

The Effects of Gender and Socioeconomic Status on Academic Motivation: The Case of Lithuania

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Abstract—The problematic of gender and socioeconomic status biased differences in academic motivation patterns is discussed. Gender identity is understood according to symbolic interactionism perspective: as a result of reflected appraisals, social comparisons, self-attributions, and identifications, shaped by social environment and family context. The effects of socioeconomic status on academic motivation are conceptualized according to Bourdieu's *habitus* concept, reflecting the role of unconscious and internalized cultural signals, proper to low and high socioeconomic status family contexts. Since families differ by various socioeconomic features, the hypothesis about possible impact of parents' socioeconomic status on their children's academic motivation interfering with gender socialization effects is held. The survey, aiming to seize gender differences in academic motivation and self-recorded improvement-oriented efforts as a result of socialization processes operating in the families of low and high socioeconomic status, was designed. The results of Lithuanian higher education students' survey are presented and discussed.

Keywords—Academic Motivation, Gender, Socialization, Socioeconomic Status.

I. INTRODUCTION

VARIOUS gender related issues in almost every domain of human activity are discussed in scientific literature. Nevertheless, further questioning is still relevant and of a great actuality, especially combining gender effects with socioeconomic factors. From the early childhood gender and socioeconomic background are probably the most salient features that distinguish human beings and shape their identities. According to Best, gender roles create social expectations, shape behaviours, and amplify or minimize gender differences that result from biology [1]. Socioeconomic background, described by Bourdieu's *habitus* concept, is operating in less obvious ways, but sometimes it is even more socially deterministic than gender [2]. In general socioeconomic features and gender differences are closely related to social inequality. Nevertheless, when gender inequality is not conceptualized, the main discussion about gender differences is more or less explicitly related to the concept of gender identity.

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As noticed by Brinkman et al., traditional approaches to conceptualizing the development of gender identity can be categorized into three general types of theories: 1) *essentialist theories*, arguing that gender is predetermined and directly tied to the biological categories of male and female as determined by genetics and hormones; suggesting that gender is dichotomous such that all males are inherently masculine and all females are inherently feminine; describing gender identity as being not necessarily something that develops, but simply unfolds over time; 2) *developmental theories*, arguing that gender identity develops over time in predictable and 'normative' stages such as those suggested by Piaget or Erikson; asserting that as children get older, they internalize the gender expectations they have learned and many of them endorse rigid gender rules; and 3) *socialization theories* [3]. Because both the essentialist and developmental approaches are overgeneralizing gender identity development, both are not assuming certain individual differences (gender atypical cases considering as pathology), and both are interpreting children as being mostly passive participants in their identity development process, in this paper interpretation of gender differences is based on the socialization theories.

According to scientific literature, gender biased differences, interpreted as an outcome of gender socialization, most often are analysed within psychological and sociological perspectives focusing on various social and psychological factors [4]. In this paper the emphasis is placed on gender identity development through socialization, in low and high socioeconomic status families, providing with specific socializing family context and value socialization oriented to academic motivation fostering. As literature review indicates, in the structures of gender identity academic motivation is formed as a result of family expectations and value valences, mainly developed through socialization in the family context [5]-[7]. While in the case of science studies and science carrier choices gender differences are quiet often discussed [5], [7]-[9] there is no evidence if there exist similar differences in overall academic studies' motivational attitudes of low and high socioeconomic background students and whether those differences affect active improvement-oriented efforts.

Scientific problem of this article is formulated by the question: what gender and socioeconomic status effects in studies' motivational attitudes, resulting from socialization, may be observed in the context of Lithuanian higher education?

The aim of the paper is to seize the problematic of gender and socioeconomic status biased differences in higher education studies' motivational attitudes and self-recorded improvement-oriented efforts as a result of socialization.

Research methods: scientific literature analysis on gender identity development through socialization in various socializing family contexts, emphasizing socioeconomic background effects; assessment of the methodological quality of survey instrument (analysing reliability and construct validity); comparative analysis of statistical data, applying non-parametric statistical procedures (Mann-Whitney Test).

