DE GRUYTER OPEN

DOI 10.1515/ptse-2016-0014 PTSE 11 (2): 118-141

Psychological Immunity Research to the Improvement of the Professional Teacher Training's National Methodological and Training Development

Alice Mária BREDÁCS

alice.bredacs@gmail.com
(University of Pécs, Pécs, Hungary)

Received: 01.28.2016; Accepted: 16.05.2016

***Abstract**: In this study, we introduce what kind of role is played by psychological immunity and its sub-factors and its factor values in life of the students taking part in the professional training, in their performance at school, in the improvability of the students' strengths and weaknesses. The target of the research is to renew the methodology of the professional training through becoming acquainted with the students of the new generations more exactly. Since, the new generation has changed and it is still changing even today. Their education – training is getting more and more difficult because we do not know them enough. Teachers say that the knowledge of the students, the level of their education, mainly in the specialised secondary schools, is very low because the series of their failures can be detected and the non-attendance is also typical. Much of the students do not have any relevant prospect for the future after the specialised secondary school; they do not have any targets in the long run. The teachers in the specialised secondary schools observe that students are disinterested, they miss persistence, their control ability is very low, the EQ is decreasing and their self-knowledge is imperfect. All of them can be the source of conflicts.*

Keywords: psychological immunity, optimism, coherence feeling, development feeling, control ability, source creating ability, self-respect, self-control, persistence

The study was prepared to the project TÁMOP-4.1.2.B.2-13/1-2013-0012 – *„National methodological and training development of the professional teacher training".*

Raising the question, research target, hypotheses

The previous researches in connection with the topic also confirm the majority of these problems (for example: Oláh, 2005; Szélesné, 2005; Szebenyiné, 2007; Bredács, 2009, 2014; Bredács & Kárpáti, 2012; Nagy, 2009; Albert-Lőrincz et al., 2011; Kelemenné, 2012).

The results of the previous researches show that psychological immunity is connected to the selection of the reachable targets in the long and medium run, the efforts for the achievement of the targets and this way, it is one dominant factor of the students' motivation too. We considered the research of psychological immunity important from the point of view of the improvement of the professional training because the topic fits in the establishment of the characters of the generations' changes as psychological immunity can outline a profile of the students and the groups of students of the examined types of schools and considering the results in the elementary schools a vertical section picture can be also sketched out.

Psychological immunity-research can contribute to the methodological development of the professional training as follows:

- The students taking part in the teacher training can get to know of a new and complex method of examination of which results can be immediately used in making a diagnosis of the students.
- The results give a basis for the preparation of student programs and development plans.
- Certain generation changes can be forecasted (for example persistence in connection with execution of a duty or the degree of the increase or decrease of motivation).
- If the teachers know the features and abilities that need to be improved they can work out a more effective and detailed development plan for the individual students or even for their groups of students.

Facing the hindering-drawing back or just developing role of the school and family environments or their developing role, in our research report we established the opinion that we do not only have to set up the diagnosis but, later basing on this, we also have to aim at the search of the effective and differentiated development, the studying performance increasing methods and the development of good programmes too.

Hypotheses of the research

1. Is there any difference between the groups of school levels as far as the main value of psychological immunity and the values of the sub-systems are concerned? It means, whether psychological immunity is developing with the age of life.
2. Is there any difference in the school levels as far as the factors of psychological immunity are concerned? It means, whether the groups after age have any special psychological immunity factor profile.

3. Is there any typical difference among the groups after school types as far as the main value / sub-systems / factors of psychological immunity is concerned?
4. Is there any typical psychological immunity-profile that is especially typical for the professional training of which learning is suitable for the development of the professional training?

Notion, characters, components and measuring tool of psychological immunity

Psychological immunity is a preceding – protecting – mobilizing system that is protecting psyche just like the traditional immune system is guarding the body. Its competences make the individuals able to tackle stress. The fighting strategies are growing more refined and the good fighting methods become well-trained through the experiences, its ability fields are developing this way (Oláh, 1999, 2005). Psychological immunity can be described by a complex model, its structure are created by the components of the personality.

The measuring tool of psychological immunity (PI Junior Questionnaire) is worked out by *Attila Oláh and his colleagues in* 1996 in the Institute of Psychology of ELTE (Eötvös Lóránd University of Science). The questionnaire is time-limited, self-characterizing, it is consisting of 48 questions and it reveals 16 fighting abilities. The answers can be given in a four-grade scale (it is not typical for me at all, it is typical for me a little, it is typical for me, it is typical for me very much).

One can examine with the questionnaire how strong psychological immunity of a young person / group is, what the characters of the components of immunity are, how the young persons are struggling for their goals. We only determine the 16 fighting abilities of psychological immunity in this study in brief. The whole and detailed description of the determinations can be found in the book of Attila Oláh that was issued in 2005.

1. *Optimism:* believing that the events are moving in the right directions
2. *Control ability:* ability of controlling the own emotions
3. *Coherence feeling:* harmonizing the objects of life, thinking, emotions and the behaviour
4. *Self-respect:* on the basis of a positive but real self-estimation, nursing pride, self-rewarding and the health of the own body and soul
5. *Development feeling:* experience the continuity of the own development and self-achievement
6. *Personal source monitoring ability:* openness for development and novelties
7. *Personal source mobilizing ability:* strengthens belief, achievement of the goals, selection of the right activities
8. *Personal source creating ability:* inventiveness, ingenuity, creativeness which can help somebody to develop the life plans, ideas, alternatives, restructuring the pieces of knowledge and their realization

9. *Social source monitoring ability:* sensitive and selective observation and use of the pieces of social environmental information. Its positive direction is empathy.
10. *Social source mobilizing ability:* assists making connections, conviction of others, obtainment, activation and controlling of their support
11. *Social source creating ability:* assists to build up and organize a team, control the collaboration
12. *Synchrony ability:* ability of following the changes of the environment while paying attention to the activity that is performed
13. *Persistence:* ability of accomplishment of the duties, even if they are hindered and the combination of ability of holding up reward and the high tolerance of frustration
14. *Impulsivity control:* ability of controlling the notions, rationalize behaviour, selection of their proper forms in context of the consequences to be expected
15. *Emotion control:* ability of altering the failures and negative emotions to a constructive behaviour
16. *Excitability control:* ability of the rational control of tempers, furies and anger and their constructive use

The 16 factors constitute three – being in dynamic interaction with each other – sub-systems. The function of the *Approaching–monitoring sub-system* is to map and understand the environment of the entity.[1] The function of the *Mobilizing-creating-executing sub-system* is that the entity is able to mobilize and actualize its own abilities and environment from the point of view of its own targets, while it is experiencing the development of its personality and the balance feeling.[2] The function of the *Self-control sub-system* is the direction of attention and providing control[3] (Oláh, 2005).

