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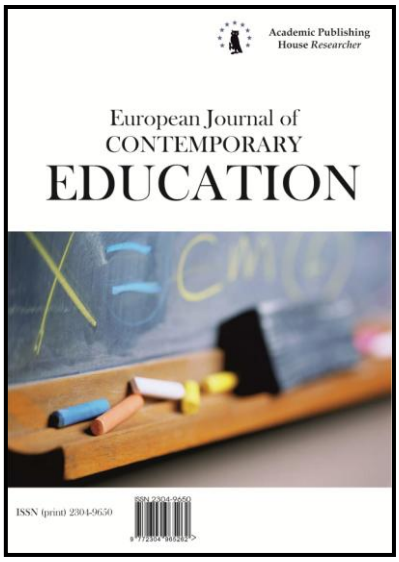

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Startup Diagnostics of the Degree of Well-Formedness of Student Design Competence as an Integral Means of Students Plotting Their Own Individual Learning Route

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Abstract

This article seeks to substantiate the need for the prognostic assessment of the degree to which school students are prepared to master new types of activity, which underlie their design of an individual learning route at an appropriate senior stage of learning. The authors discuss the concept of project competence as an integral characteristic of such preparedness. The article describes the components of school students' project competence, characterizes the degrees to which they may be formed, and brings to light the possibility of diagnosing these components using specially prepared cases. The authors describe the experience of pilot-testing the methodology, discuss their findings, and identify major gaps in the project competence of present-day school students.

Keywords: individual learning route, student project competence, degrees of well-formedness, diagnostics methodology.

Introduction

The making of tiered systems for assessing the quality of education sets the educational community the task to prognostically assess student educational results, while the traditional assessment system is chiefly oriented towards knowledge and skills that are already established and done developing. In this regard, there is a need to not just develop methods, instruments, and procedures required in order to identify the student's forming capacities associated with their mastering new learning actions. Accomplishing this task presupposes changing the very methodology for assessing the results of general education in the context of notions of the nearest development zone (L.S. Vygotsky), construing them both as the personal achievements of the subject of activity and grounds for going through subsequent stages of socialization, inclusive of the objective laws of students' age development.

It appears quite apparent that such assessment ought to, on the one hand, be conducted exclusively at special, "reference", points of the student's passage through his individual learning routes, which can be viewed as landmarks between significant stages in age development, and, on the other hand, have the character of not final (relative to an already completed stage) but startup diagnostics (relative to a new stage in this development which the student is yet to enter). In this regard, special importance is attached to the landmark of passage into one's senior teenage years (13–14) falling on grades 7 and 8 at a core, general education, school. At this age, students experience an extreme sharpening of antagonism between new, forming life goals, which are associated with their personal significance getting recognized in the "adult" world [6], and a lack of means to achieve them. In a broad sense, these means can be characterized as the individual experience of mastering certain ways to act in resolving problems that arise out of the broad context of personal and professional self-determination and bear no direct link to academic disciplines studied at school. Therefore, this age landmark appears to be a whole new stage in the process of students designing their individual learning route, a stage characterized by a high degree of uncertainty in making the choice of objectives for their educational journey and a pronounced design/transformation character of means acquired in the process of mastering various sociocultural practices [1]. In the Western psychological tradition, this landmark, beginning with Donald Super, is normally characterized as the beginning of the stage of embarking on a productive career, reconnoitering, and getting curious, entering which provides the teenager with the opportunity to get a real insight into possible academic and professional/technical variants of his future and possible future approaches he may want to take and approach its design quite realistically [11]. It is in this stage that there can be formed, on a whole new level, an interrelationship between students' educational results and their ability to be the subject of construction of an individual design of their desired future [3]. Therefore, it appears relevant to engage in working out ways and instruments that can be used to assess not just the student's previously mastered design/transformation means of going through the individual learning route but, as a priority, the preconditions for their formation in entering each of its new stages.

Thus, the primary purpose of startup diagnostics of the degree of well-formedness of design competence in students at the landmark of grades 7 and 8 is the prognostic assessment of their preparedness to plot their individual leaning route at a totally new stage that deals with the emergence and resolution of problems in one's personal and professional self-determination.