II. GENDER EFFECTS ON ACADEMIC MOTIVATION

Within sociology, there are two main orientations toward socialization: 1) *structural-functionalist perspective*, considering that individuals become integrated members of society by learning and internalizing the relevant roles and statuses; 2) *symbolic interactionist perspective* views socialization mainly as self-concept formation, where the core of socialization is considered to be the development of self and identity in the context of intimate and reciprocal relations [10]. Structural-functionalist socialization theory is often applied in empirical researches, analysing gender differences [11]-[13], nevertheless, it is also criticized. Within this perspective gender is interpreted as a learned phenomenon and children are assumed to acquire the correct gender roles through interaction with parents. Since many people, irrespective of sexual orientation, don't embody or adopt gender stereotypes, this interpretation of gender identity development is rather problematic [14]. On the other hand, Deutsch argues that gender is an on-going emergent aspect of social interaction, rather than rigid gendered norms are simply internalized once and forever during the childhood [15]. According to Brinkman et al., children are active agents who recognize the pressures to conform and adjust their behaviour accordingly, they are able to play a more active role in their development and make conscious decisions regarding conformity [3]. Symbolic interactionist perspective views children as social actors, not simply shaped by their environment but interacting with and affecting their social environment, as well. Therefore, this paper builds on the symbolic interactionist perspective interpretation of gender socialization issues, where, according to Gecas, socialization as gender identity formation occurs through various processes associated with self-concept development, such as reflected appraisals, social comparisons, self-attributions, and identifications [10].

According to scientific literature review, various family context factors are seen as important indicators of gender socialization outcomes. Eccles summarized a theoretical model of the social, cultural, and psychological influences on academic achievement-related choices and demonstrated how this model can explain gendered educational and occupational choices. The main idea is that both gender differences and individual differences within each gender in educational and occupational choices are linked to differences in individuals' expectations for success and subjective task value (for

example, females are less likely to enter maths because they have less confidence in their maths abilities and because they place less subjective value on this field than they place on other possible occupational options). Eccles highlights the importance of gendered socialization practices at home, in the schools, and among peers shaping these individual differences in self-perceptions and subjective task values [5]. Similar observations are formulated by Portfeli et al., stating that parents serve as role models in the construction of their children's conceptions of (academic) working/work [16]. Boiche et al. analysed gender differences in choosing and attending sports. Authors agree with Eccles theoretical model, noticing that gender differences in sport can also be explained by social processes, without insisting on natural biological factors. Authors bring empirical support to this theoretical model: adolescents tend to endorse gender beliefs related to sport competence and value that are related to the beliefs they perceive in the cultural milieu and in particular that are related to their parents' beliefs. Parents transmit such beliefs both through explicit processes and unconsciously. Moreover, adolescents' endorsement of such beliefs may lead to higher or lower self-perceptions and behavioural engagement or disengagement from sport [6]. Similar findings are discussed by Raty and Kasanen. Authors conceptualize parents' perceptions of their children's abilities as naturally occurring social cognitions. Therefore, parents' assessments of their children's competences in both maths and mother tongue language subjects are clearly influenced by culturally shaped expectation that the two genders possess different abilities. Parents' endorsement of the gender stereotype seems to lower the competencies they attribute to their child, i.e., mathematical competence in the case of girls and verbal competence in the case of boys [17]. Swalander and Taube also observed visibly lower reading performance showed by boys [18]. According to Meece et al., boys tend to have positive achievement-related beliefs in maths, science, and sports while girls show more favourable motivation patterns in language, arts, and reading. The gender gap in motivation related to maths and science tends to narrow with age, whereas differences in motivation related to language and arts remains prominent throughout the school years. Authors explain these results by the impact of home and school environments through socialization processes providing with sex-typed views of children's interests and abilities, gender role conceptions, beliefs, and social identities [19]. The role of gendered socialization practices at home, in the schools, and among peers was empirically disclosed and its influence on academic achievement-related choices, as well as academic achievement-related beliefs, discovered.

