Designing subject-subject relations on the basis of analysis of individual features of students' thinking

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Abstract. This article discusses determination of prevailing thinking style of students with possible typology of the thinking styles. Determination of prevailing thinking style is required to determine strategy and tactics of teaching and maximum use of student-centered results of the performed diagnostics during designing further successful subject–subject interaction. The relevance of the considered problem is related with the necessity to resolve the issue of optimum use of individual features of students' thinking, future lawyers, regarding development of analytical thinking style. It is proposed that the research method should be based on the diagnostics by A. Alekseev and L. Gromova, Individual Thinking Styles, its aim is analysis of individual thinking styles. It has been established that the proposed method provides analysis of basic thinking styles of the students: synthetic, idealistic, pragmatic, analytical, realistic. The obtained data would allow each teacher to design respective arrangement of subject-subject interactions and to rearrange methods of teaching the involved discipline with orientation at personal features of cognitive tools of each student individually and in overall group.
Keywords: subject-subject interactions, cognitive didactics, cognitive tools, thinking style, cognitive activity.

1 Introduction

Psychological and pedagogic publications provide expansive materials on analysis of various forms of interaction between student and teacher in vocational education system (O.Yu Antonov, S.R. Bondareva, T.Yu. Dzhamalova, M.A. Izmailova, Yu.V. Kolosova,

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R.Z. Lafisheva, G.E. Prokhorova, O.B. Russkova, T.S. Seyfedova, V.Ya. Skvirskii et al.) [1–9].

In the concise terminology dictionary, Modern Educational Process: Major Definitions and Terms, its authors M.Yu. Oleshkov and V.M. Uvarov provide the most precise determination of interaction in pedagogics as coordinated activity of participants in educational process aimed at achievement of mutual targets, results, and solution to significant for them problem [10: 50].

The authors of this article are impressed by the position by T.S. Seyfedova that interaction as a universal form of development transforms each subject of educational process into a new higher qualitative state [8]. In this regard, as highlighted by N.F. Radionova and A.P. Tryapitsyna, the role of teacher is mainly in support of student's activity. They believe, that a modern teacher is both consultant, and moderator, and tutor [11: 13].

Regarding modern changes in the system of vocational education, the position by M.A. Izmailova seems interesting and relevant, according to which pedagogic interaction should be considered as a significant factor of improvement of training quality of graduates from vocational education entities. M.A. Izmailova proposes to introduce a new education doctrine: education as interaction, based on the concept of multipurpose and multilevel interactions among all participants in the educational process [4: 4]. O.Yu. Antonov believes that the success of interaction of the subjects of educational process depends on proper organization and improvement of methodological tools of this interaction [12]. T.Yu. Dzhamalova emphasizes that upon organization of interaction between participants in educational process, the attention should be paid to consistency of educational programs and "combination of subject knowledge into a coherent system reflecting improvement of integration of scientific knowledge, which forms didactic worldview, promotes growth of creative abilities and cognitive activity of students" [3: 15].

While generalizing the researchers' positions, it should be mentioned that all their proposals are related with cognitive aspect of the issue [13]. And in this regard, it is necessary primarily to organize the interaction between teacher and students on the basis of thinking peculiarities of each student. This would allow to design the most optimum interaction flowchart [14, 15].

Therefore, the research *hypothesis* is as follows: designing subject–subject relations in an educational entity will be the most efficient as a consequence of analysis and accounting for individual thinking features of students.

Respectively, the research *objective* is to determine prevailing style of thinking activity of students with possible typology and to solve the *problem* of maximum use of the obtained information in order to determine strategy and tactics of their education, to use at maximum the diagnostic data during designing successful subject–subject interaction with consideration for the obtained student-centered result.

