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The Motivation toward Learning among Czech High School Students and Influence of Selected Variables on Motivation

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Abstract

Motivation toward learning is crucial factor for the students from the beginning of their education and motivation toward learning is changing during education of students and the motivation is influenced by many factors. The main aims of the research was to find out the motivation of high school students toward learning, the personality traits of high school students and also relationship between motivation and personality traits. The research was also focused on the examining of variables like gender, grade level and achievement on the motivation and personality of students. The sample size was created from the high school students (n = 201). In the research were used two research tools Academic Motivation Scale and NEO Five-Factor Inventory. The gender and achievement of students had got an influence on the motivation toward learning. The relationship was detected between some subscales of motivation and some personality traits. In conclusion are presented some implications for pedagogical practice and suggestion for further research.

Keywords: academic motivation scale; high school students; motivation toward learning; NEO Five-Factor Inventory.

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Introduction

The learning process is one of the most important activities in the life of a child. The learning process is connected with the achievement and achievement influences the life satisfaction of children and also all humans. The next very important thing is the motivation toward any activity. If people are not motivated, they do not achieve good results in any activity. In the mean of pupils, they are not successful in the learning process. Motivation toward learning is a crucial factor for the students from the beginning of their education and motivation toward learning is changing during education of students and the motivation is influenced by many factors. The problems with motivation have got teachers nearly every class, so for the teachers it is very important to know how to motivate students. The small obstacle is, every pupil is individual and it is different from other schoolmates in teaching process, personality, motivation and others. It is important to orientate in these individual differences and create for students the creative conditions, which can lead to better work and communication of students.

The problematic of motivation is relatively common among researchers; for example Gottfried (1985) and Vallerand, Fortier & Guay (1995) quoted the intrinsic motivation had got positive effect on the achievement of students in the case of mathematics. The similar findings were possible to find in the work of Christophel (1990), who showed the positive relationship between intrinsic motivation and teaching of students. Similarly, Yahaya et al. (2010) focused on the pupils’ motivation toward learning of mathematics. Authors found out higher level of extrinsic motivation in comparison with intrinsic. Hardre et al. (2006) examined relationship between motivation and teaching and also the latent variables, which can influence the motivation. As the most significant variable was detected the personality of teacher and also the school climate was the significant factor. Hardre et al. (2006) also found out, which factors could have the influence on the motivation at high school students from the village environment in comparison with high school students from the town environment. The factor of residence was insignificant. But authors showed, that there was detected other significant factor – school climate. The similar results were possible to find in studies of DeBacker et al. (2004) and Greene et al. (2005). Ahmad, Abdullah & Ghani (2014) examined level of pupils’ motivation from Malaysia by the learning of foreign language, in this case English language, from the teachers view. The teachers confirmed higher level of extrinsic motivation in comparison with intrinsic. The motivation of pupils toward learning is depend on their relationship with parents, residence of pupils and other factors also can influence motivation toward learning. Potvin & Hasni (2014) focused on the analysis of research studies, and also the motivation toward learning of science subjects was taking in account. The authors showed, similarly in previous studies, the dominance of extrinsic motivation toward learning of science subject in comparison with intrinsic motivation at elementary and high school pupils.
The gender was presented as significant variable; the boys had got higher intrinsic motivation in comparison with girls in the case, when the relationship toward learning was on higher level and also if the boys saw the importance of the subject for them. The girls learned because of demands of her parents or due to be the best in the class. The girls had got higher extrinsic motivation in comparison with boys (Eccles et al., 1989, Findley, & Cooper 1983; Liem & Martin, 2012; Litalien, Guay & Morin, 2015; Shekhar & Devi, 2012; Tavani, & Losh 2003). Gjesme (1979) mentioned about higher orientation on success at girls. Girls have got higher motivation to avoid of failure and it can be from inner conviction, the success at compulsory school attendance could lead into success in adulthood. The higher motivation at girls was justified by Githua & Mwangi (2003) by the effort of to equal to boys at a success in the subjects requiring abstract thinking.