Materials and methods

Within our methodology, the diagnosed degrees of well-formedness of design competence in 7^{th}-8^{th} grade students are interpreted in terms of their preparedness to independently set and solve design problems that arise in the process of mastering various sociocultural practices and reflect the personally significant problematics of their socialization and personal and professional self-determination. This process is modeled in the course of students working with a case that contains the description of a problem situation and a number of creative assignments to it. To resolve this situation, students are to make use of an arsenal of relevant universal learning actions and apply the results of their work in selecting a specific design solution.

Here are some of the general requirements for the content of the case:

– the uncertain nature of the situation being described, which requires that students come up with their own position to resolve it; there are no prompts or direct hints provided as to what the "correct" solution is;

– a lack of information in the text to encourage students to make an unequivocal decision, which encourages them to pose questions to clarify the situation;

– the availability of a number of subjects (i.e., participants in the situation) to help establish the diversity of possible objectives in and ways of resolving the situation and the need to analyze the nature of relations between these subjects;

– the personal significance of the problematics of the described situation to students in the context of a stage of personal self-determination they are living through.

As an example of such a case, let us take a look at a situation description we have drawn up based on a novel by A. and B. Strugatsky, "Burdened with Evil, or Forty Years Later" [4].

"Once upon a time, a youth subculture called "Flora" emerged in a little town somewhere in the "hinterland" of Russia. Not even within the town as such but on its outskirts. The "Flowers" (as its members call themselves) lead a virtually "vegetative" lifestyle (hence the name) – they are not aggressive, are languid, relaxed, do not work, and feed on "pasture forage" (they may steal here and there). Their primary principle is 'You may do whatever you want, but make sure you don't bother those around you'! They communicate in a jargon which is almost totally incomprehensible to those outside their circle. The Flowers even have their own "guru" who professes this mode of life.

Apparently, the area where they live and gather is governed by total insanitariness, dissolute lifestyles, and idleness. There are members who do drugs.

The attitude of the town's residents towards "Flora" is extremely negative. The ones who are concerned the most are the parents of "normal" children, since leaving the parents' home to join "Flora" is becoming a mass phenomenon. For this reason, parents have more than once demanded that this hotbed of harm be destroyed. The head of the local Department of Education totally concurs with them. There is a concern on the part of the law-enforcement agencies as well: there is a rise in cases of larceny and drug sale.

Meanwhile, tempers over "Flora" reach the breaking point, when, following the concert of a touring pop-star at the local stadium, there occurs major crowd unrest, which results in a considerable number of broken windows and upturned cars. The official press is putting all the blame for what happened on the Flowers. Witnesses are not confirming that, saying that, apart from Flowers, there were also lots of members of other youth subcultures, and even regular students and workers, involved. However, it soon becomes known that the authorities have finally decided to get rid of "Flora", by transporting them by force to a different region and prohibiting them to ever come back. It goes without saying that the majority of the town's residents are supporting this decision. There is only one person openly protesting against it – a teacher at the local pedagogical lyceum. His main argument is that the existence of "Flora" does not violate any laws, and, therefore, what the authorities are planning to do is illegal. Trying to dissuade the authorities from enforcing their decision, he warns that the activity will result in violence, asserting that the ill-willed "guardians of order" are going to pummel the Flowers, while the authorities will be just conniving at it. There will be casualties.

The town's residents have varying attitudes towards the teacher. Despite his high standing (he is a deputy and a holder of the title of Honored Teacher), many resent his actions, while others think he is just a "crackpot" who does not know what he is talking about. Malicious gossip has it that there are certain personal nefarious interests that associate him with "Flora". The only individuals to support him, without even having a clear idea of why he is trying to defend "Flora", are his students."

