The current transformations conditioned by the transition to an information society in Ukraine has led to the incipience of a new paradigm, one characterized by the redistribution of the emphasis on self-education (Kolb, 1984, p. 256). The intrinsic social demand for the qualifications of teachers in the future determine the priority for the needs of their self-education process. The system of higher education conditions continuous professional development in terms of the scientific and methodical background necessary to improve their basic pedagogical competencies.

The following pedagogical competences have already been studied: professional (Shevchuk, 2001, p. 398), pedagogical (Bezdukhov, 2002, pp. 66–71), psychological (Kuzmina, 1970, p. 114), social and perceptive (Yershova, 2016, p. 250), cultural and ethical (Kotlyarova, 2012, p. 230), communicative (Kuzovlev, 1999, p. 50), and self-educative (Ermakov, 2006, p. 219). These researchers considered the self-education of teachers to be an effective transforming force in education and society as a whole.

The European guidelines and regulations of competence development state that teachers must receive an efficient and relevant qualification implying, among other things, continuous lifelong learning and mobility (Woodfolk, 1989, p. 220). The key pedagogical competencies include an ability to interact with other people, knowledge, technology and information; both with and within society (Loughran, 1994). The new State Standard of Basic and Complete Secondary Education in Ukraine created new demands for future teachers training in their respective professional areas in accordance with the educational programs of training specialists of a new type who are ready to implement innovative changes into their professional activities (Ministry of Education and Science of Ukraine, 2013). To study the problem of motivation development and stimulation of self-education among future teachers the authors have used a number of scientific methods, namely: analysis of the curricula and programs; conducting surveys, questionnaires and interviews; individual and group assessment of teachers in oral and written forms; expert judgement on the creative and academic tasks comprising professional training courses; and the qualitative and quantitative processing of the obtained experimental data.

The study involved 304 undergraduates in the third year of their studies for a BA in music teaching, and took place at the National Pedagogical Dragomanov University (Kyiv, Ukraine), Musicology Vinnysia Mykhailo Kotsiubynskyi State Pedagogical University and Pavlo Tychyna Uman State Pedagogical University (Uman, Ukraine). The study was carried out in 2016–2018.

Study procedure

1) Development of a set of evaluation criteria and diagnostic tools for determining the initial level of student self-education.
2) Diagnostics of the initial level of self-education among the future teachers in the process of pedagogical practice.

We made the assumption that the efficiency of the self-education of future teachers would increase significantly if:
1) A special, systemic approach based program was developed, which integrated educational and methodological activities focusing on the harmonization of structural components, integrity, level-based structure and dynamism.
2) The role of motivation in the self-development of future music teachers was determined, a necessity in the obligatory stimulation of student motivation in terms of self-education as the pedagogical condition of its organization.
The study had the following objectives:
1) To suggest a set of evaluation criteria and diagnostic tools for determining the level of self-education development of the future music teachers.
2) To conduct an experiment to determine the initial level of self-education development of the future music teachers.

The study participants were divided into two groups: experimental and control. The study involved 304 future teachers (148 in the experimental group, 156 in the control group). The authors studied 6 groups over a two year period. The experimental group (EG) was used to check the effectiveness of self-education motivation. Active mentoring and guidance in their self-education were used in this group. Participants of the control group (CG) had to acquire the structure and content of self-education during the ‘natural’ flow of the educational process at their respective higher education institutions, without any external stimulation. Mentoring and guidance in their self-education were not used, and they only attended lectures and seminars on different issues of self-education. At the initial stage of the study, the authors created a set of diagnostic tools to determine the level of self-education development. The following methods and tools were used to achieve the interim goals: pedagogical observation of the self-education activities; conversations with the teachers and lecturers; and querying of teachers with the aim of identifying the indicators to define self-education development (Table 1).

The questionnaire The presence of motivation for self-education (Andreev) contained such questions as: ‘Should modern music teachers improve their skills?’, ‘Are you engaged in self-education activities in full’, ‘Do you take part in professional competitions and scientific conferences?’, ‘Do you consider your level of culture and education sufficient?’, ‘Are you engaged in self-analysis of your self-educational activities, to analyze your strengths and weaknesses?’ and ‘Do you think that a music teacher is a creative profession?’. The respondents could answer ‘yes’, ‘rather yes’ or ‘no’.

