

AN EXPOSURE OF PROFESSIONAL MEANINGFUL COORDINATING CAPABILITIES OF STUDENTS-TEACHERS

Kolumbet A.N.

Chernigov National Pedagogical University

Annotation. Purpose - to identify the motor abilities of students who have the greatest impact on the success of teaching. The experiment involved 264 students. It is established that the speed of operational thinking, the ability to quickly and accurately respond to the resulting job and do it exactly the goal has a positive effect on the quality of teaching. There is a high correlation with reactive and kinesthetic abilities and pedagogical skills. It was found that the speed, shift and focus of attention is closely linked to the ability to attention, memory, fidelity to the information received. It is proved that for a successful career students need to develop kinesthetic responsive coordination abilities and the ability to orient in space. It is recommended for software development content of physical education to focus on improving the coordination abilities listed.

Keywords: students, teachers, specialist, physical education, vocational and applied physical training.

Introduction

In the process of studying at HEE formation of future pedagogues' professional abilities is one of the most important tasks. The process of specialists' training at HEE includes a number of pedagogical aspects, including professionally-applied physical training. There is such section as professionally-applied physical training in discipline "Physical education" at HEE. But this section is not impregnated with appropriate content and has no clear scientifically grounded methodic instructions on organization of trainings with students of different specializations; there is no program provision of this section.

The problem of motion abilities and skills' formation in the process of professional education is connected with development of such and such coordination mechanisms on the base of control and evaluation of motor system's state and its different sub-systems [1, 2, 3, 4, 5, 6, 7, 8 et al.]. This problem really exists and it is mainly connected with development of effective methodic of physical education, with consideration of future professional activity. Its solution in frames of academic process is connected with physical culture trainings of girl-students, in the course of which development of basic coordination abilities take place, which is the base for further formation of professionally important coordination abilities.

Accordingly, determination of those coordination abilities, which will be professionally important in the process of girl-students' – future pedagogues training, is the aim of analysis and evaluation of character, quantity and degree of dependences between basic coordination abilities and professionally important skills.

Topic of the present work corresponds to direction of scientific program of physical education faculty of Chernigov national pedagogical university, named after T.G. Shevchenko and is included in general university's subject "Didactic principles of motion function's formation of persons, who practice physical education and sports" (state registration No. 0108U000854 dt. February 19th, 2008). The work has been fulfilled in compliance with direction of state-financed subject "Methodic principles of professional training of future physical education teachers and formation of modern youth's healthy life style" (State registration No 0110U000020, dt. January 29th, 2010).

Purpose, tasks of the work, material and methods

The purpose of the work at that stage of research was determination of those girl-students' motion abilities, which influence to the highest extent on successfulness of their professional activity.

The methods of the research. The research was carried out in 2008-2010 and covered 264 girl students of 1st – 3rd years of study of Chernigov national pedagogical university, named after T.G. Shevchenko and Kyiv university, named after Borys Grynchenko and who, by their state of health, were related to main health group.

The level of girl-students' *accuracy* was evaluated with the help of the following tests:

1) *accuracy of the set value of force* was determined with hand dynamometer.

2) *accuracy of fulfillment of the set movements' amplitude* was measured with the help of kinematic meter of M.I. Zhukovskiy.

Responding abilities (dexterity) were evaluated with the help of the following tests:

1) test for determination of *quickness* (test "catching of ruler", S.A. Dushanin, 1978).

2) test for determination of *response to moving object*. For testing we used computer program "Prognoz", created by Institute of physiology, named after O.O. Bogomolets, of Academy of Science of Ukrain, Kyiv.

3) test for *visual-motor quickness* (simple and complex). For testing we used computer program "Prognoz", created by Institute of physiology, named after O.O. Bogomolets, of Academy of Science of Ukrain, Kyiv.

4) test for determination of *quickness* (test "catching of stick", I.V. Afanasyev, 2008).

5) complex coordination test, oriented on *determination of accurate, differently directed power-quick movements for certain period of time* (computer program "Prognoz", created by Institute of physiology, named after O.O. Bogomolets, of Academy of Science of Ukrain, Kyiv).

For evaluation of *balance abilities* we used the following tests:

- 1) *static balance* (Romberg's test - posture of "Stork").
- 2) *dynamic balance* was evaluated with the help of test "Turns on gymnastic bench" (P.Hirtz et al, 1985).

Orientation abilities were tested with the following:

- 1) test "Labyrinth" (I.Yu. Gorska, 2000).

Professionally important abilities of girl-students – future pedagogues were evaluated with the following tests:

- 1) determination of *distribution of attention* (test "Seeking of figures", A. Sizanov, 2003).
- 2) *scope of mechanic memorizing* (test "Quantity of little men", A. Sizanov, 2003).

3) determination of *distribution of attention and quickness of operative thinking* (test assembly of puzzles for certain time». I.V. Afanasyeva, 2008).

- 4) determination of *operative thinking quickness* "bricks of Koss", L.F. Burlachuk, 2000).