It is not hard to notice that this case, which models the objectness of interpersonal interactions within the "Man and Society" system, reflects the problematics, personally significant to senior teenagers, of their entry into the world of adults, being accepted or not accepted as a subject within society, having their significance recognized, or, on the contrary, having the value of their "I" rejected or disacknowledged. It is also worth noting that the sphere of applicability of such cases is much wider. Note that we once used a case like this in our earlier studies to identify and assess the civil stance of students in conjunction with the "Man and Society" educational area [2]. But here we are discussing the possibility of using the case exclusively as an instrument for startup diagnostics of the degree of well-formedness of student universal learning actions.

Discussion

We are considering universal learning actions, which ensure the possibility of creative transformation of cognized objects, as major preconditions for the formation of design competence in students at the landmark of 13-14 years of age, which is to become the basis of design as the basic type of their learning activity at a senior stage of learning. Object transformation acts as a necessary condition for cognizing them during the teenage years specifically, which are characterized, first of all, by one's inner "Society and I" stance (D.I. Feldstein [5]) and, second of all, by the conceptual side of activity prevailing over its operational side (D.B. El'konin [10]). Let us take a more detailed look at this.

The prevalence of the "Society and I" stance governs the readiness of teenage students to perceive the world around them as an externally preset cultural form mastering which requires that the subject display some creative/transformational activity. Compared with primary school students, who are targeted at mastering a way to act that uncovers the cognized object in its actual state, teenagers are oriented towards using methods to act that are available to them to change this state of the object, that is transform it. Thus, the possibility of changing the object uncovers to the student its real import and its being "built into" a system of other objects. It is in this way that teenagers form their own picture of the world, which they will have to create a design of their adult future in, and actualize their personal and then professional self-determination.

In the same respect we explain the specific correlation between the conceptual and operational sides of the teenager's activity (the second characteristic we have identified). As we said earlier, the conceptual side of activity at that age is the one that is prevalent. However, compared with, say, preschool age, where real transformational means are absent altogether (they are totally replaced by the child's imagination), the teenager's design/transformation activity relies in its making on universal ways to conduct learning activity that get formed at a primary school. Furthermore, these means are primary in relation to activity objectives that are being selected, since, as is held by B.D. El'konin and A.B. Vorontsov, it is the teenager's being in possession of cultural transformational means that motivates him to conduct various trials, in the course of which there opens up a broad spectrum of ways to apply them to attain all kinds of objectives [9]. For this reason, we find to be erroneous attempts, often implemented in the mass practice of present-day education, to equate the teenager's testing actions with design activity proper, for which he has not yet developed the ability to set design objectives, based not on means available as such but rather based on the development of social and cognitive motives.

Based on the above, we can conclude that one of the primary preconditions for the formation of teenage student design/transformation activity, along with the well-formedness of universal learning actions, is being prepared to apply them in uncertain situations which require one to make an independent choice and set a design objective. Of special significance is the issue of the level characteristics of the student's forming activity and his design competence, which characterizes it. In Russian and foreign studies, there are various approaches to resolving this issue. One of them involves purely quantitative assessment of the major structural components of this competence. Thus, for instance, some studies concerned with the making of student design competence employ such characteristics as "high", "medium", and "low", which, in principle, do not reflect the qualitative differences between these levels [13]. Another approach (Spencer and Spencer, 1993) deals with identifying the subject's individual characteristics that reflect the depth of their penetration into his personal sphere: 1) those that are directly "on the surface" and lend themselves to observation and knowledge and skill assessment; 2) the personal characteristics of the subject of activity, and 3) the characteristics of the subject's "I concept" which include individual mindsets, values, and self-concepts (Cit. ex: [12]). In our study, to conduct a level assessment of these learning actions we are using the characteristics of stages in their formation which have been proposed by the authors of the Concept of the Russian Nationwide System for Assessing the Quality of General Education and comport with the degrees of development of mediation skills identified and characterized by a team of researchers under the guidance of P.G. Nezhnov [7]. The concept features the following degrees of well-formedness of universal learning actions.

The first level corresponds to the characteristic "a skillful student", meaning that the person has mastered a set of certain cultural, object-based ways and means to act. Design/transformation activity competence proper is not featured here, and ways to act that have been mastered by the

student exist as it were by themselves, with no relation to the array of problems to solve which they are used.