2 Methods

The task of pedagogical process in the frames of cognitive didactics is in creation of conditions of development of efficient cognitive organization of human, his provision with universal tools to solve educational and life problems [16: 67]. This also related with the fact that, according to N.V. Grishina, "the intensive rates of changes in modern reality result in current existing of people in cardinally another world than it was decades ago. A human is involved in more active dialogue, active relations with ambient environment, a human is more open to it due to modern technologies" [17]. And the ability to establish this dialogue during organization of educational process depends on the style of thinking activity both of teachers and students [18].

With this aim, the diagnostics by A. Alekseev and L. Gromova, Individual Thinking Styles, were used [19]. Using the diagnostics, it is possible to determine not only the preferred way of thinking but the manner to ask questions and to make decisions, which is quite relevant upon designing subject–subject interactions. This method attracts interest because, together with its aim, which is to analyze thinking features of each respondent, it contains request about more accurate message about features of real thinking and not about the recommended way of thinking.

The selected diagnostics make it possible to obtain brief qualitative characteristics of each type of student's personality according to their style of thinking: synthetic, idealistic, pragmatic, analytical, realistic.

3 Results

The survey was carried out with 47 first-year students specializing in Law and organization of social security at Timiryasov Innovative University (Kazan). The averaged results are illustrated in Figures 1 and 2.

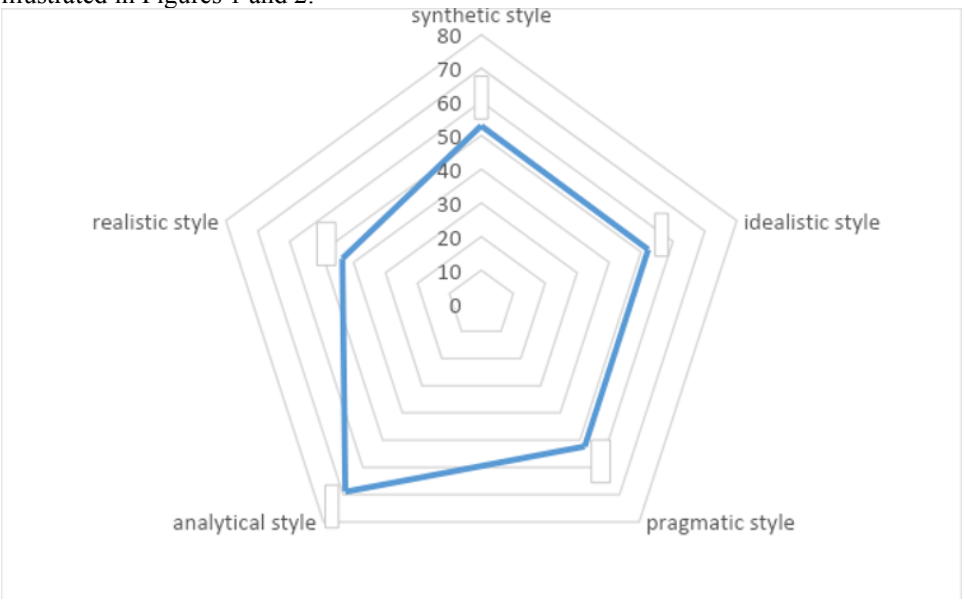

Fig. 1. Averaged results of determination of thinking style of the students of the first group specializing in Law and organization of social security.