A questionnaire designed by Kettel was abridged for this study to determine self-education motivation, containing 31 statements used to identify the attitude to self-education, the main factors contributing to the level of self-educational development, and those typical (both external and internal) barriers to effective self-educational activities. The questions included: ‘Do you think that people are not restricted in their professional self-development?’, ‘Do you always try to find time for self-education in spite of your everyday activities?’, ‘Do you agree with the statement that people should be engaged in self-education during their whole life, regardless of age and profession?’, ‘Do you actively use the Internet for self-education and communication with colleagues?’, ‘Do you systematically acquaint yourself with the scientific papers on pedagogy and psychology?’, and ‘Do you study foreign languages to communicate with foreign colleagues?’.

The respondents could choose one of the following answers: ‘the statement fully corresponds to reality’, ‘the statement rather corresponds to reality’, and ‘the statement does not correspond to reality’.

To determine the level of self-education development, the authors used questionnaires and surveys. These methods took into account all their possible advantages and disadvantages, in both EG and CG. Each method included surveys, tests, exercises, projects, business games and situation management. Each completed task was evaluated on a 5-point scale: 2 points – completed up to 40%, 3 points – 41–60%, 4 points – 61–80%, 5 points – 81–100%. For processing of the questionnaire results, the following distribution of estimates was used: if the appropriate quality and type of activity were constantly observed in a participant then they were awarded 5 points. In case of a partial, but not frequent violation of this requirement, 4 points. If the investigated quality was rarely or occasionally observed, 3 points. The complete absence of the quality in the characteristic, 2 points. Each indicator allocated in a certain component was evaluated according to the degree of its manifestation in the participant. The coefficient of indicator development was calculated as follows: \( L = A + B + C \),

### Table 1. Determining the level of motivational and value component development as a part of the self-education of the future teachers

<table>
<thead>
<tr>
<th>Research methods</th>
<th>Research tools</th>
<th>Indicators to be defined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal query</td>
<td>Questionnaire: The presence of motivation for self-education (Andreev)</td>
<td>Relationship between self-education with the personal and professional interests</td>
</tr>
<tr>
<td>Group query</td>
<td>Questionnaire by Kettel</td>
<td>Motivated focus on self-development and mastering innovative techniques in artistic pedagogy</td>
</tr>
<tr>
<td>Analysis of written work</td>
<td></td>
<td>Understanding of need in acquiring scientific knowledge</td>
</tr>
<tr>
<td>Interview</td>
<td></td>
<td>Desire to become a skilled and reputable professional</td>
</tr>
</tbody>
</table>

Source: authors’ own study.
Teaching methods and programs

where: L – criterion of the self-education level; A – first component indicator score; B – second component indicator score; and C – third component indicator score. Empirically the authors identified the following limits in the levels of self-education development by the participants: low – 2.0 to 3.0 (up to 41%); medium – 3.1 to 4.0 (41–80%); and high – 4.1 to 5 (81–100%). A diagnostic toolkit was developed for the study to show the level of self-education development for the participants. The following methods were used for this stage of the study: personal and group querying; analysis of essays and other written work; conversation; pedagogical observation of the results of the participants’ self-directed work; interviews; surveys to identify the indicators for self-education component development.

The diagnostics were intended to detect the following indicators: the relationship between self-education and personal/professional interests; motivated focus on self-development and mastering of innovative techniques in artistic pedagogy; understanding of the need to acquire scientific knowledge; and the desire to become a skilled and reputable professional. The study tools included: the Presence of motivation for self-education questionnaire, the Study of the levels of self-education component development questionnaire and the Development of a positive attitude towards self-education in a professional questionnaire (Andreev, 2002, p. 608).

Most respondents related their motivation for self-education to their professional growth, proving that they view the motives for self-education as quite important (see Table 2).