The second level is the level of literacy characterized by the student's ability to freely apply ways to act formed in him "exactly as intended", i.e. in situations when a particular set of learning problems is being solved.

The third level testifies to the student's competence in terms of his ability to independently determine the boundaries of applying available ways to act in resolving a wide array of life problems and his ability to creatively change and transform the way to act itself depending on the characteristics of the uncertain situation contained in the problem.

With that in mind, we shall characterize the assignments that come with it and the degrees of well-formedness of student universal learning actions diagnosed using them.

Assignment 1. Formulate three questions about the text answers to which have already been provided in the text proper and three more questions to which there are no answers provided in the text. This assignment helps assess the student's ability to separate existing knowledge about the object from knowledge that is not provided ready-to-use and has yet to be obtained. We view this ability as the nearest precondition for the formation of competence to identify and formulate problems in the course of one's learning/research and design activity and determine the "zones of current non-knowledge" in the process of problematizing situations that are preset on-the-spot and the existing experience.

There are the following level characteristics of well-formedness of this action.

1. Formulating questions answers to which are provided in the text proper:

Level 1: the question is formulated in such a way that the answer to the question asked is unequivocally read in the text in the form of a ready-to-use quote (i.e., the student changes a declarative sentence into an interrogative one).

Level 2: the question is formulated in such a way that the answer is formed through selecting a certain amount of information from different fragments of the text and compiling them.

Level 3: the question is formulated in such a way that the answer is formed as a substantive generalization of various text fragments based on their analysis and comparison.

2. Formulating questions to which there are no ready answers in the text:

Level 1: the question is formulated in such a way that the answer to it is formally not present in the text but does not bear a relation to the text's "internal problematics".

Level 2: the question is formulated in such a way that various answers to it can be proposed due to a lack of information.

Level 3: the question is formulated in such a way that to answer it one has to assume the existence of certain internal cause-and-effect relationships between circumstances and events mentioned in the text.

Assignment 2. Formulate at least three sentences on what the causes behind the situation are (for there was no "Flora" in the town at some point in time). How would you verify the correctness of each of these suppositions?

This assignment helps assess the student's ability to analyze the situation, put forth hypotheses, and determine methods to verify them. The result of performing these learning activities is the student getting a comprehensive vision of the described situation in its development and the diversity of factors affecting it. The degrees of well-formedness of these actions can be characterized in the following way:

Level 1: suppositions put forth by the student reflect possible cause-and-effect relationships between particular phenomena. However, they cannot be used to explain the situation on the whole; to verify them, there can be suggested actions as a result of performing which there can be formally established the existence of the assumed cause but not the cause-and-effect relationship proper.

Level 2: in putting forth suppositions, students take into account a set of circumstances reflected in the text whose combination, in their view, acts as a cause behind the existing situation; furthermore, the nature of cause-and-effect relationships is linear, i.e. taken into account are just interrelationships that are immediate, presented on-the-spot; to verify the suppositions put forth, students are ready to employ scientifically substantiated methods for collecting information through the use of various sources.

Level 3: among possible reasons students list general trends in the development of the described situation, to verify which transformation actions need to be performed – namely, setting up an experiment, entering the situation with one's own design for resolving it, etc.

Assignment 3. Depict in the scheme the characters in the situation and use arrows to mark the relationships between them; use solid lines to mark the relationships that are verifiably reflected in the text and use dotted lines to mark those you can assume as existing.

This assignment is aimed at identifying the degree of well-formedness of the ability to schematize and use a schematic model as an instrument for transforming the situation. There are the following degrees of well-formedness of this learning action.

Level 1: the scheme features just those participants in the situation whose role is unequivocally articulated in the text; the relationships between them illustrated by students also reflect "bare" facts, and those not registered in the text, which can be assumed in the context of suppositions put forth earlier, are not reflected in the scheme.

Level 2: just like in the previous case, the scheme reflects only the actual participants in the situation, who affect its development. However, one can assume the existence of other relationships not reflected in the text but bearing no direct relation to the situation and ways to resolve it.

