CONSTRUCTION OF TESTS FOR EVALUATING THE LEVEL OF HIP HOP PERFORMANCE

Vedrana Grčić, Alen Miletić, Biljana Kuzmanić
University of Split, Faculty of Kinesiology, Split, Croatia

Abstract
Street dance is a common term for different dance styles and techniques that arose in the USA’s hip hop culture from the late 60’s throughout early 2000’s. A few studies were made regarding street dances, which makes the construction of tests for evaluating the level of performance in any street dance an original contribution to kinesiological sciences. The aim of this research was the construction of tests for evaluating the level of performance in Hip hop dance. 46 female dancers (12 – 25 years of age) participated in this study. Three tests were constructed (Brooklyn, Party Machine and Roger Rabbit) which were divided into seven fragments each. Evaluation scale for complex motor tasks was used. The data was collected by using a video camera. Three judges evaluated each fragment (starting position, body, head, shoulder, arm, leg position and rhythm) with scores from 0 to 2. Statistical analyses in all three tests showed high or good level of correlation between the judges. The tests were found to be reliable, with Cronbach’s alpha values ranging from 0.88 to 0.95. A factor analysis results showed one significant factor with all three tests significantly projected. In conclusion, all three tests are reliable for evaluating the level of performance in hip hop dance.

Key words: street dance, expert evaluation, metric characteristics

Introduction
Dance is a kinesiological activity that affects the whole anthropological and aesthetical growth of a person, especially children and youth. Street dance is a common name for different dance styles and techniques that arose in USA’s hip hop culture from the late 60’s throughout the early 2000’s. According to the movement structure and execution time, it can be assumed that street dances should impact the children’s growth and motor development, especially coordination, rhythm, agility, strength, flexibility and speed, although there are no researches that acknowledge these assumptions. There are no essential tools for the analysis of any kind of kinesiological transformation in motor learning and dance improvement, namely tests for evaluation of technical level in performing basic techniques in street dances. The non-existence of those tests in today’s kinesiological practice makes their construction an original contribution to kinesiology. Hip hop is a dance style that arose in the beginning and mid eighties of the last century as a combination of social and party dances – rocking, popping and locking. The original name for hip hop dance is freestyle hip hop, because it is based on improvisation. It is also known under names old school hip hop, new style, hype or new jack swing. The characteristic move of freestyle hip hop is the so-called bounce. Today’s hip hop dance is combined with different styles of popping, while retaining typical groove of rocking, and it can also be choreographed. Hip hop is both a competitive and recreational discipline and there is a clear necessity for kinesiological research. This new constructed test will have a practical purpose in practical training and educational processes in modern dance. Learning new dance structures means learning new motor skills, and it is crucial to know about these processes in order to improve them.

The aim of this research was to evaluate the level of technique in hip hop dance through the construction of new tests.
Methods
Participants
The subjects were 46 female dancers (21 senior, 25 junior, aged 12 to 25 years, average body height: 166.39±5.21, average body weight: 56.30±8.02), who have been training hip hop dance at least 3 times a week. Only those subjects who have been training for 2 years and more were included in the research.

Measurement
The measured variables were Brooklyn, Party Machine and Roger Rabbit, which were chosen as the representatives of the Hip hop dance style. The scale for evaluation of complex dance structures based on Bozanic & Miletic (2011.) was used for evaluation of the level of dance knowledge. The data was collected by using a video camera. Three judges evaluated the technique with scores from 0 to 2 for each of the 7 fragments of performance. If the fragment was incorrectly performed it was scored with a 0 and if it was performed partially correctly it was scored with a 1. Correctly performed fragment was scored with a 2. The whole performance could have been graded from 0 to 14, which actually represents the range of our theoretical scale.

Each subject was tested during one session. Every test was performed in a dance studio. A specific hip hop music mix was made for the tests - it lasted 15 seconds and started with 4 counts of rhythm that served as a preparation for the execution of the dance moves. The execution of Brooklyn, Roger Rabbit and Party Machine began from a wide stance.