The grade level was also examined and in any cases it has got a significant influence on the level of motivation toward learning. Liem & Martin (2012) quoted the decreasing of motivation toward learning in the switch of pupils from elementary to high school. It showed that the highest percentage of motivated pupils was at first grade at high school. Gottfried, Fleming & Gotfried (2001) by the realization of longitudinal research found out on the stability of motivation toward learning at pupils. The research was realized on the one group of pupils from the beginning of elementary school till the end of high school.

Zsolnai (2002) focused on the determination of relationship between motivation toward learning and achievement at school. The higher level of motivation was fund out pupils with better achievement. Author stated the dominance of intrinsic motivation in comparison with extrinsic motivation. The similar results were found out at other studies (e.g. Cleary & Chen, 2009; Covington, 2000). Johnson et al. (2014) analyzed more than 600 research studies from 26 different countries. The studies were focused on relationship between achievement and motivation, all analyzed studies said about positive relationship between these two variables. Also other studies quoted the significant and positive variable between these two variables (Amrai et al., 2011; Broussard & Garrisson 2004; Li & Pan, 2009; Martin & Dowson, 2009).

The other type of research studies is focused on the relationship of motivation and personality (Big Five). This kind of studies is relatively rare, for example Clark & Schloth (2010) found out a relationship between these two variables (motivation and Big Five personality traits). They wrote strong relationship between intrinsic motivation with conscientiousness, extraversion, openness to experience and agreeableness. The extrinsic motivation had got significant relationship with agreeableness, extraversion, neuroticism and conscientiousness. Amotivation was connected with conscientiousness and agreeableness in negative way. Komarraju, Karau, & Schmeck (2009) found out positive correlation between intrinsic motivation with extraversion and openness to experience. The conscientiousness and agreeableness correlated in negative way with amotivation. The similar findings was possible to find out in other studies from authors Deci,
& Ryan (1985); Kaufman, Agars, & Lopez-Wagner (2008); Phillips, Abraham, & Bond (2003); Sheldon, & Elliot (1998); Sung, & Choi (2014); Kim & Cho, (2016); Lay, & Chandrasegaran, (2016). Major, Turner & Fletcher (2006) investigated links between the Big Five, proactive personality, and motivation to learn. Authors found out that proactive personality, openness, extraversion, and conscientiousness predicted motivation to learn. In addition, motivation to learn was positively related to objectively assessed development activity. Proactive personality, extraversion, and openness had significant indirect links to development activity. Hart et al. (2007) examined the relationship between the Big Five and a two-factor model of achievement motivation. Authors found out Conscientiousness, openness, and extraversion was positively associated with intrinsic achievement motivation, whereas extraversion, conscientiousness, and neuroticism were positively related to extrinsic achievement motivation. Agreeableness was also found to be negatively associated with extrinsic achievement motivation. Conscientiousness was anomalous in that it was positively related to both intrinsic and extrinsic motivation.

The main aims of the research was to find out the motivation of high school students toward learning, the personality traits of high school students and also relationship between motivation and personality traits. The research was also focused on the examining of variables like gender, grade level and achievement on the motivation and personality of students.

Methods

Research sample

The sample size was created from the high school students (n = 201). The age of respondents was between 15 – 19 years. The reason of high school pupils choosing was their imagination about their future life. The choosing of respondents was conventional; the sample size is adequate for the research. The observed power was calculated for every value of ANOVA. Its value was between 0.75 and 0.86, it signalized the sufficient sample for the study and also the availability of the using ANOVA (for the detailed explanation see MacCallum, Browne, & Sugawara, 1996 and others). The table 1 included basic demographic characteristic of the respondents of research. Students were divided into three groups regarding to achievement. In the Czech Republic is numerical evaluation of high school students, the best mark is 1 and the worst mark is 5. The students calculated mean of their marks at the end of previous school year from the all subject.
The research tool was divided into three parts. The first part included demographic variables presented in previous subchapter. The second part of research tool was NEO-Five Factor Inventory (Costa, & McCrae 1989; McCrae, & Costa 2004) and third part was academic motivation scale (Vallerand et al., 1992). Before administration of the research tool the pilot study was realized. The research tools were filled by some teachers from high school, whose knew cognitive level of their students. The stylistic modification was done, but the content was not changed.