The study in terms of the problem of motivation and stimulation of undergraduate students show that the future teachers must acquire the following qualities for the organization of effective self-education: self-confidence, independence of judgment, ability to use the experience of other colleagues, ability to cooperate, and ability to defend a point of view.

It was ascertained that most of the participants did not have formed motives for self-education (66.2% CG and 70.3% EG). Only a small segment of the respondents (3.6% CG and 7.1% EG) showed an interest in self-education together with the activation of motivation for the activity studied.

It was substantiated that most students carry out self-education activities, mainly spontaneously, focusing on intuition and professional-pedagogical difficulties that require solving. In essence, the respondents set their goals for self-education activities unknowingly, and did not select the means of their implementation, which leads to a discontinuity in self-education activities. The participants preferred framed educational activities during classroom work, reducing the possibility of independent cognition. The analysis of the participants’ self-education status often revealed the absence of such components as looking for the causal relationship among the initial and the current state of the object. The analysis of the management orientation of self-education, as well as its correcting and designing functions, were not fully understood (Lave & Wenger, 1991, p. 132).

**Table 2. Motivation for self-education in future teachers**

<table>
<thead>
<tr>
<th>No</th>
<th>Contents of the motives</th>
<th>CG</th>
<th>EG</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Realize the need to teach children</td>
<td>12.7</td>
<td>14.7</td>
</tr>
<tr>
<td>2</td>
<td>Enhance the professional skills</td>
<td>32.8</td>
<td>31.0</td>
</tr>
<tr>
<td>3</td>
<td>Master the modern pedagogical ideas and technologies</td>
<td>24.8</td>
<td>24.3</td>
</tr>
<tr>
<td>4</td>
<td>Realize their creative potential</td>
<td>18.9</td>
<td>19.2</td>
</tr>
<tr>
<td>5</td>
<td>Not to lag behind their colleagues in terms of professional level</td>
<td>34.1</td>
<td>32.8</td>
</tr>
<tr>
<td>6</td>
<td>Ensure quality of educational activities</td>
<td>19.7</td>
<td>20.6</td>
</tr>
<tr>
<td>7</td>
<td>Gain the respect of their future colleagues</td>
<td>21.9</td>
<td>22.8</td>
</tr>
<tr>
<td>8</td>
<td>Gain the respect of their students</td>
<td>34.2</td>
<td>35.1</td>
</tr>
<tr>
<td>9</td>
<td>Avoid concerns with the authorities</td>
<td>12.7</td>
<td>11.8</td>
</tr>
<tr>
<td>10</td>
<td>Gain intellectual pleasure</td>
<td>10.5</td>
<td>9.7</td>
</tr>
<tr>
<td>11</td>
<td>Gain respect of the students’ parents</td>
<td>13.8</td>
<td>13.2</td>
</tr>
</tbody>
</table>

Source: authors’ own study.
The Role of Motivation in the Self-education of Future...  

factor were summed and used to determine the initial level of self-education development.  

Two matrices were completed for each student: self-assessment and expert assessment, which were then analyzed. Each answer in the questionnaire was expressed in points, which were used as follows: the points were obtained for each direction (a, b, c, d, e) and compiled. This allowed us to calculate five averaged data points in each questionnaire. First – the averaged value determined the level of development in each section of self-education. Second – the value provided data on self-education activities in general. Third – the personal-style qualities of self-education. Fourth – the dynamic properties of self-education. Fifth – the general averaged value, which consisted of the sum of the previous ones. From this data the parameters of self-education were formed.  

The analysis of the classification of educational systems (technologies) according to the type of organization and management is significant in the studies conducted by Bespalko. Using empirical research as a basis, he suggests a coefficient scale (ranging from zero to one) to measure the process of learning information acquisition (Bespalko, 2012). The study proved that successful assimilation of learning information takes place only when the assimilation coefficient takes a value between 0.7 and 1.0. If the coefficient is lower than 0.7 there is no evident result of learning.  

To determine the indicators of motivational and value component development among the future teachers in CG and EG, pedagogical observation (in the process of continuing professional development, concert performances, scientific-practical conferences, qualification exams) and individual consultations were carried out. When determining the level of self-education based on the motivational and value component, attention should be paid to the nature of the professional difficulties of the future teachers in the process of organizing their self-education (Pask, 1976).  