Characterization of the sample and the description of the main steps of analysis

The whole sample is consisting of 534 elements. We analysed the data we received in two steps. First of all, we divided the sample into two groups after the school levels, the group of elementary school students (N = 94) and secondary school students (N = 94), then we divided the group of secondary school students to the groups of specialised secondary school students (N = 94), vocational secondary school students (N = 94), grammar school students and artistic secondary school students (N = 94). We did not want to create a nicely proportioned sample, so the secondary

[1] The Approaching-monitoring sub-system contains: Optimism, Coherence feeling, Development feeling, Control ability, Source monitoring ability and the Social monitoring ability.
[2] The Mobilizing-creating-executing sub-system contains: Source mobilizing ability, Source creating ability, Social source mobilizing ability and the social source creating ability and Self-respect.
[3] The Self-control sub-system contains: Persistence, Synchrony ability, Impulsivity control, Emotion control and the Excitability control.

school students and among them those who take part in the professional training, were in majority. This representation of the school types shows the real situation as far as the proportions are concerned. The professional training was represented by three groups: the groups of specialised secondary school students, vocational secondary school students and the groups of students who are taking part in the professional artistic training. Besides, we also took the data with a control group of elementary school students and simple grammar school students too. (See: Table 1.-2.)

Table 1. Composition and number of the sample elements after the school levels

GROUP	N
Elementary *school (7.–8. class)*	94
Secondary *school (9.–10. class)*	440
TOTAL	534

Table 2. Composition of the number of sample elements after the school types

GROUP	*N*
Professional secondary school	100
Vocational secondary school	186
Grammar school	120
Arts school	34
TOTAL	440

The main value of psychological immunity and the average values of its sub-factors in the different groupings of the sample

We not only put the average results of psychological immunity on a rank scale but on a 10-item subscale too, with this solution we could also reveal the differences between the point values, this way the results of the specific sub-factors and factors can be compared to each other too. We gave all values in average point values and we also determined the differences between the averages in point value. We did not intend to make a judgement through comparing the averages, we just wanted to describe an actual status.

At first, we examined the results of the two groups of students after school levels, then the four groups of students after school types from the point of view of the main average results of psychological immunity, the average results of the sub-systems and the average results of the factors. We drew the profile of the groups accordingly. On the basis of the profiles it was easy to compare the groups and the group features and the differences can be caught.

The main averages of psychological immunity in the grouping of the elementary school students and the secondary school students differ from each other only with 0.02 point, it means that at a minimal extent.

In case of the sub-systems there is a similarity between the two groups too. In both groups the Mobilizing-creating-executing sub-system shows a standing out value, contrary to the Approaching-monitoring sub-system and the Self-control sub-system.

The main strength of the *groups of elementary school students* is the Mobilizing-creating-executing sub-system (5.67 point). Their Self-control sub-system takes the second place (5.23 point). The weakest side of the group is the Approaching-monitoring sub-system (5.08 point).

The Mobilizing-creating-executing sub-system is emphasized in the *secondary school group* too (5.78 point). The Approaching-monitoring sub-system (5.25 point) takes the second place in their case and their weakness is the Self-control sub-system (5.09 point).

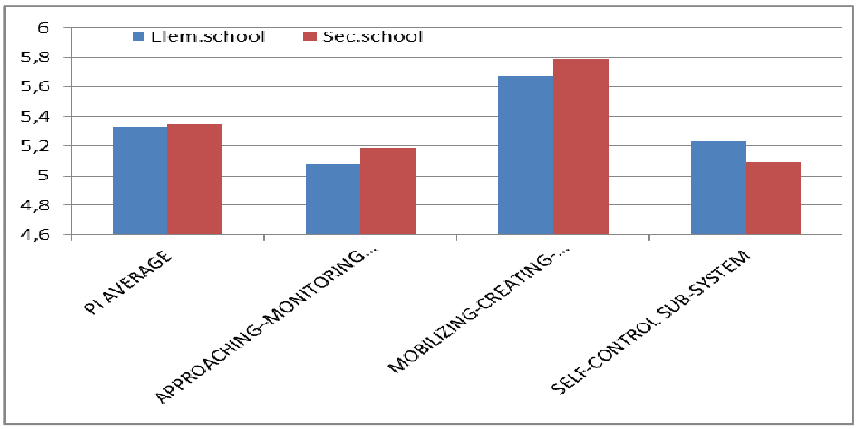
The points of interest of the comparison among the groups is that the results of the Approaching-monitoring sub-system and the Mobilizing-creating-executing sub-system were equally lower (it means that by 11.0 points) in the group of the elementary school students. The result of the Self-control sub-system takes the opposite direction because it is by 14.0 points higher in the younger age-group. (See: Table 3. and Diagram 1.)

The dispersions in the two groups are equal, in the case of the Mobilizing-executing sub-system they are totally the same. According to the dispersion values in the table 8, the highest dispersion can be found in the Approaching-monitoring sub-system in case of both groups but in the group of the secondary school students it is by 0.06 point higher than in the other one. The lowest dispersion can be found by the Self-control sub-system in the case of both groups, here it is lower by the elementary school students (by 0.07 point). (See: Table 3.)

Table 3. Average values of psychological immunity and its sub-systems on the different school levels

Group	N	PI Average		Approaching–monitoring sub-system		Mobilizing-creating-executing sub-system		Self-control sub-system	
		Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Elem.school	94	5.33	1.50	5.08	1.67	5.67	1.54	5.23	1.35
Sec.school	440	5.35	1.49	5.19	1.73	5.78	1.54	5.09	1.42
TOTAL	534	5.34	1.49	5.13	1.72	5.76	1.54	5.12	1.41

Diagram 1. The average values of psychological immunity and its sub-systems on the different school levels



In the following we examine the groups of secondary school students, dividing them into the groups attending the specialised secondary school, vocational secondary school, grammar school and those who are taking part in the professional artistic training. At first, we examine the main averages of psychological immunity, afterwards we emphasize the best and weakest performances of the specific sub-systems here too, then we characterize the specific sub-groups in respect of the sub-systems of psychological immunity, finally we compare the results of the groups with each other too.

Under the sample average of psychological immunity one can find two groups. On the bottom, there are the students taking part in the professional artistic training (4.82 point) with a deviation of 0.43 point from the sample average, then the grammar school students are the next (with 5.15 points), they fall behind the sample average only with 0.10 point. As far as the breaking down after school types is concerned, the vocational secondary school students (0.10 point) and the specialised secondary school students (0.10 point) performed above the average. There is no essential difference between the average results of these two groups, they performed better only by 0.08–0.10 point from the sample average. It means that as far as the main figures of psychological immunity are concerned one can state that there is a difference among the examined groups but contrary to the previous researches psychological immunity of the grammar school students and those who are taking part in the special artistic training is lower than that of the other groups.