**Motivation scale.** The Academic Motivation Scale (AMS) with 28 items was used in our study oriented on high school students. The questionnaire was translated into Czech language with the assistance of linguist. First, the scale was translated from English to Czech. This was done with the parallel back-translation procedure. Back translation included translating the scale from the original to the target language with the assistance of linguist. This translation is then translated back to the original language without the use of the original scale. In the case that the original version was appropriately retranslated, it was possible to use the scale. This scheme is recommended by many authors (e.g. Vallerand, 1989). The scale is divided into seven motivational subscales assessing three types of intrinsic motivation (intrinsic motivation to know, to accomplish things and to experience stimulation), three types of extrinsic motivation (external, introjected and identified regulation) and amotivation.
NEO – Five Factor Inventory. The 60-item NEO Five-Factor Inventory (NEO-FFI) was developed to provide a concise measure of the five basic personality factors (Costa, & McCrae 1989). For each scale, 12 items were selected from the pool of 180 NEO Personality Inventory (NEO-PI) items, chiefly on the basis of their correlations with validimax factor scores (McCrae, & Costa 1989). The instrument uses a five-point Likert response format. The NEO-FFI has been translated into several different languages and shown validity and utility in a number of different contexts; it is one of the most widely used measures of the Five-Factor Model (Hrebickova et al., 2002; Pytlik Zillig, Hemenover & Dienstbier, 2002). The NEO-FFI included 60 items divided into 5 dimensions: Neuroticism; Extraversion; Openness to experience; Agreeableness; Conscientiousness. Each dimension contained from 12 items.

Data analysis

After data recoding according manual the reliability of both instruments was determined by the using of Cronbach’s alpha coefficient. The value for AMS was $\alpha = 0.79$ and value for NEO-FFI was $\alpha = 0.84$. The values for individual subscales and dimensions were 0.55 – 0.82. The similar results were possible to see in the works of (Costa, & McCrae 1992; Fairchild et al., 2005; Saucier, 1998).

For the determination of differences between groups of demographic variables the analysis of variance (ANOVA) was used, for the detailed determination of the differences the Tukey post-hoc test was used. The Pearson product moment was used for the determination of relationship between motivation and personality.

The result part included these abbreviations: AM – amotivation; IM-kn – intrinsic motivation to know; IM-ac – intrinsic motivation to accomplish things; IM-st – intrinsic motivation to experience stimulation; EM-ex – external regulation; EM-in – introjected regulation; EM-id – identified regulation.

Results

The Czech high school students had got dominant extrinsic motivation. More than half of examined students (55 %) achieved highest score at EM-ex, the second was EM-id (20 %), the third one was EM-in (12 %). Other types of motivation were represented below 10 % of students. In the next part the influence of variables like gender, grade level and achievement is evaluated. As it is possible to see on the figure 1, in the nearly all subscales achieved higher score girls in comparison with boys, but the highest differences were observed in the subscales of extrinsic motivation. The boys had got higher score in comparison with girls in subscale amotivation and the difference was significant ($F = 5.98; p < 0.05$).
The effect of grade level was insignificant in all subscales of motivation. As it is possible to observe in figure 2, the score was inconsistent, but it is possible to see, that students of 4th grade achieved lowest score in all subscales of motivation and these students achieved highest score in the subscale called “amotivation”.