The participants completed a questionnaire to achieve this objective, and the issues related to the study of the motives of self-education were analyzed. The following questionnaires were used: The presence of motivation for self-education (Andreev, 2002) and Forming of a musical art teacher’s positive motivation for self-education. As shown by the analysis of the results of the questionnaires, most participants in both groups (56.3% CG and 59.3% EG) were engaged in self-education as a matter of “necessity”. Some of the participants (35.4% of CG and 31.9% of EG) gave a negative answer to the question: Do you self-analyze your weaknesses? A total of 8.3% of the CG participants and 6.6% of the EG participants needed the setting of self-education activities by the administration, and 17.8% of the CG and 19.6% of the EG participants expected support from the school. As shown by the analysis of the results in questions 1 to 10. Use of self-assessment as an objective indicator did not contradict the nature of the study, because we were interested in a very subjective aspect – the attitudes of future teachers to self-education.  

We used the following scale to process the results: prevalence of scores 1, 2, 3 – a low level of self-education; prevalence of scores 4, 5, 6 – an average level of self-education; prevalence of scores 7, 8, 9 – a high level of self-education. In order to choose appropriate diagnostics tools we analyzed the diagnostic procedures required to determine the formation of some individual self-education skills, as well as knowledge in the field of self-education as developed in the psychological and pedagogical studies by Serikov (1985, p. 137), Slastonin (2002, p. 512), together with the “Personality map” method by Platonov (1986, p. 256). Analysis of the procedures for determining the level of self-education leads to the assumption that the diagnostics in the majority of them are developed in the form of a questionnaire to identify the products of self-education.  

We systematically carried out pedagogical observation of the participants’ self-directed learning. As the products of self-education activity, we selected topics from the abstracts and reports of scientific and practical conferences. As a result of the pedagogical observation, it was observed that when choosing topics for the abstracts and reports, the participants often asked their trainers to “recommend” or “advise” in their choice of study topic, which indicates the absence of a link between self-education and professional interests. The method of conversation with the participants allowed us to confirm the results of the written responses; in addition, expanded questions and arguments were provided verbally. The levels of self-education were assessed according to the identification of the orientation of an individual, their creative potential, and components of social or active action.  

A total of 61.7% of the CG participants and 60.6% of the EG gave the following set of reasons that led to their lack of active self-education: lack of sufficient pedagogical experience, lack of time due to educational overload, lack of living conditions, limited access to scientific information, and weak financial and moral support.  

The need for a mentor’s leadership in self-education was stated by 68.9% of the CG participants and 66.2% of the EG, while 19.1% of the CG and 20.3% of the EG participants expected support from the school administration, and 17.8% of the CG and 19.6% of the EG needed the setting of self-education activities by authoritative bodies. Half of them self-educated continuously and versatility. Both direct and indirect connections can be observed: long self-education leads to...
Teaching methods and programs

a variety of ways to use the results of self-education activities. One more motive that affects the level of self-education is the leadership value of a teacher for their students. This motivation is a leading one, and in the hierarchy of motives it had a dominant role among the participants.

**Research results**

The essence of self-education is overcoming the gaps in professional training; therefore, their self-education is aimed at the same disadvantages that they see in themselves or which their colleagues point out. If teachers emphasize the complex nature of self-education, then the motivation is complex, with: a need to improve their training, a need for self-affirmation, and a desire to expand their general and scientific outlook.

**Discussion of the results**

The study revealed the following reasons for a lack of effectiveness of self-education among all the participants, regardless of their essence, category, motive and incentive:

- lack of time (indicated by 68.4% of the CG participants of the CG and 75.3% of the EG),
- lack of scientific knowledge (24.7% of the CG and 22.8% of the EG),
- lack of material incentives (15.7% of the CG and 17.5% of the EG).

These reasons are more intrinsic and socially typical than subjective and personal, dependent on individual attitudes of specialists to their profession. As they gain experience, the difficulties in self-education increase in connection with the emergence of a social cause – the need for some additional earnings.