1. Brooklyn starts by interchangeably crossing the legs. Both legs move at the same time in the opposite direction (left leg to the right side and right leg to the left side). The knees are slightly bent and the weight is shifted to the toes. One leg is in front of the other. The knees and the toes are positioned facing the outside, while the heels are positioned facing the inside. The arms are bent at the elbows and the shoulders are slightly moving upwards. The body is bending at the chest area and moving to the side. The head is relaxed and following the body movement. Legs, body, head and hands are returning to the starting position and the subject repeats the movement, but this time starting first with the other leg. After repeating the task and returning to the starting position, the subject repeats the task with the leg that was in the front first, but now for two consecutive times.

2. Roger Rabbit starts by lifting one leg, slightly bent at the knee, and moving it backwards. When it touches the floor, the other leg moves to the front from heel to toe, bending at the knee while moving upwards. The arms are bending at the elbows with forearms and shoulders moving upwards. The body is slightly bent at the chest area. The head is relaxed and moving back and forth. While the leg bent at the knee stretches backwards, the forearms and shoulders are moving downwards. The body and the head are returning to the starting position. When the bent leg touches the floor, the subject repeats the task with the other leg. Arms, shoulders, body and the head are moving the same way as before. Instead of switching the legs, the leg in the back is moving upwards, while the leg in the front moves to the floor. Forearms and shoulders are moving downwards. The body and the head are returning to the starting position. The leg in the back is returning to the floor and the other leg moves to the front from heel to toe, bending at the knee while moving upwards. Arms, shoulders, head and the body are moving the same way as the first time.

3. Party Machine starts by moving one leg upwards and bending it at the knee, so that the feet are in the level of the other leg’s knee. Arms are bent at the elbows with palms crossed in the chest area. Bent leg is being extended to the side, not touching the floor, while at the same time the other leg hops on the toes to the opposite side. Arms are moving sideways in a 45 degree angle. The body is slightly declining, moving towards the hopping leg. The shoulders are slightly bent. The head is relaxed and is following the body movement. Weight is then being lifted to the extended leg, which is now on the floor, while the other leg is being bent at the knee, so that the feet are in the level of the other leg’s knee. The body and the head are returning to the starting position, arms are bending at the elbows with palms crossed in the chest area. Previously executed task is then repeated with the other leg and after that repeated two times with the leg that started the task first.

Statistical analysis
Descriptive statistical parameters, means and standard deviations, were calculated for all the variables of all tests. Average inter-item correlation coefficients (IIR), intercorrelation matrices and Cronbach’s alpha (α) were used to determine the reliability between the subjects. To determine the factor validity of
the test, the intercorrelation matrix was factorized with the principal components factor analysis. We used Statsoft’s Statistica (ver. 11) for all the calculations.

Results

Analysis of means of all tests showed that the subjects attained highest scores in the Brooklyn step (Table 1.) and the lowest in the Roger Rabbit step (Table 3.). The strictest criterion had the third judge. The reliability of the tests measured with Cronbach’s alpha showed results ranging from 0.81 to 0.91 (for Brooklyn step). Inter item correlations values were lowest for Party Machine step (0.73) (Table 2.) and the highest for Brooklyn step (0.87). All three tests were significantly correlated with the principal component, with total proportion of explained variance of 91% for the Brooklyn test, 83% for the Roger Rabbit test and 81% for the Party Machine test.

Table 1. (Brooklyn step) Intercorrelation matrix of judges scores (J), Inter-item correlation (Iir), Cronbach’s alpha (α), Mean (M), Standard deviation (SD), Principal components factor analysis (F) for PT (0.91)

<table>
<thead>
<tr>
<th>J1</th>
<th>J2</th>
<th>J3</th>
<th>Iir</th>
<th>α</th>
<th>M±SD</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00</td>
<td>0.92</td>
<td>0.85</td>
<td></td>
<td></td>
<td>10.28±3.1</td>
<td>-0.97</td>
</tr>
<tr>
<td>0.92</td>
<td>1.00</td>
<td>0.81</td>
<td>0.87</td>
<td>0.95</td>
<td>9.87±3.2</td>
<td>-0.96</td>
</tr>
<tr>
<td>0.85</td>
<td>0.81</td>
<td>1.00</td>
<td></td>
<td></td>
<td>9.59±3.4</td>
<td>-0.93</td>
</tr>
</tbody>
</table>

Table 2. (Party Machine step) Intercorrelation matrix of judges scores (J), Inter-item correlation (Iir), Cronbach’s alpha (α), Mean (M), Standard deviation (SD), Principal components factor analysis (F) for PT (0.81)