As compared to the results of the other sub-systems, the results of the Approaching-monitoring sub-system are relatively low. The average result is the lowest in the groups of the students studying arts (4.93 point), this is by 0.26 point under the sample average. Those who attend the vocational secondary school are the best in this respect (5.23 point), with this they exceed the sample average by 0.04 point.

The results of the Mobilizing-creating-executing sub-system are the highest in each group. The best results are achieved by the specialised secondary school students (5.90 point) and the vocational secondary school students (5.82 point). The first group exceeds the sample average by 0.12 point, the second one only with 0.04 point. In this sub-system, it is especially interesting that the grammar school students are the least successful (5.65 point), their results fall behind the sample average with 0.13 point.

As we could see it previously, the low self-control is typical for this age-group. In this sub-system, the vocational secondary school students are the most successful (5.29 point), they exceed the sample average with 0.19 point. The students studying arts fall behind the sample average with 0.70 point, with their 4.40 points. This average result is the lowest in the table 4. The above results can be followed the groups of students too.

The *specialised secondary schools* – in an interesting way – are above the sample average in respect of each sub-system. Their emphasized strength is the Mobilizing-creating-executing sub-system (5.90 point), that is better by 0.12 than the sample average. Their Self-control (5.13 point) is with 0.03 point better than the sample average, however it can be considered the weakness of the group compared to itself.

All the results of the *vocational secondary school students* are above the sample average too. The Mobilizing-creating-executing sub-system is the most emphasized by them too (5.82 point), but they exceed the sample average only with 0.04 point. We received a lower result from this sub-system in the group as far as the Self-control sub-system is concerned (5.29 point), but it is with 0.19 higher than the sample average.

The *grammar school students* are not under the sample average with their Approaching-monitoring sub-system results only (5.21 point), however, from the sub-systems of psychological immunity the Mobilizing-creating-executing sub-system means the strength for them (5.65 point). Their lowest value is their Self-control (4.99 point), this is with 0.11 point under the sample average.

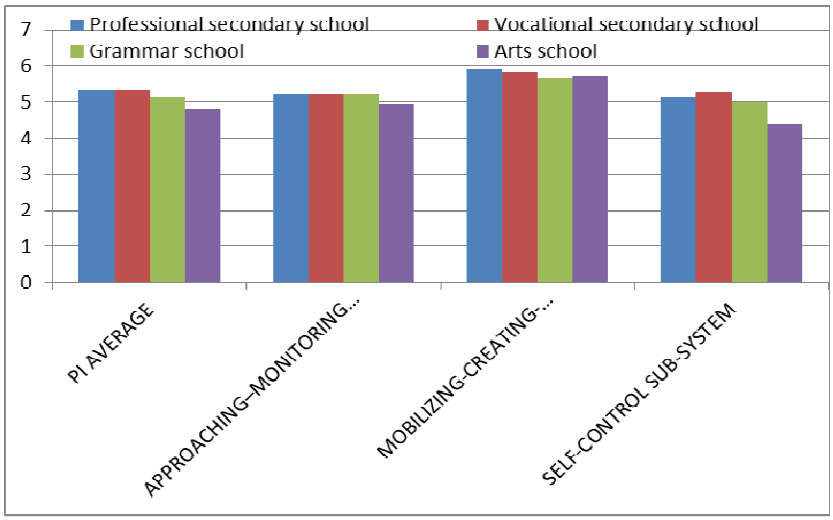
The students who are taking part in *the professional artistic training* do not reach the sample average in respect of no sub-system either. The result (4.93 point) in the Approaching-monitoring sub-system differs from the sample average by 0.26 point, the Mobilizing-creating-executing sub-system (4.93 point) by 0.07 point and the Self-control sub-system (4.93 point) by 0.07 point downwards.

The dispersions are the highest in the Approaching-monitoring sub-system and they are the lowest are in the Self-control sub-system. This indicates well that the facts that can be observed in the Self-control sub-system characterize the examined groups the most explicitly. In the table 4 one can see that the dispersion result in the Approaching-monitoring sub-system of those students who are taking part professional artistic training is the highest (1.78 point). The grammar school students fall behind only with 0.04 point – in the same sub-system. We received the lowest dispersion result in the group of the grammar school students that was only 1.33 point. (See: Table 4.)

Table 4. The average values of psychological immunity and its sub-systems in the different school types

Group	N	PI Average		Approaching –monitoring sub-system		Mobilizing-creating-executing sub-system		Self-control sub-system	
		Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Professional secondary school	100	5.33	1.53	5.23	1.71	5.90	1.49	5.13	1.40
Vocational secondary school	186	5.35	1.60	5.21	1.70	5.82	1.58	5.29	1.53
Grammar school	120	5.15	1.51	5.21	1.74	5.65	1.45	4.99	1.33
Arts school	34	4.82	1.60	4.93	1.78	5.71	1.63	4.40	1.40
TOTAL	440	5.25	1.56	5.19	1.72	5.78	1.53	5.10	1.44

Diagram 2. The average values of psychological immunity and its sub-systems in the different school types



The results of the 16 factors in the different groupings of the sample

Also from the points of view of the factors we considered the best and the weakest results, first of all in general, then we could characterize the specific groups precisely with the assistance of the factor results. On the basis of this one can find out which fields need to be improved and which the teachers teaching on the specific school level can be satisfied with.

Regarding the factors of psychological immunity, the whole of the sample can be characterized as follows: the ability of source monitoring 6.20 point, the source mobilizing 6.20 point and the ability of persistence 6.20 point is very high; ability of social source monitoring 6.20 point and the self-respect (5.78 point) is high too. In connection with the ability of persistence one has to admit that the dispersion value was the highest 6.20 point on this field, it means that each group of the examined sample is very persistent, however it is not typical for the others.

Whereas, the ability of social source mobilizing 6.20 point and the coherence feeling 6.20 point is very low and one can describe the impulsivity control of the students 6.20 point as low, such as their synchrony ability 6.20 point, ability of experiencing their development and growth 6.20 point and the control of emotions 6.20 point. We can declare about these contradictory features – because of the extent of the whole sample – that they can even be characters of generations.

It is outstanding that how much the students able to monitor the internal and external energies and the phenomena of the environment but they can only use the received pieces of information for their own mobilization because their social source mobilizing ability is definitely weak. Probably, the net generation can rather mobilize its own energies than collaborate in a real “flash and blood” community!

At the same time, the young people can be satisfied with their high monitoring and self-mobilizing ability too, the high self-respect values indicate this.

There is a contradiction among the average values we received in the factors too because in spite of the high self-respect their development feeling is low. It means that the young people are satisfied with their performances in vain, if they do not consider their development optimal. Because of this dissonance, they can be pretty stressed that appear in the low emotional and impulsivity control. (These features are also of low dispersion value, so, they are typical for the young people in general). The situation can be worsened by the fact that some students are pessimistic. This is confirmed that the dispersion of the average values of optimism is one of the highest (2.21 point).

Because of the low impulsivity control some young people can be a little bit aggressive and less empathic. The latter can also be in connection with the lower emotion control.

