repeatedly at a glance during the exam”; “The rubric fulfills every requirement”.

Evidence based on grading [Section 1.4 above], especially the use of a scale from 1-5 (representing performance level) as contributing to assessment was positive starting from the inception of the research study. This division was new to the examiners and introduced order and assessment conventions that had not been present previously, thus making the assessment process much easier. From the replies to the questionnaire after the second pilot study (February 27, 2012): “The division into categories and to five levels on a scale aids assessment”; “It makes it possible to observe several elements and rank them relatively and numerically, not verbally”; “It contributed a lot!”. From the replies to the questionnaire after the third pilot study (March 1, 2012): “Yes, it makes it easy to quantify the assessment level in a short time, and it is convenient to use”; “It makes it possible and easier to divide the class according to level”. From the replies to the questionnaire after the final pilot study (March 29, 2012): “The scale helps and facilitates assessment”; “For me they are very convenient. The use of a scale creates order in the learners’ levels and even adds the class level, while affording freedom in giving the grade”.

These findings reinforce those of Schmid (2003), who believes that it is possible to critically evaluate a broad range of complex performance skills in a fair and unbiased manner by creating un-ambivalent benchmarks reflecting essential skills and components of learning. Wide justification for the division into five performance levels may be found in the literature and reinforces the approaches of Metzger and Rom (2002), Abulafia (2004), Glaubman and Kola (2005), Lund (2006) and Wesolowski (2012).

For the parameter that examined if the rubric form (i.e., the grades obtained by using it) **reflects the examinees’ level**, no consistent trend is evident. The satisfaction level of the examiners for this parameter rose from 3.5 to 5.0 and went down to 4.0 at the final pilot study.

For the parameter that examined the **difficulty in translating from a scale of 1-5** (representing performance level) **to a grade up to 100**, the difficulty level was medium at the beginning, but by the final version the examiners reported experiencing no difficulty whatsoever. According to the literature [Chapter I.3 in the full thesis], a key must be found for adapting the grade range to the learning content, criteria, objectives, etc. At each of the pilot studies a different strategy was implemented regarding determining the final grade until the last approach. Despite the fact that after

this pilot study the respondents attested that the difficulty of translating the grades was lessening, they repeatedly mentioned the problematic nature of determining the grade. For this reason, a computerized formula was created that substituted the performance level they observed at the exam with a grade between 76 and 100. This formula made irrelevant the question of translating the grade to a numerical value of up to 100.

Continuing on from answering the first research question by means of examining the evidence for the assessment tool's degree of validity and analyzing the hypothesis reinforcing this, it may be established that **the hypothesis was confirmed and that the objectives that were determined for constructing the tool were achieved in full.**

### **III.3. In response to Research Question 2:**

Will there be differences in the inter-rater reliability measures in the successive pilot studies?

From this question dealing with reliability two hypotheses were derived: **Hypothesis 2:** A stronger positive connection will be found between the stages of constructing the rubric and the level of inter-rater reliability.

**Hypothesis 3:** A positive connection will be found between the stages of constructing the rubric and the level of agreement among examiners regarding assessment of the three dimensions: physical, psychomotor and personal expression.

### **III.4. Conclusions regarding hypothesis 2**

**Hypothesis 2:** A stronger positive connection will be found between the stages of constructing the rubric and the level of inter-rater reliability.

As Hitt and Helms (2009) claim, rubrics make assessments more reliable because they standardize the grading process. The hypothesis was that the more accurate and detailed the rubric will be on the one hand and clear on the other, there would be greater uniformity among the different raters who observed the same examinee. The significance of a high reliability level is that the measurement tool will have higher validity as well.

The results indicate a large measure of uniformity in the rankings that were received by the various examiners at the five rounds of validating the rubric form.



In the light of the above, and contrary to Linn's findings (Parkes, 2010) that when care is taken in training raters to use well-defined rubrics, reliabilities improve, **the findings refute the hypothesis stating that the reliability level would improve as the rubric underwent changes throughout the study, since the reliability level was already high from the first pilot study onwards.**

The answer for the question regarding the changes in the reliability measure is dual: the uniformity has increased throughout the assessment according to the different dimensions as the rubric developed. However, the inter-rater reliability didn't change significantly, as it was high from the inception of the research study.

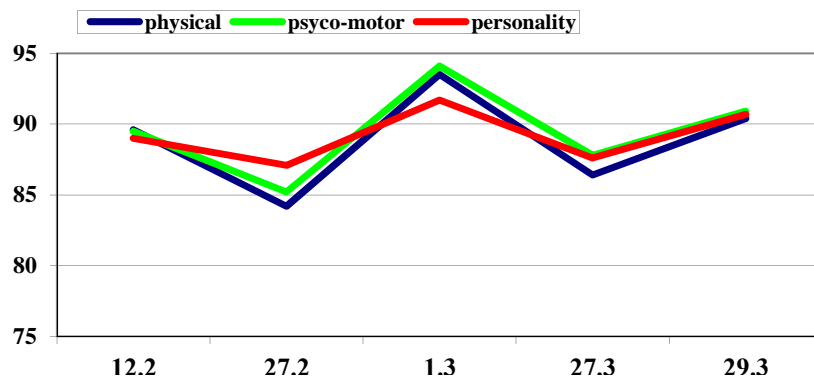
### **III.5. Conclusions regarding hypothesis 3**

**Hypothesis 3:** A positive connection will be found between the stages of constructing the rubric and the level of agreement among examiners regarding assessment of the three dimensions: physical, psychomotor and personal expression.