<table>
<thead>
<tr>
<th>J1</th>
<th>J2</th>
<th>J3</th>
<th>Iir</th>
<th>α</th>
<th>M±SD</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00</td>
<td>0.84</td>
<td>0.57</td>
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<td></td>
<td>8.43±3.3</td>
<td>-0.90</td>
</tr>
<tr>
<td>0.84</td>
<td>1.00</td>
<td>0.74</td>
<td>0.73</td>
<td>0.88</td>
<td>9.76±3.1</td>
<td>-0.96</td>
</tr>
<tr>
<td>0.57</td>
<td>0.74</td>
<td>1.00</td>
<td></td>
<td></td>
<td>6.24±2.8</td>
<td>-0.85</td>
</tr>
</tbody>
</table>

Table 3. (Roger Rabbit step) Intercorrelation matrix of judges scores (J), Inter-item correlation (Iir), Cronbach’s alpha (α), Mean (M), Standard deviation (SD), Principal components factor analysis (F) for PT (0.83)

<table>
<thead>
<tr>
<th>J1</th>
<th>J2</th>
<th>J3</th>
<th>Iir</th>
<th>α</th>
<th>M±SD</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00</td>
<td>0.80</td>
<td>0.69</td>
<td></td>
<td></td>
<td>7.17±4.0</td>
<td>-0.91</td>
</tr>
<tr>
<td>0.80</td>
<td>1.00</td>
<td>0.73</td>
<td>0.74</td>
<td>0.89</td>
<td>9.17±3.8</td>
<td>-0.93</td>
</tr>
<tr>
<td>0.69</td>
<td>0.73</td>
<td>1.00</td>
<td></td>
<td></td>
<td>6.78±3.3</td>
<td>-0.88</td>
</tr>
</tbody>
</table>

Discussion

In terms of results, the Brooklyn step proved to be the most simple and most basic step, which, in the terms of motor learning, should be acquired first. In the terms of gradualness, learning process should be directed from simple to more complex dance structures.

After analyzing the correlation of judges’ scores, the conclusion can be made that the high agreement was achieved in Brooklyn variable and somewhat lower agreement in the Party Machine and Roger Rabbit variables. It is a known occurrence in today’s literature that the objectivity of simple tests of the same motor structure is usually higher than that of complex tests that estimate the same motor dimension or structure. This occurs because the parameters that judges are evaluating in simple skills are not as numerous, therefore are easier to follow and evaluate. Complexity of the structure regularly means the increase in numbers of parameters that a judge has to evaluate. In all variables, the highest correlation was between the first and the second judge, and the lowest between the first and the third judge, especially in complex tests (Party Machine and Roger Rabbit). Therefore, and in terms of judges’ objectivity, we can conclude that the first test - Brooklyn - has an unmistakably satisfying characteristic of objectivity, while the criteria for the Party Machine and Roger Rabbit tests can perhaps be discussed with other experts for Hip hop dance style. Consequentially, that could result with better definition of criteria for the tests.

Factor analysis showed that all the items are evaluating the same object of measurement and that the satisfying homogeneity was achieved in tests. The third judge had the lowest projections on the same measured objects therefore, in terms of the results, the same judge can be defined as the strictest. But it
does not necessarily mean that the strictest evaluations are worthier for that matter. Overall, all three tests showed that satisfying homogeneity was achieved.

Conclusion
The new constructed tests applied in this experiment, showed good metric characteristics and a conclusion can be made that they are applicable for evaluating the level of technique in hip hop dance. Hip hop dance is a complex style of dance and has a large number of parameters to evaluate. Our results indicate that the most simple structures are easier to attain, while the complex ones are a somewhat difficult to adopt. Therefore, it is important to develop, create and apply more experiments, not only for Hip hop dance, but for all the other Street dances, which will evaluate the level of motor knowledge and its efficiency more objectively. Also, the focus should be on the other age groups and experiments about how Hip hop dances (and all other Street dances by that matter) influence motor and functional abilities. We should also focus on creating tests for the evaluation of success in execution of street dance choreography and parameters that influence situational efficiency in street dance battle.

References:

Corresponding Author:
Vedrana Grčić
Faculty of Kinesiology, University of Split
Split
Croatia
E-mail: t.ckness@gmail.com