The low coherence feeling, synchrony ability and emotion control must be the special the special features of this age-group because all previous similar measurement results indicated the same low value in this group-age. Moreover, there is no difference between the averages of the two school levels or only very minimal.

The much lower personal and social source creating ability beside the high personal and social source monitoring abilities indicates that there is a problem with the problem-solving ability of the young people as well. In spite of their more developed critical thinking and the successful collection of data and arguments they can find the way to solve their problems only with difficulties. It means that they detect the problem but they do not have good samples and they are not creative enough to solve them. (Column 2 of the table 5.)

To analyse the sample, further on we examine the profile features of the elementary school and the secondary school students separately, then we are looking for the answer whether the results can show any development or slide back regarding any of the factors.

The main strengths of the *elementary school students are* the own source mobilizing ability (6.51 point and their persistence (6.51 point – this is highest value of the table 5. Still two higher values are typical for this group, the self-respect (6.01 point) and the ability of source monitoring of their own energies (5.91 point). The social source monitoring ability is strong only moderately (5.56 point) and they are definitely weak at the social source mobilizing (4.15 point), coherence feeling (4.44 point) and the social source creating (4.44 point The group can be mainly characterized by the recognition of their own values, their assessment and persistent use but the negligence of the communal and environmental occurrences and their mobilization. Therefore, the appearance of the lack of the coherence feeling is almost obvious.

The *secondary school students* do not surpass their some years younger fellows in many respects. One can tell about them as well that their source monitoring (6.25 point), source mobilizing abilities (6.25 point) and persistence are very well. Beside persistence the weak impulsivity control (4.85 point) can shift persistence into the direction of stubbornness and aggressiveness. By them the increased monitoring of the social environment also appears (5.85 point) but they cannot do too much with the pieces of incoming information because mobilizing (4.42 point) is their

weakest ability. Their coherence feeling (4.52 point) is also one of their weaknesses. (See: Table 5. and Diagram 3.)

The dispersion of the averages of the elementary and secondary school students formed similarly in respect of just all factors. The dispersions are generally higher where the average values are lower (for example: in case of optimism, social monitoring ability, self-respect and persistence) and they are generally lower where the average values are regular or higher (for example: in case of development feeling and synchrony ability). It means that the average values and the dispersions have an inverse relation to each other. There is a significant difference between the dispersions of the two groups only in respect of the social source creating ability (0.41 point). (See: Table 5.)

Table 5. Factor results and dispersions of psychological immunity on the different school levels

	Weighted PI average N=534		Elementary school N=94		Secondary school N=440		Changes of the mean values from the elementary school to the secondary school	
PI factor	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation	Average increase	Dispersion increase.
1. Optimism	5.45	2.21	5.90	2.07	5.35	2.24	-0.55	0.17
1. Coherence feeling	4.51	1.81	4.44	1.69	4.52	1.83	0.08	0.14
1. Development feeling	4.95	1.44	5.04	1.54	4.93	1.42	-0.11	-0.12
1. Control ability	5.35	1.60	5.08	1.54	5.41	1.61	0.33	0.07
1. Personal source monitoring ability	6.19	1.94	5.91	1.95	6.25	1.94	0.34	-0.01
1. Social source monitoring ability	5.80	199	5.56	2.10	5.85	1.97	0.29	-0.13
2. Personal source mobilizing ability	6.31	1.86	6.51	1.87	6.27	1.86	-0.24	-0.01
2. Personal source creating ability	5.46	1.95	5.15	2.00	5.53	1.94	0.38	-0.06
2. Social source mobilizing ability	4.37	1.75	4.15	1.71	4.42	1.76	0.27	0.05
2. Social source creating ability	4.96	1.96	4.67	1.62	5.02	2.03	0.35	0.41
2. Self-respect	5.78	2.08	6.01	2.23	5.73	2.05	-0.28	-0.18
3. Persistence	6.20	2.14	6.36	2.23	6.16	2.12	-0.20	-0.11
3. Synchrony ability	4.96	1.54	4.94	1.47	4.97	1.55	0.03	0.08
3. Impulsivity control	4.90	1.67	5.11	1.70	4.85	1.66	-0.26	-0.04
3. Emotion control	4.99	1.62	4.99	1.52	4.99	1.64	0.00	0.12
3. Excitability control	5.47	1.58	5.51	1.53	5.46	1.59	-0.05	0.06
PI-TOTAL	5.34	1.82	5.33	1.50	5.35	1.87	0.02	0.37

Diagram 3. The profiles of psychological immunity on the different school levels

Elementary *School* / Secondary *School*	*Scho.*	T point	very short	short	ordinary	high	very high
Optimism	Elem.	5.9					
	Sec.	5.4					
Coherence feeling	Elem.	4.4					
	Sec.	4.5					
Development feeling	Elem.	5.0					
	Sec.	4.9					
Control ability	Elem.	5.1					
	Sec.	5.4					
Personal source monitoring ability	Elem.	5.9					
	Sec.	6.3					
Social source monitoring ability	Elem.	5.6					
	Sec.	5.9					
Personal source mobilizing ability	Elem.	6.5					
	Sec.	6.3					
Social source mobilizing ability	Elem.	5.2					
	Sec.	5.5					
Personal source creating ability	Elem.	4.2					
	Sec.	4.4					
Social source creating ability	Elem.	4.7					
	Sec.	5.0					
Self-respect	Elem.	6.0					
	Sec.	5.7					
Persistence	Elem.	6.4					
	Sec.	6.2					
Synchrony ability	Elem.	4.9					
	Sec.	5.0					
Impulsivity control	Elem.	5.1					
	Sec.	4.9					
Emotion control	Elem.	5.0					
	Sec.	5.0					
Excitability control	Elem.	5.5					
	Sec.	5.5					