In light of the finding that no differences were found among the dimensions (a grade range of 89.0-89.9) in analyzing the examinees' average grades at the sum total of exam dates for the three dimensions, it was examined whether there were significant differences among the ranking of the three dimensions according to the five exam dates. This analysis indicated that there were significant differences among them. The consistent trend for the three dimensions was that at three dates the rankings were higher than at the two remaining ones. Regarding the personal expression dimension, the gap among the three dates where a high ranking was received and the two dates that yielded a lower ranking was less blatant.

Later an analysis was performed of whether in a particular dimension the examinees were stronger than in another dimension as clearly appears on Figure 8.

**Figure 8: Average rankings of the physical, psychomotor and personal expression dimensions according to the five exam dates**



This finding makes it possible to determine that the rubric form was successful, following alterations made to it. These alterations led to stability, precision and uniformity in the examiners' assessments of the three dimensions, which may also have been due to the experience that they had gained in using the rubric according to the new dimensions. **The hypothesis was therefore confirmed.**

### III.6. In response to Research Question 3

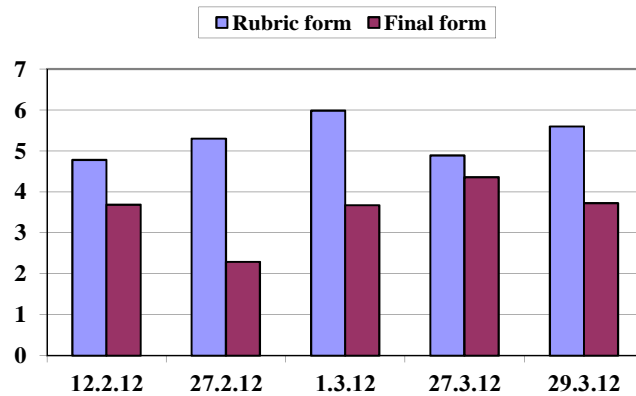
To what extent will employing the rubric for the assessment of performance achievement on the ballet matriculation exam influence grade distribution compared to that obtained by the traditional rubric?

### III.7. Conclusions regarding hypothesis 4

The hypothesis derived from this question: **Hypothesis 4:** The grade distribution obtained by the new ranking method will be greater compared to that obtained by the traditional one.

An analysis of the distribution indicated that the grades obtained by the rubric form based on a variety of interim grades were higher in the minimum-maximum range compared to those obtained by the traditional grading method; this indicates that the measurement tool has a higher degree of sensitivity. A comparative analysis of the standard deviations also clearly indicated that the standard deviations of the average grades that were obtained by ranking according to the rubric were higher than those that were obtained from the final grade according to the traditional grading system.

**Figure 9: The standard deviations of the grade averages on the rubric and the final exam grades for the five exam dates**



The results confirmed the hypothesis that the rubric makes it possible to distinguish among the examinees' different levels in a more sensitive way compared to the traditional method. These findings correspond to those of other researchers, such as Lund (2006), who indicates that sensitivity is one of the significant elements of rubric construction [Chapter III.2 in the full thesis].

### III.8. In response to Research Question 4

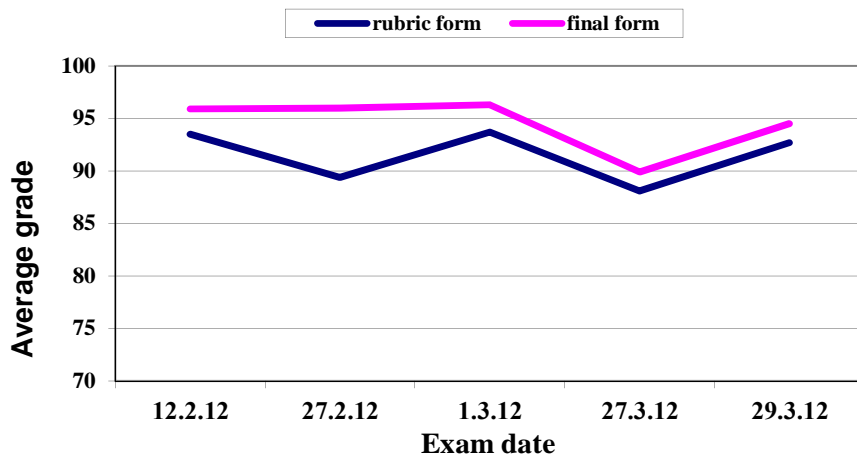
To what extent will employing the rubric for assessing performance achievement in the ballet matriculation exam affect the average grades obtained as compared to those obtained by the traditional rubric?