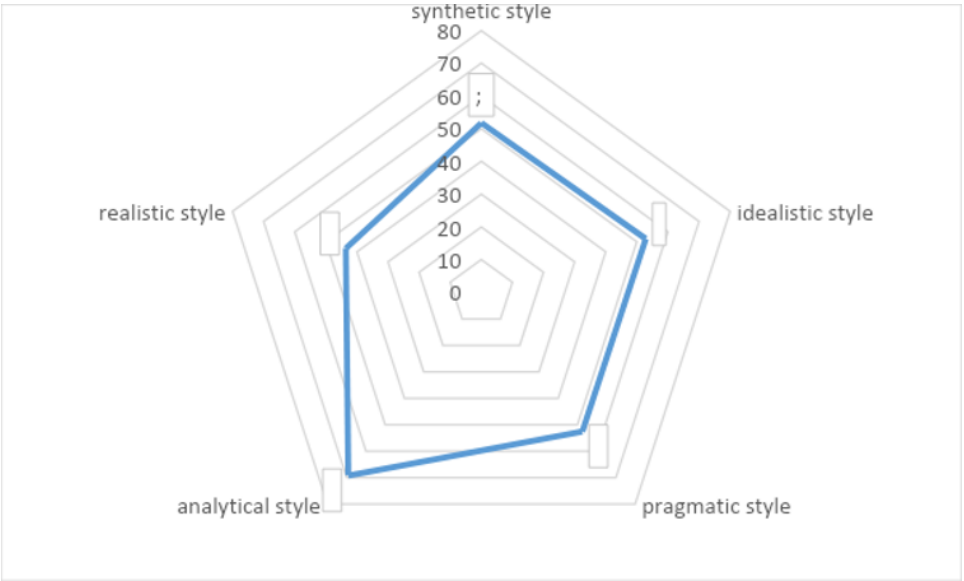

Fig. 2. Averaged results of determination of thinking style of the students of the second group specializing in Law and organization of social security.

4 Discussion

According to the applied diagnostics, Individual Thinking Styles (A. Alekseev, L. Gromova), the students give their preference to one of the highlighted thinking styles, if this style obtains 66-71 scores during calculation. In total, all scores distributed by styles should be equal to 270.

As can be seen in Figs. 1 and 2, the averaged distribution of scores by selected thinking types is as follows: synthetic style – 52.94/51.78 scores, idealistic style – 52.25/52.89 scores; pragmatic style – 52.38/52.56 scores; analytic style – 68.94/68.22 scores; realistic style – 43.5/43.56 scores. As can be seen in the comparison, the average distribution by groups is about the same. However, in each group there are two students (A and B) with distinct analytical thinking style. Figures 3 and 4 illustrate their indices on the background of total group.

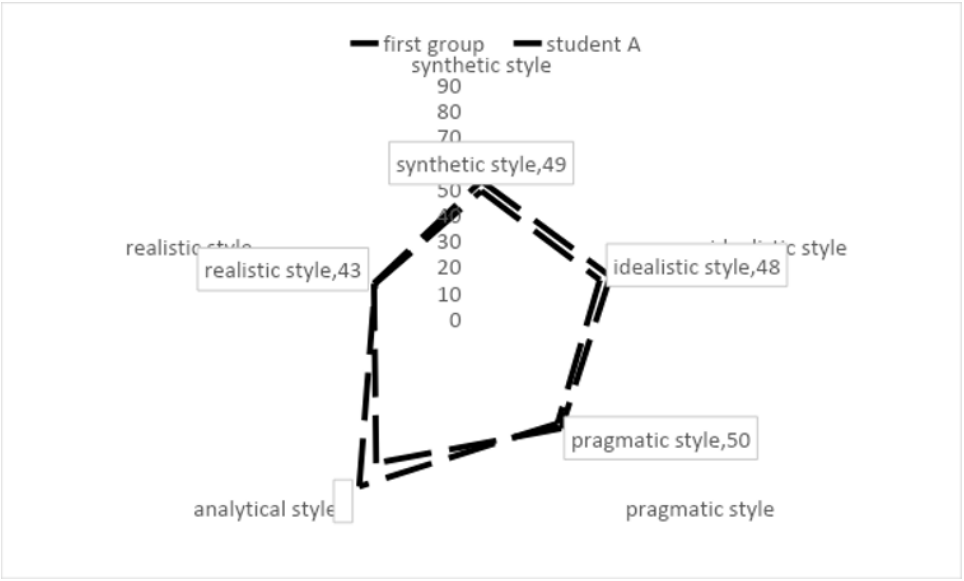

Fig. 3. Distribution by thinking styles of student A in the first group.