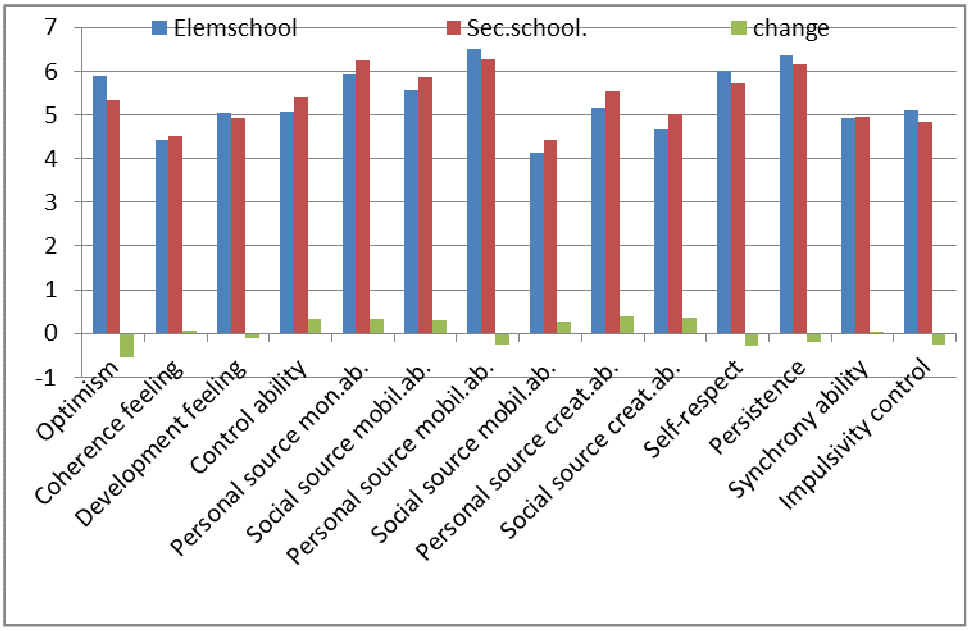
Very short: 0–3.4 point; short: 3.5–4.4 point; ordinary: 4.5–5.4 point; high: 5.5–6.5 pont; very high: 6.5 point over

From the main average values of psychological immunity, we received during the examination we can see first of all that they are just the same. We can formulate it so as well that the main values of psychological immunity do not characterize the age-groups properly because they do not differentiate enough. The groups can already be described with the values of the sub-system slightly better and with the factors one can draw up a quite exact picture.

The positive and negative development of the factor values in the two groups can show the changes that happen in the age-groups. This kind of changes can be experienced in the two-thirds of the factors. One can see a progress in about one third but a progress can be seen about in one third, however, in the other two-thirds one can experience the slide back of the values of the features. For example, the secondary school students can take a survey of their environment and themselves more easily but, while they can already mobilize their companions they can make their own abilities useful less effectively in their older age. Both the personal and the social side of the source creating ability are getting stronger.

At the same time, one can hardly explain the decline and stagnation of the control fields of the secondary school students (persistence, impulsivity control, emotion control and excitability control) with professional arguments. (See: Diagram 4.)

Diagram 4. Differences of the factor results of psychological immunity on the two school levels