A number of researchers observed various gender differences in personality styles and structures that may be seen as gender socialization outcomes. Sanchez-Lopez et al. described gender differences in personality structures: a) Motivating Styles; b) Thinking Styles; and c) Behaving Styles. Observed differences are explained by social learning of gender, operationalized as the level of conformity to gender norms, resulting in personality styles. Authors argue that

greater or lower compliance to a given set of gender norms leads to differences in personality, and that, regardless of sex, the degree of conformity to these norms establishes differences between people, even within the same sex [20]. Molina et al. noticed, that being male is negatively associated with the level of cooperation as a personality style. Authors obtained those gender differences after netting out the effects from other socio-demographic factors [21]. Chouinard and Roy examined high-school students' motivation changes in mathematics over time, focusing on such aspects as competence beliefs, utility value and achievement goals [7]. Marrs and Sigler analysed gender differences in studies related behaviour. According to the empirical findings, females in higher education are more motivated academically and display more self-discipline related to studying behaviours. This may be related to gender roles, as students who score higher on femininity tend to consider studying behaviours as more important than students who score higher on masculinity. Therefore, Marrs and Sigler consider that achievement motivation and academic choices in higher education may be related to the perceived gender roles: achievement without much effort may be valued by males more than achievement that requires hard work [22]. The problem of women being severely underrepresented in scientific careers was analysed by Buday et al. (2012). According to the authors, there is no evidence that underrepresentation is due to gender differences in intrinsic aptitude, or achievement, or biological differences between men and women. Findings suggest that the causes of the underrepresentation of women in scientific careers are rather of social and psychological nature. Therefore, increasing social and environmental support could result in both 1) increased self-confidence regarding a career in science and 2) improved interest in sciences and motivation for a science career [8]. Narrowing the scope of scientific themes discussing gender socialization issues, the literature review was oriented to the specific topics, analysing gender differences in the field of academic motivation and some gender effects on academic motivation described.

Summing up scientific literature analysis gender identity is interpreted as a result of reflected appraisals, social comparisons, self-attributions, and identifications, strongly affected by social environment and family context first of all. According to the highlighted importance of various family context factors in gender socialization processes, the hypothesis about family context influence on gender biased academic motivation is held.

III. THE EFFECTS OF SOCIOECONOMIC STATUS ON ACADEMIC MOTIVATION

According to O'Rand, there are three major approaches to the study of social inequality: 1) *distributional approach* interpreting social inequality as a graduated dimension of socially valued attributes; distributional approach is generally applied when examining individual and structural inequality; 2) *approach of vertical classification and bounded categories* reflecting relations of dominance and subordination between opposed social categories; 3) *relational approach* analysing

rather social relations than the attributes of individuals; applied in researches on hierarchical relations and social networks [23]. Being interested in gender intersection with the categories of social inequality, it was decided to choose distributional approach to the social inequality. Therefore, social inequality was operationalized by such socially valued individual attributes as education, income, and professional status, according to Blau and Duncan socioeconomic status interpretation [24].

Conceptualizing socioeconomic status effects on academic motivation, Bourdieu's *habitus* concept, reflecting the role of unconscious and internalized cultural signals proper to low and high socioeconomic status family context [2], was applied. *Habitus* is the key component of social inequality perpetuation. It reflects the internalization by the individual of the status and social position of his family into tastes and worldview, reinforcing that very same social position and unconsciously reproducing the same social status [25]. When the target population is higher education students, aiming to discover academic motivation patterns in relation to gender socialization, it is more than relevant to think of possible academic motivation differences, resulting from socialization patterns in low and high socioeconomic status families.

According to Mokrova et al., children acquire ways of thinking and behaving specific to their culture through interactions with their parents and through appropriating their culture's values, beliefs, and practices. Parents tend to structure interactions with their children in a way that supports their own values and the development of behaviours that they view as important for success in their cultural group. As members of higher and lower social status families vary in terms of educational attainment and occupational responsibilities, people within different social status form different views of social reality. Therefore, children from higher social status families demonstrate better acquisition of academic skills (language proficiency, reading, maths and general cognitive abilities) than their lower status counterparts [26]. Similarly Spera finds that parents play an important role as socializing agents transmitting their educational values, goals, and aspirations to their children. Therefore, educational goals and values parents hold for their children are related to the practices they enact to socialize their children [9]. Therefore, gendered socialization practices at home must be affected by the effects of socioeconomic status proper to the family.