The influence of achievement of students was significant nearly in all subscales except of IM-ac and IM-st. It is possible to see, the results were consistent. The students with the best achievement in the schools achieved higher score in all subscales of motivation and students with the worst achievement achieved the lowest score (Figure 3). Only in the subscale EM-in is possible to see, that the lowest score was detected at student with mark 2. The Tukey post-hoc test revealed statistically significant differences among groups of variables. It was detected at IM-kn type of motivation between pupils with average mark 1 and pupils with average mark 3 (p < 0.05). The similar finding was detected at type of motivation EM-id (p < 0.01). Also in the type of motivation EM-in was detected statistically significant differences among pupils with average mark 1 and average mark 2 (p < 0.05) and among pupils with average mark 1 and average mark 3 (p < 0.05). The type of motivation EM-ex was also influenced by achievement of pupils. The
statistically significant difference was detected among pupils with average mark 1 and average mark 3 (p < 0.01) and also among pupils with average mark 2 and average mark 3 (p < 0.001). By the last type of motivation (AM) was found out statistically significant differences among same groups as previous case, but in both cases was p < 0.001.

**Figure 2.** The mean score in subscales of motivation with respect to grade level

NS – non-significant difference

**Figure 3.** The mean score in subscales of motivation with respect to achievement

NS – non-significant difference

* - p < 0.05, ** - p < 0.01, *** - p < 0.001
The last statistical evaluation was the determination of the relationship between motivation and personality. The values of correlation are presented (Table 2) it is possible to see that amotivation negatively significantly correlated with agreeableness and conscientiousness and positively with neuroticism. The agreeableness positively significantly correlated with IM-kn, EM-id and EM-ex. The last significant correlation was detected between conscientiousness and EM-id. The other relationships between variables were not significant and they were low.

Table 2. The correlation between motivation and personality

<table>
<thead>
<tr>
<th>IM- kn</th>
<th>IM- ac</th>
<th>IM- st</th>
<th>EM- id</th>
<th>EM- in</th>
<th>EM- ex</th>
<th>AM</th>
</tr>
</thead>
<tbody>
<tr>
<td>-0.11</td>
<td>-0.07</td>
<td>0.01</td>
<td>-0.11</td>
<td>0.10</td>
<td>0.05</td>
<td>0.14*</td>
</tr>
<tr>
<td>-0.01</td>
<td>0.01</td>
<td>-0.09</td>
<td>-0.03</td>
<td>-0.04</td>
<td>0.01</td>
<td>0.03</td>
</tr>
<tr>
<td>-0.01</td>
<td>-0.01</td>
<td>0.02</td>
<td>-0.03</td>
<td>0.08</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>0.20*</td>
<td>0.09</td>
<td>0.01</td>
<td>0.32*</td>
<td>0.03</td>
<td>0.25*</td>
<td>0.15*</td>
</tr>
<tr>
<td>0.07</td>
<td>0.05</td>
<td>-0.03</td>
<td>0.21*</td>
<td>0.12</td>
<td>-0.15*</td>
<td>-0.17*</td>
</tr>
</tbody>
</table>

* p < 0.05

Discussion

Our research showed that at Czech high school students the extrinsic motivation dominated. As research tools were used two instruments, one of the was NEO – Five Factor Inventory and the second was Academic Motivation Scale (AMS) prepared for high school students, which have got 7 subscales, three related to extrinsic motivation, three to intrinsic motivation and one regarding to amotivation.

The extrinsic motivation was dominating at high school students. The highest score students achieved at EM-ex, this is type of motivation, where the behavior is regulated through external sources, these sources are represented for example by reward or punishment. Lepper, Corpus & Iyengar (2005) published opposite findings, that students achieved higher score at intrinsic motivation in comparison with extrinsic motivation. The extrinsic motivation was on high level in comparison with intrinsic motivation in the case, where the human qualities were also examined. For example Mills & Blankstein (2000) found out the extrinsic motivation was dominating at students had got marked as self-oriented perfectionists. These students were oriented, how others perceived them. Their motivation was not
orițente în propria lor succese, dar mai ales pe vederea altor persoane. Așadar, în cazul Republicii České, există două posibilități. Primul este că elevii sunt orientați în propria succese, iar al doilea este că sistemul educativ din Republica Česká este mai orientat pe achiziția elevilor pentru nevoile lor și ale altor instituții (e.g. universități). Elevii se învăță nu pentru cunoașterea mai bună și dezvoltarea lumii, ci pentru gradele mai bune și pentru alții. Probabil, a doua opțiune este oferind adevărul.