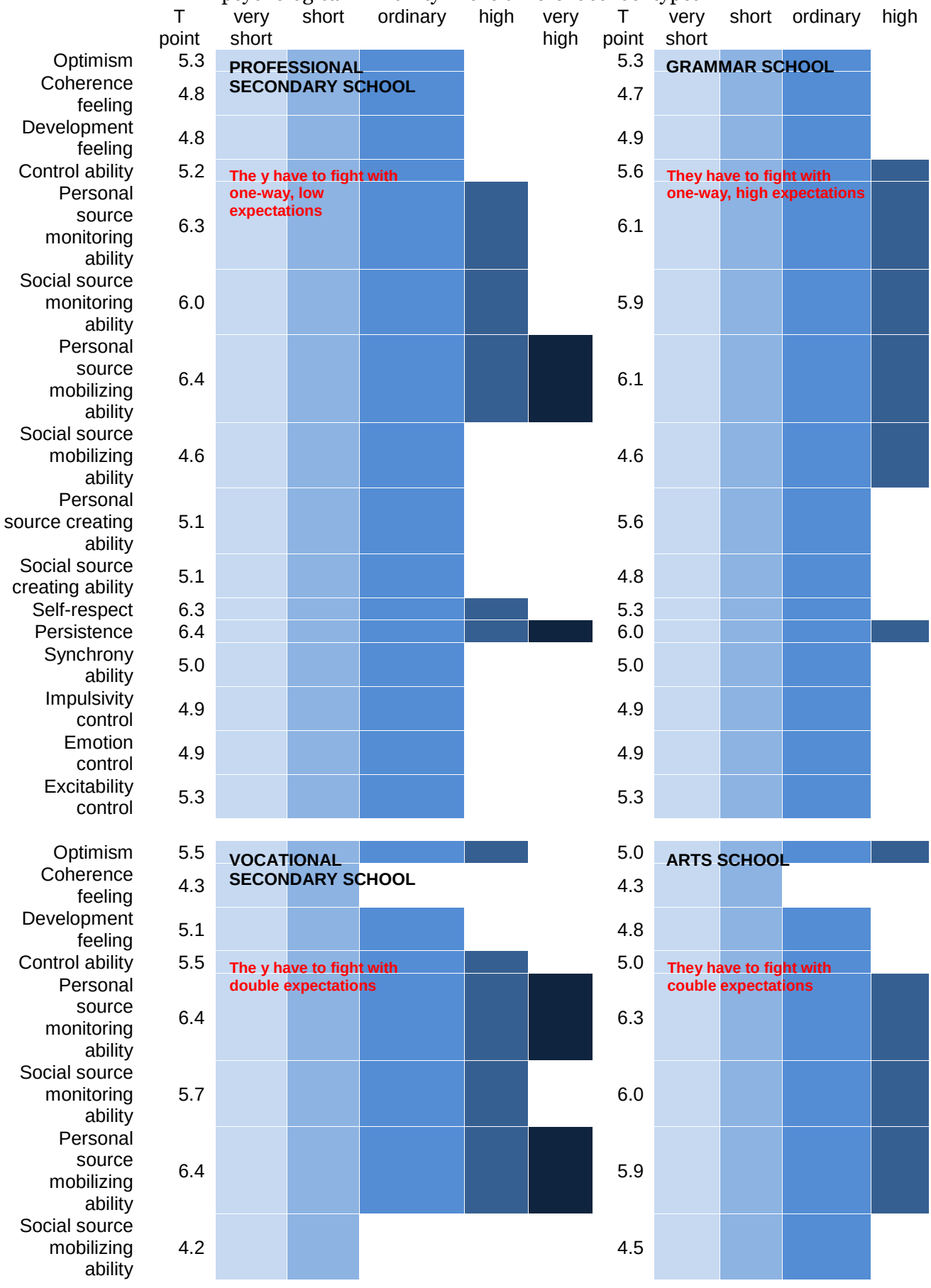


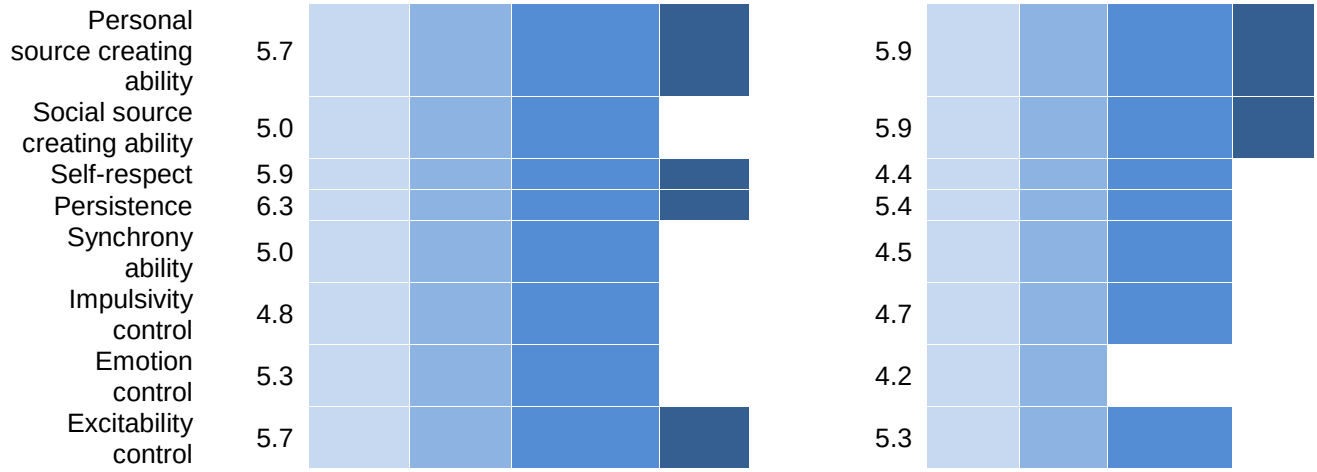
The features that are typical for the groups of the school types can be outlined from the factor results too. Three outstanding values seem to become stable for this age of life. They are the source monitoring, source mobilizing abilities and persistence. The abilities regarding the existence of the internal unity and control are also low that is typical for the age of life, such as coherence feeling, synchrony ability, impulsivity and the emotion control. Self-respect shows the biggest differences in the groups. (See: Table 6. and Diagram 5.)

Table 6. The factor results of psychological immunity in the different secondary school types

PI factor	Weighted PI average N=440		Professional secondary school N=100		Vocational secondary school N=186		Grammar school N=120		Arts school N=34	
	Mean	Std. Deviatio	Mean	Std. Deviatio	Mean	Std. Deviatio	Mean	Std. Deviatio	Mean	Std. Deviatio
1. Optimism	5.35	2.15	5.29	2.07	5.48	2.18	5.29	2.07	4.97	2.56
1. Coherence feeling	4.52	1.69	4.84	1.81	4.25	1.67	4.72	1.59	4.25	1.80
1. Development feeling	4.93	1.45	4.84	1.51	5.06	1.35	4.86	1.50	4.84	1.68
1. Control ability	5.41	1.56	5.23	1.69	5.49	1.52	5.57	1.52	5.03	1.55
1. Personal source monitoring ability	6.25	1.91	6.28	1.83	6.37	1.93	6.05	1.88	6.31	2.18
1. Social source monitoring ability	5.85	1.86	5.97	1.83	5.73	1.82	5.91	1.94	6.01	1.94
2. Personal source mobilizing ability	6.27	1.95	6.42	1.78	6.37	2.04	6.07	1.94	5.92	1.95
2. Personal source creating ability	4.42	1.66	4.62	1.97	4.16	1.52	4.62	1.66	4.54	1.48
2. Social source mobilizing ability	5.53	1.85	5.11	1.79	5.65	1.82	5.61	1.86	5.85	2.16
2. Social source creating ability	5.02	1.94	5.12	2.82	4.97	1.77	4.79	1.45	5.88	1.96
2. Self-respect	5.73	2.22	6.32	2.09	5.91	2.29	5.32	2.22	4.44	2.21
3. Persistence	6.16	2.15	6.37	2.01	6.31	2.21	5.98	2.17	5.39	2.16
3. Synchrony ability	4.97	1.44	5.03	1.62	5.04	1.36	4.96	1.38	4.48	1.58
3. Impulsivity control	4.85	1.63	4.93	1.73	4.83	1.65	4.85	1.44	4.71	1.90
3. Emotion control	4.99	1.69	4.93	1.80	5.25	1.75	4.90	1.58	4.15	1.43
3. Excitability control	5.45	1.62	5.28	1.74	5.67	1.59	5.31	1.57	5.29	1.67
TOTAL	5.36	1.80	5.33	2.07	5.35	1.78	5.15	1.74	4.82	1.89

Diagram 4. The group-profiles formed on the basis of the factor results of psychological immunity in the different school types





Very short: 0–3.4 point; short: 3.5–4.4 point; ordinary: 4.5–5.4 point; high: 5.5–6.5 pont; very high: 6.5 point over

The *specialised secondary school students* are prominent on several fields of psychological immunity too, for example they have the highest source mobilizing ability (6.42 point), persistence (6.37 point) and self-respect (6.32 point) as compared to the sample average and their source monitoring ability (6.28 point) is good as well. Their source creating ability is, however, significantly, it means that by 0,42 point, lower than the sample average of the secondary school students, and their excitability hindrance falls behind by 0.17 point but they are only by 0.06 point less optimistic than the average. (See: Diagram 4.)

The source mobilizing ability means the „self-efficiency feeling". It means that the specialised secondary school students do not have any doubts about that they will reach the studying targets they set in spite of the possible difficulties as well. Therefore – according to them – they able to fight faithfully too and it also appears in their strong self-respect, self-appreciation and self-rewarding behaviour. The high source monitoring ability of the group refers to the fact that many members of this group able to look for the challenges in connection the targets. At the same time, the low source creating ability also indicates the relative lack of the creating ability and creativity, it means that the research subjects do not feel that they could solve the problems in connection the achievement of the targets personally too or they do not consider them as their own duty. Therefore, they feel defencelessness with pessimism and excitability together. The main problem in this group is the synod of the low and high values and this is connected to the "targets set" with their studies too towards which the members of this group are making efforts. (the temporary targets of the groups taking part in the research can be interpreted well because the target they set is obviously the finish of the specific school type and in case of the special secondary schools the acquiring of the skilled labour worker certificate.) If the studying targets are low it is easier to reach them without any bigger efforts too. This turns one's attention to the existence of the self-fulfilling prophecy (Merton, 1968). The self-image of the students derives from their previous personal experiences and from what they have seen in their environment, it evaluates the everyday life and forms the behaviour. The self-fulfilling prophecy shows what kind of expectations the entities set up for themselves and their environment that influence the

behaviour that support the verification. If the student does not originate from a family where the parents did not even study a profession the family environment will be proud of the student and the student of himself. The environment influences the self-estimation so.

The strengths of the *secondary school students* are their good source monitoring and source mobilizing ability (both 6.37 points). Also one of their main good points is their good persistence (6.31 point) but with a less high result than the professional school students. The group significantly exceeds the secondary school sample average on three fields of abilities, by 0.26 point on the field of emotion control (5.25 point), by 0.21 point on the field of excitability hindrance (5.67 point) and by 0.13 point on the field of optimism (5.48 point). However, in coherence feeling (4.25 point) they have a low value compared to their own abilities and those of the other groups too. (See: Diagram 4.)