5) *quickness of attention's concentration and re-switching as well as accuracy of task's fulfillment* were determined with the help of special device (S.I. Kirichenko, 1998).

Results of the researches

After fulfillment of multiple correlation analysis we constructed correlation matrix, in which the obtained information was analyzed, considering character, quantity and degree of closeness of the received interconnections; only statistically significant indicators were considered. It was found that all studied by us indicators of future pedagogues' professional qualities are interconnected with indicators of certain basic coordination abilities. At the same time the fulfilled analysis permitted to reveal ambiguous character of interdependences as per different kinds of future teachers' professional qualities.

Correlation analysis permitted to reveal dependence of indicator, which characterizes *distribution of attention level* (test "Seeking of figures") of girl-students with indicator of test "Labyrinth", which characterizes *ability to orientate in space, to quickly and accurately fulfill motion task*. In this case correlation coefficient equals to 0.67 and reflects the level of the studied indicators' interconnection. It is necessary to note that, when fulfilling test "Labyrinth" time and curacy of task's fulfillment was evaluated as well as during test "Seeking of figures" attention and time were evaluated. Activity of such kind takes place in professional work.

In table 1 we presented analysis of correlation matrix of parameters, which determine dependences of indicator, characterizing *level of attention, operative memory development, quickness of memorizing and accuracy of reproduction of the received information* (test "Quantity of little men") with indicators of tests "Labyrinth", *complex visual-motor response, "Catching of ruler"* – characterizing *response, kinesthetic ability and ability to orientate in space*. Analysis of interconnection of such important for future professional activity qualities as *attention ability, operative memory, accuracy of reproduction of received information* (test "Quantity of little men") with indicators of tests, which characterize degree of *responding, orientation and kinesthetic* abilities of girl-students permits to assume that developing these coordination abilities it is possible to influence on development of professional skills. Degree of parameters' closeness is moderate and it is witnessed by correlation coefficients, which vary in the range from 0.61-0.77.

Table 1

Interconnections of indicator, which characterizes levels of attention, operative memory, quickness of memorizing and accuracy of received information's reproduction (test "Quantity of little men) with indicators of orientation, responding and kinesthetic abilities

Indicators	Correlation coefficients
Orientation ability (accuracy of reproduction of the set trajectory of movement, test "Labyrinth")	0.61
Responding ability (test C3MP)	0.72
Responding ability (test "Catching of ruler")	0.64
Responding ability (test "Catching of stick")	0.63
Responding ability (test П3MP)	0.68
Responding ability (response to moving object)	0.74
Distribution of attention (test "Seeking of figures")	0.77
Dynamic balance	0.68
Static balance	0.63
Complex coordination test	0.72

The determined character of interconnections witnesses about significance of *responding, orientation and kinesthetic coordination abilities* of girl-students for quick and effective solution of professional; tasks, connected with necessity of accurate perception in the shortest time and keeping in memory of huge scope of space and other information.

We established interconnection of test "Assembly of puzzles", which characterizes *level of fine motor abilities' development* with indicators of "Bricks of Koss" test, characterizing *level of operative thinking quickness*, abilities for constructive praxis. Degree of studied parameters' closeness is high and it witnessed by correlation coefficient, equal to

0.75. Test for quickness of operative thinking is a complex one and characterizes not only the level of girl-students' motion skills but also shows a component of mental processes. It permits to say that it is necessary to improve such coordination abilities of girl-students, in the process of their studying at pedagogic HEE, like ability *for constructive praxis, quickness of operative thinking, ability to quickly and accurately respond to received task and fulfill it accurately in compliance with the set purpose.*

General level of girl-students' professionalism was determined with the help of evaluating points from tests of discipline "Pedagogic skillfulness". In the process of correlation analysis we found interconnection of this indicator with indicators, which characterize *level of development of kinesthetic and responding abilities* (test "Response for moving object"), test ("Reproduction of the set amplitude of arm's movement"). Analysis of character of the found dependences between evaluation points' indicator and indicator of kinesthetic ability's development (test "Reproduction of the set amplitude of arm's movement") witnesses about presence of expressed connection, correlation coefficient equals to 0.80. Interconnection of girl-students' professionalism indicator with indicator of test for responding ability (test "Response for moving object") can be appraised as moderate, correlation coefficient equals to 0.62.

In table 2 we present analysis of correlation matrix of parameters, which shows dependences of indicators, characterizing *level of development of quickness, re-switching and concentration of attention and accuracy of task's fulfillment* (test "Balls") with indicators of other tests.

Analysis of interconnection of such important for future professional activity qualities as *concentration ability, operative memory, accuracy of reproduction of received information* (test "Balls") with indicators of tests, which characterized *level of responding, orientation and kinesthetic abilities* of girl-students, permits to assume that developing such abilities it is possible to influence on development of professional skills. Degree of parameters' closeness is moderate and high; it is witnessed by correlation coefficients, which vary in the range from 0.55-0.86.