While analyzing the responses to the questionnaires, we noticed that improvements in the organization of self-education is added by access to scientific information, which involves scientific discussions on the actual problems of pedagogy and psychology, cooperation with researchers and practice innovators, and access to relevant scientific and methodical literature (Levin, 2003, p. 309).

As a rule, future teachers with strong volitional qualities and rich professional experience choose a policy which involves risk and forcing of creative resources in the process of implementing non-standard decisions. This affects the peculiarities of the motives structure (Nystrand & Gamoran, 1991).

Due to the increase in effectiveness of the self-education motives and incentives in the educational environment, the arranging for the essence of self-education also changes. This reduces the number of highly professional educators (13.2% of the respondents of the CG and 15.7% of the EG) who believe that self-education is a complex phenomenon with a set of specific motivations: the need to improve the general and methodical culture, the desire to become a master of their work, an awareness of self-education as a personal value, and the need to eliminate the gaps in the field of pedagogy and psychology.

A total of 13.5% of the CG and 14.1% of the EG participants engaged in creative activities at scientific conferences, readings or methodical seminars as a stimulus for their self-education. This is connected with the fact that the future teachers aim not only to enrich their professional ability, but also to transfer their experience to the others, test it, and analyze it from the standpoint of their colleagues. In this way creative self-expression can take place. If the teachers understand self-education to be a comprehensive professional self-improvement process, then their motives are connected with each other, and motivation becomes complex. In other cases the dependence of the motives on understanding the essence of self-education was not fixed. The participant’s assessment (the core stimulus) and self-affirmation in their environment through partnership with the curator of a group (the leading motive) are directly related to each other. The above-mentioned stimulus also works in a complex of motives. The remaining motives and stimuli are separated and do not significantly affect the self-education activity. Taking this into account, it is important to determine the method for methodical tools in connection of the motives and stimuli of self-education activity in the system of higher education.

As a result of the diagnostic procedures and processing of the mathematical data, the results we obtained according to the motivational and value component of the participants are reflected in Table 3.

### Table 3. Summarized results of the level of self-education development according to the motivational and value component

| Points | EG | | | CG | |
|---|---|---|---|---|
| Number of creative tasks performed | % | Number of creative tasks performed | % |
| 5 points | – | – | – | – |
| 4 points | 34 | 10.12 | 39 | 11.21 |
| 3 points | 101 | 30.06 | 110 | 31.61 |
| 2 points | 201 | 59.82 | 199 | 57.18 |
| Total | 336 | 100 | 348 | 100 |

Source: pedagogical observation of organization of self-education activity, based on (Fetyskin, Kozlov & Manuilov, 2002).
Based on data in Table 3 we can define the average result according to the formula, for both CG and EG:

$$ H^* = x^* = \frac{1}{n} \left( x_1n_1 + x_2n_2 + x_3n_3 + x_4n_4 + x_5n_5 \right) $$

where

- $H^*$ - a generalized level of self-education development in future teachers according to the motivational and value component;
- $x$ - arithmetic average;
- $x_i$ - points scored;
- $n_i$ - repeatability of the points;
- $n$ - number of participants in a group.

Consequently, the generalized level of self-education development based on the motivational and value component of the participants’ activities (arithmetic average) in the CG is 2.5 and in the EG is 2.54 points. In general, before the study began it was 0.8% lower in the CG than in the EG, which is insignificant. The analysis of the data in the table shows that the participants had the following arithmetic average scores: a motivational and value component of self-education in the CG of 2.5 points (50.0%), with a motivational and value component in the EG of 2.53 (50.8%). The determined indicators evidence that the motivational value component of self-education of the participants in the CG is 50.0%, and in the EG is 50.8%. These are the mid-level indicators.

To confirm reliability of the data we applied the Pearson correlation and calculated it by formula 2:

$$ \chi^2 = \sum \left( \frac{n_i - n'_{i}}{n} \right)^2 $$

where

- $n'$ - indicators of the EG;
- $n'_{i}$ - indicators of the CG.

The calculated Pearson correlation, according to the motivational and value component, is 7.79. The value of the Pearson correlation is 9.49 with a level of significance of 0.05, fluency degree of 4.