Level 3: the array of participants in the situation featured in the scheme also includes those whose role in its emergence is reflected in the text just indirectly; the assumed interrelationships characterize students' assumptions about the hidden causes behind the emergence of the described situation and reflect one's comprehensive vision of it along with possible ways to resolve it; it is also possible to reflect in the scheme those relationships which are not in the situation preset but can come up in the process of its transformation.

Assignment 4. Formulate objectives aimed at resolving this conflict situation (what specifically needs to be changed in it in order to end the conflict between its participants):

– the way the town's authorities would formulate this objective;

– the way the Flowers themselves would formulate the objective;

– the way the lyceum teacher would formulate it.

Also propose your own variant of setting the objective in this situation (it may, or may not, overlap with what someone else has already proposed).

This assignment, aimed at identifying the degree of well-formedness of the student's ability for conscious goal-setting, most importantly helps determine the degree of their readiness to assume the internal position of the subject of activity, who sets himself goals motivated by certain value orientations. Furthermore, understanding the goals of other subjects becomes a sort of "mirror" by virtue of which the teenager can separate his own "I" from the "I" of other subjects in the choice of goals. In this case, we find premature the use of such traditional criteria for assessing the ability for goal-setting as being "concrete", "realistic", etc., which characterize, as we noted in the beginning, the operational side of the teenager's activity. The true purpose of this assignment is to assess the teenager's ability to identify himself as an independent subject in the choice of the objective for transforming the situation, which reflects his own axiological grounds. In this regard, we are using the following level characteristics.

Level 1: the student properly formulates the objectives of other participants in the situation preset, relying on specific facts contained in the text; however, in determining his own goal, he just formally subscribes to someone else's position.

Level 2: the student understands the goals of other participants in the situation and also formulates his own goal, which is, however, aimed at a partial transformation of the situation preset in favor of one of the sides with which he associates himself the most.

Level 3: The student competently formulates the goals of others, but, that said, he aims his goal at transforming the situation on the whole, basing his judgment on his understanding of internal causes behind it.

Assignment 5. List several specific steps (actions) that need to be taken in order to attain your goal.

This assignment helps assess the ability of students to construct an algorithm for actions needed to attain the set goal inclusive of specific conditions characterizing the situation preset. That said, what interests us the most here is the student's ability to preserve the problem being

solved as integral, not divided into separate, unrelated fragments. There are the following level characteristics.

Level 1: the student establishes several relevant steps each of which is quite expedient; however, their overall logic and interrelationship cannot be traced.

Level 2: In formulating the relevant steps, the student uses standard algorithms, known to him, for actions aimed at attaining set objectives but does not reflect in them in any way the substantial characteristics of the situation preset.

Level 3: the student formulates a sequence of relevant steps inclusive of the characteristics of the situation and based on his understanding of the overall logic behind attaining the set objective.

Assignment 6. Imagine that you have made it and the conflict has been successfully resolved. Prepare a presentation with a story of how you did it.

This assignment helps assess the ability of students to reflect in their consciousness the activity they have gone through and picture it in alienated form. The special significance of this assignment is associated with that in the process of preparing a report on results obtained by the students one needs to perform a special, reflexive activity on the activity that has already taken place. This, in turn, governs the need for a shift to a different way of thinking that is radically different from design thinking proper (G.P. Shchedrovitsky [8]). In the process of working on his design, the subject "sees" the baseline state of the practice that is being transformed, but its final state is not obvious to him and is not unequivocal. The situation that is being transformed manifests its uncertainty specifically because we presuppose here the existence of a sort of "delta" between the objective (what is needed) and the result (what has been obtained). While the result that has been attained, which is captured in the socially significant product, on the contrary, governs the full certainty of the situation that has already been transformed. Therefore, the way to present the result presupposes constructing a retrospective of its origination that explains the essence of the "breakthrough" that has taken place. When students do not have such a way to present the result, they substantially limit their capacity to present the product specifically as an alienated form of "real-life" design activity. Based on the above, we can propose the following level characteristics of the degree of well-formedness of this learning action.