Table 2

Interconnections of indicators, which characterizes level of quickness, re-switching and concentration of attention and accuracy of task's fulfillment (test "Balls") with indicators of orientation, Responding and kinesthetic abilities

Indicators	Correlation coefficients
Responding ability (test C3MP)	0.76
Responding ability (test "Catching of ruler")	0.85
Responding ability (test "Catching of stick")	0.86
Responding ability (test П3MP)	0.79
Responding ability (response to moving object)	0.82
Distribution of attention (test "Seeking of figures")	0.63
Dynamic balance	0.58
Static balance	0.55
Scope of mechanical memorizing (test "Quantity of little men")	0.67
Distribution of attention and quickness of operative thinking (test "Assembly of puzzles")	0.77
Quickness of operative thinking (test "Bricks of Koss")	0.69
Accuracy of reproduction of the set force	0.75
Accuracy of reproduction of the set movements' amplitude	0.74

Conclusions:

Thus, the fulfilled correlation analysis of interconnections of professionally important abilities' indicators of future pedagogues with indicators of basic coordination abilities' development showed that they are in rather wide and close interaction, influencing more or less each other. The data, obtained as a result of correlation analysis, permit to make a conclusion that for successful professional formation of girl-students it is necessary to develop to larger extent their *kinesthetic, responding, coordination abilities* as well as *abilities for orientation in space*. However, not all kinds of coordination abilities have correlation connections. For example, there was not observed any high interconnection of professional skills and ability to keep static balance. It can be explained by the fact that girl students have rather good level of static balance, as far as static posture is habitual for them. Though, it would be difficult to maintain this posture for long time during work.

With development of program content of physical education, it is necessary to accentuate attention to just improvement of above mentioned coordination abilities. It is urgent also because the conducted analysis of indicators of kinesthetic, responding and orientation abilities from 1st year of study to the 3rd one showed that negative dynamics. Already at 1st year of study girl-students' indicators of such tests as "Catching of vertically falling object", "Response for moving object", of complex coordination test are lower than middle age norm. So, pedagogic influence shall be started since the 1st year of study, in order for girl-students to have necessary professionally important abilities and skills by their graduation.

References:

- 1 Kolumbet O.M. *Pedagogika, psihologia ta mediko-biologichni problemi fizicnogo viovanna i sportu* [Pedagogics, psychology, medical-biological problems of physical training and sports], 2012, vol.4, pp. 62-65.
- 2 Bal'sevich V.K. *Ontokineziologiya cheloveka* [Ontokinesiology man], Moscow, Theory and practice of physical culture, 2000, 278 p.
- 3 Kolumbet O.M. *Koordinacijni zdibnosti studentiv* [Coordination abilities of students], Kiev, RVUFGK, 2013, 122 p.
- 4 Kolumbet O.M., Maksimovich N.Iu. *Profesijno-prikladna fizichna pidgotovka studentiv* [Professionally applied physical training of students], Kiev, KMPU, 2009, 96 p.
- 5 Liakh V.I. *Teoriia i praktika fizicheskoy kul'tury* [Theory and practice of physical culture], 1987, vol.9, pp. 61-62.
- 6 Liakh V.I. *Koordinacionnye sposobnosti* [Coordination abilities], Moscow, TVT Division, 2006, 290 p.
- 7 Nazarenko L.D. *Sredstva i metody razvitiia dvigatel'nykh koordinacij* [Means and methods of motor coordinations], Means and methods of motor coordinations, 2003, 259 p.
- 8 Petrov A.M. *Central'noe programmirovaniie mekhanizmov realizacii koordinacionnykh sposobnostej sportsmenov i ikh pedagogicheskoe obosnovanie* [Central programming mechanisms for implementing the coordination abilities of athletes and their pedagogical rationale], Dokt. Diss., Moscow, 1997, pp. 12-75.
- 9 Kershner R., Hargreaves L. Student teachers' distinctive contributions to research on primary school children's beliefs about knowledge and knowing. *Journal of Education for Teaching*. 2012, vol.38(3), pp. 275–293. doi:10.1080/02607476.2012.668332.
- 10 Malinen O-P., Väisänen P., Savolainen H. Teacher education in Finland: a review of a national effort for preparing teachers for the future. *Curriculum Journal*. 2012, vol.23(4), pp. 567–584. doi:10.1080/09585176.2012.731011.

Information about the author:

Kolumbet A.N.: re_play @3g.ua; Chernigov National Pedagogical University; Getman Polubotka str. 53, Chernigov, 14013, Ukraine.

Cite this article as: Kolumbet A.N. An exposure of professional meaningful coordinating capabilities of students-teachers. *Pedagogics, psychology, medical-biological problems of physical training and sports*, 2013, vol.9, pp. 29-32. doi:10.6084/m9.figshare.749694

The electronic version of this article is the complete one and can be found online at: <http://www.sportpedagogy.org.ua/html/arhive-e.html>

This is an Open Access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited (<http://creativecommons.org/licenses/by/3.0/deed.en>).

Received: 25.06.2013

Published: 30.09.2013