The total value of psychological immunity of the group is the highest. The value of the Self-control sub-system is the highest by them in respect of the groups but the Mobilizing-creating-executing sub-system is their main strength when examining in their own group. The results of this group are the most extreme in the examined sample. The students are able to monitor themselves well because of their excellent abilities, therefore, to collect, process and connect a lot of information, then to mobilize them, it means to use them in the interest of their targets. The two fields of ability are not necessarily operating after each other. After specific opinions, they are rather operating simultaneously, they are continuously influencing, reflecting each other and treat the problems complex. It is about a studying orientation and reflexion that means strongly focusing on the target and the career, in the interest of which the students of this group are able to choose and form their behaviour effectively, so that they can reach their object of life regarding their career. Their persistence supports this too, confirming that this group able to tolerate frustration and slow down the achievement of the targets too. In the Hungarian education system, one can successfully calculate with the further study in the direction of the selected profession for this group, it means that the undertaking of the professional targets on the long run. Choosing a vocational secondary school is a popular mobility channel also at present in Hungary. This is proved by the relatively high value of their optimism as well that one could not learn by the professional secondary school students. It may be that beside the studying abilities, this can show why somebody chooses a professional secondary school instead of a vocational secondary school. The relatively high point value of the excitability hindrance and the emotion control – in relation to the sample average – also indicates that the vocational secondary school groups able to bear the possible failures and control their intense emotions in connection them better. Their social source mobilizing and coherence feeling – maybe because of their age – are very weak. With their weakness, they excel even from their contemporary fellows. The high personal source mobilizing ability in relation to the sample average and the very low social source mobilizing ability are strongly dissonant. Source monitoring can assist the noticing of relations, the management of conflicts and the predictability of the changes of the external environment but in this group, this is only valid for the internal monitoring, it does not refer to the monitoring of the

environment. So, this age-group and the students who are attending this vocational secondary school are less mature to connect the social aspects with the problem management.

The *grammar school students* have less high ability fields than the two former groups and they significantly remain under the sample average even on these fields too. These two fields are the source monitoring (6.05 point) and the source mobilizing ability (6.05 point) that are usual in the other two groups just these secondary school students fall behind the sample average by 0.20–0.20 point. Their social source creating ability (4.79 point) is low in relation to themselves and the other groups as well, this falls behind the sample average by 0.23 point. By the grammar school students coherence feeling (6.05 point) regards as low within the group but this exceeds the sample average by 0.20 point. Self-respect of the group members in the group (5.32 point) is not strong either and this is particularly lower – by 0.41 point – than the sample average. (See: Diagram 4.)

The factor values of the group are steadier than in other groups. The Mobilizing-creating-executing sub-system is leading by them too. The group members also have a good personal source monitoring and source mobilizing ability and this means by them too that they are open for challenges and novelties. The control ability of the groups is the highest in the sample. Because of their features the group members probably do not make early decisions in connection with the career. This means that the students can keep back their taking up work and earning money and so, they do not seek for immediate benefit in connection with knowledge. It is also typical for the grammar school students that they can fight for their targets persistently. It is interesting that the coherence feeling of the group – however within their own group it is not too high – exceeds that of the other members of the age-group significantly. This is the ability of understanding the relationships, believe that one can predict the changes of the external environment and one can adjust to it too. This refers to the education so that the grammar school students establish their knowledge rather strongly so that they are able for a more flexible choice of career later. Coherence feeling has three essential components: understanding (differentiated observation and arrangement of the happenings in the environment), ability of the source management (clearing up the sources and their adequate use) and the intelligence (feeling of the sense of life and finding the significant objects of life). In this group, the social source mobilizing ability – as we could see it in the secondary schools too – is also significantly lower than the other values and their social source creating ability is not strong either. The feeling of self-respect in the group is also low, it widely differs downwards from the sample average. With the assistance of self-respect, the entities consider themselves precious. Yet, if the unmatured young people receive the feedback from the environment that studying and knowledge are not important values, knowledge does not produce a good job that is the basis of a good living, that one can get along in the society without any knowledge very well too, they can only get confused.

According to the statistical data the one of the main phenomena of the present education is that the number of the candidates for the grammar schools is decreasing as compared to the past. However, it appears in the

number of the grammar school students the less because the grammar school (and the vocational secondary school) lasts for more years than the professional secondary school. This phenomenon clearly indicates that the obtainment of general knowledge is less worth for the students when choosing a school, whereas, learning a profession becomes more and more precious for them. The grammar school students have to decide at the latest which profession they choose, so their profession identity develops only later. This situation repaints the self-assessment of the students too.

Three outstanding fields of ability of the students who are taking part in the *professional artistic training* correspond to the above mentioned because the source monitoring ability (6.31 point) and the source mobilizing ability (5.92 point) is relatively high by them too, notwithstanding, the latter is by 0.35 point lower than that of the sample average of the secondary school students. On the other hand, they reached a nice result in respect of the social source monitoring ability (6.01 point) that is exceeds the sample average of the secondary school students by 0.16 point. They run up to the sample average on the field of source creating (5.85 point) and social source creating ability (5.88 point). The former is by 0.32 points, the latter by 0.86 point higher than the sample average. In many factors, they fall behind the sample average. These extreme results that are tending downwards can be attributed to the low strength of the group too. This is the very low optimism (4.97 point of the students who are taking part in the professional artistic training that differs by 0.38 point, their coherence feeling (4.25 point) that differs by 0.27 point, their control ability (5.03 point) that differs by 0.38 point and their self-respect (4.44 point) that differs by 1.29 point from the sample average downwards. Synchrony ability (4.48 point, emotion control (4.15 point) and the excitability hindrance (5.29 point) show a low value that tend downwards too. From these, emotion control significantly differs by 0.84 point and synchrony ability differs by .49 point downwards from the sample average.

The students who are taking part in the professional artistic training have several features as well that are typical for the age-group that was examined, but their average results also show the particular figure that is typical for the activity of the group. The high values that are typical for the age-group appear by them too but they are less outstanding than those by the previous groups. From the six ability fields that assist the problem management only two are lower in this group, these are the social and the personal source mobilizing ability. As it has been already indicated by the previous investigational results, the ability of making connections, persuasion the others and making them active do not belong to the strength of the students who are taking part in the professional artistic training and they are unsure too. All of the personal and social source monitoring and the personal and social source creating abilities are far beyond the sample average. The personal source monitoring is generally high in the circle of those who are seeking for the challenges. The social source monitoring ability also means empathy. It indicates how much the group member students can observe and use the pieces of information of the social environment in the interest of the long-range targets. This ability is the highest in the circle of the student taking part in the professional artistic training. The personal source creating ability is the indicator of the creativity capacity of the group. Its high value is typical for the artistic

group. This ability can be characterized by the alternative solutions, fresh ideas. The social source creating ability assists the common-thinking with others and focusing on the collective duties. Unfortunately, the students taking part in the professional artistic training received a lower point value than the sample average in respect of several factors. So, the group members are more pessimistic than the average, their coherence feeling, persistence, synchrony ability are weaker and also their abilities in connection with the control fields are weaker in general. They can solve the conflicts only with difficulties. Because of the weaker synchrony ability the students taking part in the professional artistic training are less able to harmonize their energies. The weaker control ability suggests them that they cannot master the happenings, things are not up to them. They are less able to make active efforts to obtain control. The weakness of their emotion control and excitability hindrance shows that the group members can hunt the negative emotions and their vehemence with difficulty. These results can confirm that has already been drafted in the special literature that the arts often experience depression during the struggling strategies and they can be more stressed than the average. (Lombroso, 1998; Kulcsár, 2001; Halász, 2002; Czeizel, 2007, 2009).