### III.9. Conclusions regarding hypothesis 5

The hypothesis that was derived from this question: **Hypothesis 5:** The grade averages obtained by the ranking method of new rubric will be lower than those obtained by the traditional method.

At the first stage of the research two aspects were examined: 1. the difference in grades between the rubric rating and the final (traditional) grade; and 2. the interactive effect, i.e., the extent of changes between the two types of grades as influenced by the exam dates. The results showed a very clear trend indicating that the grades derived from using the rubric form were lower than the final grades arrived at by the traditional method. A significant interactive effect was also found indicating that the exam dates had an effect on the gap between the two grading methods.

**Figure 10: The average grades obtained by the examiners according to the rubric and the final grades by exam date**



**The findings confirm the hypothesis regarding the gap between the rubric grade and the final grade obtained by the traditional method, so that the grade level according to the rubric would be lower on average than that of the grades obtained by the traditional ranking method.**

In conclusion, from examining the research questions, the hypotheses derived from them and the research findings, the rubric was found to be valid. The first questions dealt with the actual construction of a valid rubric, including all its components, and the last questions dealt with the valid rubric’s influence on outcomes, i.e., the grades and their distribution, thus also emphasizing the tool’s sensitivity.

#### **IV. Limitations of the research study**

Limitations involved in the research study:

- A small sample of dance teachers/examiners and an even smaller number of respondents.
- The pilot studies took place in high school dance departments and were dependent on obtaining the permission of the head of the department and the principal of each school to conduct the studies.
- The pilot studies were dependent on dates that had been determined in advance. Since the matriculation exams always take place over a limited time span, it was necessary to locate available examiners who weren’t involved in assessing real exams on those dates.

Limitations involving the rubric itself:

- Evaluation combining a holistic element including subjective terms such as expression, charisma, danceability, etc. present difficulties for exact measurement.
- Reliability – This rubric represents the ultimate level of performance. Thus it is not complete, as the examiner must extrapolate the essence of the other levels from the highest one. The decision to present the highest level only was based on a desire not to oblige the examiners to be too analytical, but to leave room for their own interpretation of what the best performance should be.

Finally, Birnbaum (1997) indicates that external performance assessment, as good as it may be, cannot assess the achievements of the individual in a totally valid and reliable way.

## **V. Conclusions and recommendations**

The results of the study indicate that the rubric, which reflects the content and framework being tested, while also being convenient, efficient and tailored to the examiners' needs, will constitute a more useful measuring tool than others that have been employed in the past. The usefulness of the rubric, together with the clear directions provided for its use, have the potential to improve and upgrade the manner of assessing dance exams on a national level and increase testing uniformity. The findings also demonstrate the rubric's sensitivity and its reliability, which was high from the outset. In addition, the results show that, in the spirit of Birnbaum's (1996) study, assessment by means of the rubric provides increased objectivity; among other things, this comes to expression in the wider range of grades awarded as compared to traditional assessment procedures.

Developing rubrics and additional measurement criteria can encourage and provide leverage for including dance education in the category of core school subjects [Chapter II.1 in full thesis] (Birky, 2012).

### **V.1. Recommendations**

This rubric, which was constructed for the purpose of summative evaluation of students' achievements in performing a classical ballet lesson, has other important functions that can help improve education, teaching and learning (Goodrich, 2005). The researcher attributes enormous importance to integrating the rubric as part of the teaching process throughout the school year as a formative evaluation tool for the

learner. Not only will rubrics increase the objectivity of the teacher's grading, but they can be adapted for assessing the individual learner in a group setting (Wesolowski, 2012). The researcher recommends broadening instruction, guidance, and inculcating the use of the rubric in order to increase its reliability (R.A.D. 2007; Parkes, 2010).

## **V.2.Suggestions for further research**

Additional research might examine all the dimensions and the criteria and investigate their appropriateness to the needs and demands of teaching modern dance, which in many respects resembles classical ballet.

Additional research can deal with the connection between intuitiveness and subjectivity? To what extent does the examiner at the matriculation exam employ intuitiveness or subjectivity? Is there room for subjectivity, and to what extent?

An additional suggestion for research related to this issue would entail a survey of examiners using the rubric and an examination of how much room has been left for exercising intuition. Other research studies would do well to examine ways of guiding and instructing examiners. An additional suggestion would be to examine the possibility of introducing the class level component into the formula for calculating the grade, thus making the exam more grounded in the criteria and less in the norm.

## **V.3.Research Innovation**

This is the first time in Israel that a rubric developed for use in dance education has been validated on the academic level, which can provide the basis for the development of additional rubrics for the arts.

Another innovation is that analytical processes were employed making it possible to adjust the final dance matriculation grade by means of Excel tables yielding exact calculations.

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