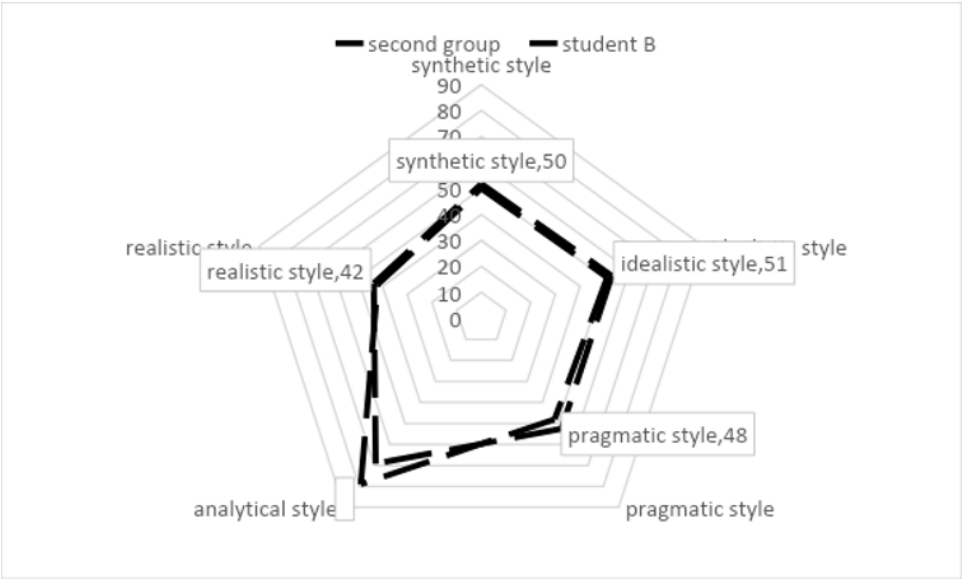

Fig. 4. Distribution by thinking styles of student B in the second group.

The authors believe that according to the used diagnostics of thinking styles, the estimate of any style of 72 scores and higher evidences very strong preference of this thinking style.

The indices of 80 scores and 79 scores in Figures 3 and 4 evidence that these students are characterized by obvious analytical thinking style, they prefer to apply the absorbed theoretical knowledge in practice, preliminary developing detailed plan of their activity based on thorough selection of information, they are characterized by methodological, thoughtful manner of solution to the existing problems. This should be used upon designing flowchart of subject–subject interrelations in groups, these students are more capable than

others to act as moderators, for instance, upon organization and operation of minor groups during execution of various educational and cognitive practical workshops.

The performed study allowed to reveal another five students (their scores: 72, 75, 75, 76, 72) in the first group, and six students in the second group (their scores: 71, 72, 75, 72, 79, 72) with obvious analytical thinking style. This is also a reserve of moderators in each group.

5 Conclusion

The presented comparison and the study in whole evidence that most first-year students specialized in Law and organization of social security at Timiryasov Innovative University (Kazan) do not prefer any thinking style with slight preference of analytical style. However, the study has allowed to highlight some students with strong preference of analytical thinking style, who could act as close assistants–moderators upon further organization of subject-subject interrelations in various forms of educational activity in subsequent years of study.

This conclusion allows maximum use of the obtained data on early propaedeutical diagnostics of thinking styles of students, future lawyers, in order to determine the strategy and tactics of their study under conditions of modern requirements of vocational education.

Thus, it can be stated that:

- under the conditions of modern state of intensive generation of knowledge, cognitive didactics is considered as highly significant, in which peculiar attention is paid to analysis of individual absorption and transformation of study information by the students;
- the diagnostics by A. Alekseev and L. Gromova, Individual Thinking Styles, allow to describe both qualitative and quantitative properties of individual features of cognitive tools, revealed during students' survey, in order to design optimum organization of subject–subject interactions in the course of educational activity.

This study does not pretend on comprehensive consideration of the formulated complex and versatile problem of organizing subject–subject interactions upon intensive generation of knowledge. The issues of cognitive simulation of conceptual, processual, structural properties of organization of subject–subject interactions seem to be important for further research.

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