In connection the dispersions, one can state the same in the groups of the secondary school students like in the broken down after school levels. Also, here one can see the highest dispersion in the factors of optimism, self-respect and persisting, the lowest one can observe in the factors of development feeling and synchrony ability. In the table one can find the lowest dispersion in the factor of development feeling (1.35 point) and the synchrony ability1.36 point) of the vocational secondary school students. The dispersion of the social source creating ability (2.82 point), of specialised secondary school students is outstandingly high. This is the highest value in the whole table. This indicates that there are specialised secondary school students who support team-building very well, they are good organizer and cooperative but there are some who do not have the feature like this. The opinions of the teachers that were put down in the introduction of the study draw up the problems in connection with these students because in a class where a part of the students does not want to cooperate either with the teachers or with the fellow students the fluent work is impossible, therefore, the others in the group have high factor values in vain. (See: Diagram 6.)

Answering the hypotheses

On the different school levels, there is no significant difference among the groups as far as the main value of psychological immunity is concerned. In the values of the sub-systems one can see minimum differences. The values of the Approaching-monitoring and the Mobilizing-creating-executing sub-systems are in the secondary schools a little bit better than those in the elementary schools. The values of the Self-control sub-system are weaker. After the school types, the groups have a particular psychological immunity profile that is typical for the age of life. They indicate which factors can improve and which factors decline with age.

In the group braking down after school types, there is no significant difference among the groups as far as the main values of psychological immunity and sub-systems are concerned because the factor values cancel each other but in the specific factor values there are typical differences among the groups already. The group profiles are outlined along them.

In the professional secondary schools the factor values are in high 31 per cent and average in 69 per cent. In the vocational secondary schools we find low factor values in 13 per cent, while in the grammar schools high ones in 38 per cent and average factor values in 62 per cent. In the vocational secondary schools of arts there appear high factor values in 31 per cent, average in 56 per cent and low factor values in 13 per cent.

Conclusion that can be drawn from the results of the research

1. The examination focuses on the targets in connection with studying (on the short, medium and long run) and the importance of achieving the goals. The most important is the support (Tókos, 2005). of the real targets of the students and their self-knowledge. The goals of the teachers and that of the students coincide with each other only very rarely and this strengthens the self-image of the students. We can assist the planning of the targets, activities and criteria, if we inform the students about the results of our examinations, so that they can be aware of their own strengths and weaknesses and they can connect them with their self-assessment and self-reflections.

2. According to the results of the research, the personal abilities of the students develop stronger in the examined age of life and groups, then these fields of ability can be transferred to the social abilities too. For this purpose, the improvement of the social monitoring and mobilizing abilities has to be emphasized much more. The solutions that are suitable for the common activities and projects can support this.

3. The cooperative methods in pedagogy are much more appreciated (Kelemenné, 2012), this examination also confirms its importance. However, one can learn from the data that cooperation ought to appear at school much more intensively, what is more, so that the students does not solve only one exercise with this method in common but they should formulate their experiences, feelings and reflections in connection the common work too. The assessment of the common work is more emphasized and it becomes more real and the less active students can avoid the duties with difficulties.

4. Collaboration assists the reflective, interactive and critical thinking (Bárdossy, Dudás, Pethőné & Priskinné, 2002) outstandingly, at the same time it influences the development of impulsivity control very much and in a paradox way self-respect too because when reflecting and wording a criticism one should lay big emphasis on what it may refer to and how we can express our thoughts and expect a reaction. Therefore, it is important by teaching that the teachers have more possibilities for the directed arguments and debates, self-assessment and the cultural assessment of the others.

5. It is also important to consider that most the cognitive activities rely on the creative and critical thinking at some extent. The so-called complex procedure of thinking, just like problem solving and reasoning or the decision making include both and meta-cognition is their integral part too. Referring to the complex procedure of thinking, this provides the function of control and supervision that joins with the control fields of psychological immunity. The personal and social source monitoring ability improves critical thinking first, while, the personal and social source creating ability supports the creative thinking and activity and the personal and social source monitoring, mobilizing and creating abilities together develop the problem-solving thinking and activity. Besides, we know that the factors of psychological immunity are in interaction with each other, they hinder or strengthen the development of each other. That is why we think about the problem-solving studying that – under specific conditions – it is suitable to improve the emotion control and coherence feeling too. In our opinion, beyond solving the "life-like problems" by the students, it would be important to lay the emphasis on considering the problems as "our own duty" because, if somebody does not feel a problem like his own one he does not seek to solve it either. (According to the problem theory, there are general duty problems and there are special problems with individual content. The general problems can be solved purely on logical basis too, the student takes part in solving his personal problems with his entire personality, it means with his intellectual, emotional and psychomotor[4] activity.) So, one cannot only correlate the facts with the exact problem but the emotional features of the person in connection the specific problem too. If you solve a problem you to pay attention to the coordination of the target and content / feeling and thinking / activity and behaviour / and the result. It means that during solving a problem one to emphasize both the preliminaries of the problem and the consequences of the solution.

One can say that education becomes more precious in professional training in the pedagogical work and it determines its exact tasks. It also means that the development of the factors of psychological immunity belongs to the duty of all teachers – with especial regard to the lower factor results that were indicated in the results of our research. At the same time, the teachers do not prefer each factor of psychological immunity in the same way, for example they appreciate persistence and the social abilities very much but optimism and coherence feeling less.

The desired direction of the development of professional training is clearly indicated by the factors where we received lower results, even then, when the lower factor values can be deducted because of the characteristics of the age, just like coherence feeling. It also means that not every single factor can be developed successfully in the examined age of life, for those that can be developed only less successfully one should find the most sensitive phases of the age of life.

The targets that were set by the specific institutions and the burdens of the students in the school types of professional training are not evenly spread. The students cannot cope with the complex system of targets and

[4] The psychomotor activity means the connection between physical moves and the mental activities.

the bigger burdens explicitly. In the specialised secondary schools with high burden the struggling strategies of the students can range from the low level to the high one. In every school – but especially in the mentioned ones – one should cut on the psychic burdens without any reason and introduce training and education methods that are based on the more exact recognition of the features of the students.

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