Level 1: the student tells us about the performed (assumed) actions in a detailed and consistent manner, without characterizing the results obtained at that.

Level 2: the student limits himself to stating changes in the baseline situation that have taken place, without bringing to light their cause-and-effect relationships with transformational actions he has performed (the existence of such a relationship is assumed by him "by default").

Level 3: the student lays out the entire logical chain of performed transformational actions and attained results of transforming the baseline situation.

In addition to the characterized levels of well-formedness of teenage student universal learning actions, the teacher also needs to have an idea of and diagnose manifestations of that these actions have not formed yet in a specific student even at the first level. The most typical signs of the absence of these learning actions in the arsenal of students are listed in Table 1.

Table 1: The signs of student universal learning actions being unformed

Universal Learning Actions	Sign of being unformed
Formulating questions about the text for the division of the areas of the known and unknown.	The student formulates questions that bear no relation to the situation described in the text. The student formulates meaningless questions or cannot formulate them altogether.
Putting forth suppositions (hypotheses) and choosing a way to verify them.	The student puts forth admittedly implausible suppositions violating elementary cause-and-effect relationships. In choosing a verification method, the student proposes no method as such and appeals to conventional stereotypes that reflect the mass "life experience".

Schematizing and creating a model for the object being transformed.	The student features in the scheme just some of the participants and distorts the nature of relationships between them at that.
Setting objectives inclusive of the diversity of stances taken by participants in the situation.	The student limits himself to just general words which do not give you an idea of a specific expected result. The student cites a set of possible moves with no relation to the expected result of performing them.
Establishing a sequence of steps to attain the objective.	The student formulates steps which admittedly will not lead to the set objective.
Assessing and choosing a way to present the results obtained.	The student limits himself to just general words and does not reflect on the results obtained or his own moves at that.

Results

The pilot testing of the methodology of startup diagnostics of the degree of well-formedness of student design competence was implemented in two formats – individual and group work. In the first case, students (19 individuals) worked on the case individually, while in the second their activity on case assignments was conducted in 3 groups of 7 students each. Thus, the total sample of students featured 40 individuals. Besides, the study involved six pedagogues and two graduate students from Kuban State University, who acted as experts. The obtained results are listed in Tables 2 and 3.

Table 2: The results of diagnosing the levels of well-formedness of student design competence in an individual format

Universal learning actions assessed	Well-formedness levels (%)			
	0	1	2	3
Formulating questions about the text for the division of the areas of the known and unknown.	5.3	63.2	26.3	5.3
Putting forth suppositions (hypotheses) and choosing a way to verify them.	21.1	52.6	21.1	5.3
Schematizing and creating a model for the object being transformed.	5.3	63.2	21.1	10.5
Setting objectives inclusive of the diversity of stances taken by participants in the situation.	36.8	26.3	36.8	0.0
Establishing a sequence of steps to attain the objective.	21.1	47.4	21.1	10.5
Assessing and choosing a way to present the results obtained.	68.4	21.5	10.5	0.0

Table 3: The results of diagnosing the degrees of well-formedness of student design competence in a group format

Universal learning actions assessed	Formedness levels (%)			
	0	1	2	3
Formulating questions about the text for the division of the areas of the known and unknown.	0.0	66.6	33.3	0.0
Putting forth suppositions (hypotheses) and choosing a way to verify them.	0.0	66.6	33.3	0.0
Schematizing and creating a model for the object being transformed.	0.0	0.0	100.0	0.0
Setting objectives inclusive of the diversity of stances taken by participants in the situation.	0.0	33.3	33.3	33.3
Establishing a sequence of steps to attain the objective.	0.0	66.6	33.3	0.0
Assessing and choosing a way to present the results obtained.	0.0	100.0	0.0	0.0