A înfluența a înaltului grad a fost insignificativă; scorul cel mai mare a fost atins în subdivizia de motivație îndeplinită EM-ex. Explicația potențială este, că majoritatea elevilor nu au avut motivația intrinsecă. Martin (2012) a examinat influența gradului și a spus că cel mai scăzut nivel de motivație în ceea ce privește învățarea este la începutul școlii liceului, în următorii grade, nivelul de motivație extrinsecă și intrinsecă învațărea este în creștere. Autorul a mai spus că cel mai înalt nivel de amotivație era în clasa a șasea a liceului. În cercetarea noastră, elevii din ultimul (al patrulea) grad au avut cel mai înalt nivel de amotivație. Rezultatele noastre au demonstrat nivel similar de amotivație, motivație extrinsecă și motivație intrinsecă în toate gradele. Motivația extrinsecă a fost dominiată în toate gradele, probabil datorită sistemului școlar din Republica Česká, care este concentrat pe recompensa, nu pe dezvoltarea creativității și cunoașterii. Vei putea să credeți că declinul motivației și creșterea amotivației ar putea fi provocat de alte factori precum pubertatea elevilor, creșterea cognitivă și alții. Aceste factori sunt descrise și în studiul MacIntyre et al. (2002).

Achievementul elevilor a avut o influență semnificativă asupra motivației elevilor. Elevii cu învățământ cel mai bun au obținut scoruri cele mai înalte în toate tipurile de motivație și scorul cel mai scăzut în amotivație. Elevii cu rezultate uriaș (orice marcă 3). Acest rezultat este relativ logic, deoarece elevii

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could be motivated from our internal reasons or also from external reason like parents. The similar results are possible to read in many sources (Uguroglu & Walberg 1979; Zsolnai 2002).

The last examined relationship was between motivation and personality types. The majority of relationships were insignificant. Only several relationships were significant; the amotivation negatively significantly correlated with agreeableness and conscientiousness; positively with neuroticism. The agreeableness positively significantly correlated with IM-kn, EM-id and EM-ex. The last significant correlation was detected between conscientiousness and EM-id. The studies, which examined these variables, brought different results in relationships between motivation and personality. In many cases amotivation correlated in negative way with all personality types except of neuroticism. This relationship was awaited, because amotivated students are not willing to learn new things, their level of creativity are on the minimal level. These students have got fear from the all school subjects; they are frustrated and other characteristics. The similar results were possible to find in studies from authors like Clark & Schroth (2010) or Hart et al. (2007) and others.

Conclusion

The research showed interesting results, which can lead to many implications to pedagogical practice. For example as it is possible to see the extrinsic motivation is dominating in comparison with intrinsic motivation. The teachers could teach not only for reward and not punish students for bad answers on their questions. But teachers could try to increase an interest about subjects, do not punish students, but try to explain or repeat the explanation of things, which were wrong answered by students. It can increase intrinsic motivation among boys and girls. The amotivation had got relatively strong position among students of the last grade level, so the incorporation of new methods of teaching in the last grade should increase of motivation about learning and students could understand that knowledge from all school subjects are important for students.

Our study offers possibilities to further research. This is only small part of the examination of students’ motivation to learn. We used only basic demographic variables; it is possible also to focus on the influence of parents, peers, SES and other factors on the motivation. The other research design could also bring new results, for example longitudinal research or interview with couple of students. On the basis of their answers it is possible to determine, why extrinsic motivation is increasing and also amotivation is increasing in last grade.
References