**Analysis of the study data**

If the self-education of students is not the aim of the learning process, their spontaneous mastering of this skill does not occur. The knowledge, operations and actions in relation to self-education must be taught specifically, requiring the creation of the necessary pedagogical conditions.

**Possible methods of motivation and stimulation in self-education development**

1. Diagnostics of the motives for self-work with the aim of establishing a leading motive or complex of motives, the main stimulus that can increase motivation for self-education.

2. Individual motivation and stimulation of the self-education of future teachers, in which the leading motives and the main stimuli are interrelated, support each other, activate some other motives and stimuli, enriching motivation and forming comprehensive stimulation. The following connection options are possible: the specific leading motives and stimuli (direct connection), the leading motive and a complex of some stimuli (mediated connection), the main stimulus and a complex of some motives, a complex of the motives and a complex of stimuli.

3. The transition of the external process of motivation and stimulation into the internal process of self-management and self-regulation. The pedagogical influences in the system of higher education, reinforcing this or that stimulus, provide self-stimulation and indicate a qualitatively new level of self-improvement.

Thus the method for increasing the effectiveness of motivation and stimulation for the self-education activity of future teachers in the process of pedagogical practice is related to acquiring and actualizing subjective experience, a search for the connections between subjective experience and experience given from the outside. The result of this, above all, is the ability to learn and gain specific knowledge and skills. Therefore, self-education can be defined as an activity of self-movement, self-change, self-development; the acquisition of their own life experience, which is modeled in self-education activities by assigning the elements of general practical experience. The forming of pedagogical experience requires some special skills in organizing self-education – the identification of information, definition of its structure, analysis, systematization and selection of actual content etc.

Thus, based on an analysis of the scientific literature, we determined the following abilities of the future modern teacher to increase the effectiveness of their motivation and stimulation for self-education: independence, organization, purposefulness, systematic, multidimensionality, plurality of activity, self-learning skills, individualization, subjectivity, etc.

The data shown in the paper was developed using all the described research tools.

It is worth mentioning that this paper presents only part of the original experiment. This is due to the desire to express the conceptual idea of the study reflexively within the framework of a scientific article. The study does not include all the aspects of the problem under consideration; however, it allowed us to determine some possible routes for further research. Thus, the content of future music teachers' self-education, as well as its forms, methods and tools, require additional practical and theoretical research.

**References**

Teaching methods and programs


Abstract

The research work described in the present study focused on the connection between self-education and the personal and professional interests of prospective music teachers; the role of motivation on self-development; the importance of developing in students the desire to gain scientific and professional knowledge, as well as to become familiar with innovative professional practices. It was observed that for the majority of the participants motivation for self-education was associated with their professional growth. To achieve effective self-education, undergraduates must possess the following qualities: self-confidence, independence of judgment, the ability to use the experience of their colleagues, the ability to cooperate, and the ability to defend their point of view. The suggested methodology of motivation and stimulation of future teachers’ self-education in the process of teaching practice is associated with the acquisition and updating of subjective experience, the search for links between internal and external experience.

Keywords: self-education, positive motivation, diagnostics methods, motivational and value component of self-education, subject specific knowledge

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**WE RECOMMEND**

Mike Sharples, *Practical pedagogy. 40 new ways to teach and learn*

The paradox of pedagogy is that humans can't stop learning – yet we often find it hardest to learn what others want to teach us. The education system of schools, colleges and universities has evolved over centuries to provide a foundation of knowledge and skills that are needed in society and the workplace. But sitting young people in a classroom, instructing them in times tables or chemical elements, then examining them on their recall of this knowledge, is a highly inefficient way of preparing them for life. So, what are the alternatives? In the book you will find descriptions of new pedagogies, account of how they are being applied in practice, evidence of their success and discussion of their scope and limitations. Some may be familiar, but the book will show how they are being adopted in new ways for a digital age… They are organized around six themes: Personalization, Connectivity, Reflection, Extension, Embodiment and Scale.

Excerpts from the book (p. 4 and 5)
Publisher: Routledge, Abingdon and New York, 2019