As we can see from the data above, the majority of students are characterized by the first level of well-formedness of almost all the universal learning actions constituting their design competence, except for the ability for goal-setting and presenting the results of one's activity, which has not formed in most students altogether. This shows that the activity of a significant portion of students is constructed by them as a more or less random set of standard actions, which are performed using set templates and bear absolutely no relation to one's own notions of results attaining which it is aimed at. A direct consequence of this is the actual inability to comprehensively reflect one's activity in one's consciousness and picture it in alienated form. It goes without saying that in a situation like this the shift to designing, as a basic type of learning activity at a senior stage of learning, will be considerably complicated and will require much effort on the part of pedagogues in terms of making up the identified deficits in design competence: the ability to identify the unobvious in the obvious; put forth original hypotheses that are based on identifying hidden cause-and-effect relationships; schematize and create governing models for situations being transformed; plan expedient steps on attaining set objectives; reflect on the results and effects of transforming problem situations.

At the same time, it is worth noting that some students do actually demonstrate the second and even third level of well-formedness of particular components of design competence – namely, schematizing and establishing a sequence of steps for transforming the problem situation. Of particular significance is the circumstance that students achieve higher results when they are working on the case as a group. This attests to the great potential of joint forms of learning activity by senior teenagers in terms of fostering design competence in them. Yet, for the time being these forms have been explored in present-day mass practice insufficiently.

Still, the identified situation is, in larger measure, characterized by such manifestations of unformed school student design competence as:

– the "didacticism" of formulated case questions, which by their spirit reproduce the traditional controlling orientation of assessment of the results of working with the text;

– the prevalence of stereotypical statements of an evaluative nature, which do not lend themselves to verification using design/research means ("they are weak"; "parents are doing a bad job raising their children", etc.), to the disadvantage of identifying cause-and-effect relationships between phenomena and putting forth original hypotheses on this basis;

– failure to differentiate between the real objectives for transforming the problem situation and possible means of attaining them; the ability to perform certain actions without having a thorough idea of expected results and possible consequences;

– the inconcreteness of steps for attaining the results required; a readiness to reduce these steps to general speculations on what things should be or just "good general advice";

– gravitating towards traditional, non-design solutions to problems, which are mainly founded on a "prohibitive" strategy (a great many works have featured passing a law prohibiting the emergence of youth subcultures as the primary step in resolving the described problem situation).

It is worth admitting that the identified picture characterizes quite well the state of development of the present-day Russian educational system, which has been having a real hard time resolving the issue of switching to new generation Federal State Educational Standards. However, the lack of reliable evaluative and diagnostic instruments that can help identify in this way the hidden "sore points" in continuing education is making resolving these objectives increasingly complicated.

Conclusion

The findings of this study substantiate the need of the present-day system of education for new approaches and instruments for assessing the academic results of students, which characterize not only the attained level of mastering subject content, but being prepared to master new means and ways of acting that ensure the effectiveness of realization of subsequent stages in their continuous educational trajectory. To a special extent, the prognostic assessment of the level of well-formedness of design competence is relevant in the context of issues in the individualization of education for the formation of student preparedness to design one's individual learning route, since it is this that ensures the continuity of various stages in this process. In this regard, we view startup diagnostics, which helps assess the degree of well-formedness of basic ways to act, based on

which there forms the student's integral preparedness to become the subject of plotting the individual learning route, as a necessary instrument for managing the development of student learning activity.

Our findings allow us to assert that the landmark of grades 7 and 8 is quite problematic for present-day school students in terms of a change of the character of learning activity one is engaged in and a shift in its dominant towards the use of productive design/transformation means of attaining individual learning objectives. In existing practice, issues related to the formation of preconditions for their being mastered by students have not been resolved effectively enough.

Among the major conditions for the effectiveness of startup diagnostics of student competence in transiting to a new stage of the continuous learning process is the use of its level characteristics which help forecast both the degree of one's preparedness to solve a certain array of problems as such and difficulties in using the means being mastered in non-standard life situations arising in the context of personal and professional self-determination.

It goes without saying that the findings obtained through the pilot testing of the instrumentarium created characterize the situation in just the most general terms. The further development of the proposed approach requires conducting systemic studies on large samples of students at various types of educational institutions with the use of various cases, the general principle of creating which has been substantiated in this work. We are pinning on this the prospects of further research into the issue.

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