In previous researches there were analysed various socioeconomic status aspects most often in relation with preschoolers' or secondary school pupils' academic motivation and outcomes. Hadjar et al. conducted a study concentrating on authoritarian and achievement-focused parenting styles, highlighting direct paths between parents' values/attitudes and adolescents' values/attitudes reflecting the influence of social-structural variables and parenting modes. Authors were convinced that parents' socioeconomic factors affected parenting styles, resulting in the socialization of values [12]. According to Mokrova et al., a number of individual and family factors may predict children's academic

accomplishments. Nevertheless academic motivation plays a critical role during the school years and is often associated with academic outcomes. Authors conducted a study with preschoolers and discovered that family social status was related to maternal values and to the quality of parenting. Mothers from higher status families valued self-direction in their children more and were more cognitively stimulating and emotionally supportive during interactions with their children than did mothers of lower status families. Parents from higher status families have more time and psychological and material resources for their children development. Because of the nature of their daily working environments, parents of higher social status appreciate self-direction over conformity in their children, whereas parents of lower social status appreciate conformity over self-direction. Moreover, children of mothers of higher social status and who value self-direction are more persistent in challenging activities [26]. A large-scale study: "Programme for International Student Assessment" (PISA) has shown considerable differences in reading ability between pupils from high socioeconomic status families and pupils from low socioeconomic status families [27]. Swalander and Taube investigated the effect of self-regulated learning, reading attitude and family based prerequisites on reading ability (home with many books, where parents spend a lot of time on reading and writing). The results have shown the great importance of providing children with a positive academic self-concept, which is strongly influenced by the child's family based prerequisites for literacy and by earlier experiences of reading success or failure. Well educated parents appeared to be more able to support the development of a positive academic self-concept in their children [18]. Boone and Van Houtte found that pupils' educational choices in Flanders depend on their socioeconomic status. Children's choices seem to be delimited by parents' opinions of which educational alternatives were acceptable, and which ones not. Pupils' perception of their choice process is powerfully framed by deep-rooted conceptions about the educational alternatives available to them [28]. Similar results were obtained by Greenhalgh et al.: pupils from lower socioeconomic groups held stereotyped and superficial perceptions of doctors, saw medical school as culturally alien and geared towards "posh" students, and greatly underestimated their own chances of gaining a place and staying in the course. They saw medicine as having extrinsic rewards (money) but requiring too important personal sacrifices, whereas pupils from affluent backgrounds saw medicine as one of challenging career options with intrinsic rewards (fulfilment, achievement) [29]. Ming examined relationship between pupils' families and science achievements across 41 countries. It appeared that science achievement was related to family socioeconomic status in all countries analysed, and the relationship was stronger in more economically and culturally developed countries [30]. As research with pre-schoolers and school-pupils pointed, family social status is related to maternal values and the quality of parenting, both affecting the possibilities of providing children with a positive academic self-concept and resulting in delimitation of children's

educational choices, as well as academic motivations.

Unfortunately, there is considerably less research in the field of higher education analysing academic motivation differences according to socioeconomic status variable. Smith and Naylor agree that there is much research showing that parental occupation and related socioeconomic characteristics are important influences on levels of attainment in primary and secondary education. However, parental socioeconomic status has strong effects on degree performance in higher education as well. Authors focused on the impact on degree performance of students' personal characteristics such as social class background and gender. The full population of undergraduates studying at UK universities in 1992 was analysed. The results showed that degree performance is influenced by socioeconomic status background, and is significantly lower for male students. The superior performance of females holds across most sub-samples analysed [31]. Reeves analysed why rural high school students in the United States and elsewhere had lower academic achievement than their non-rural counterparts. Using the database of the Educational Longitudinal Study of 2002-2004, the author investigated reasons for the rural achievement gap in mathematics during the last 2 years of high school. His approach focused on the geographic disparities in the opportunity to learn advanced math. The findings showed that geographic variations in the opportunity to learn math result from differences in family socioeconomic status and the influence of friends' academic commitments and aspirations. The observed effects are in part direct, but they also have indirect effects because family socioeconomic status and friends influence student motivation to take advanced math courses [32]. Comparing students in rural and non-rural areas possible explanation of gender differences in academic achievement and motivation were provided by Morris, who observed that research with urban students has documented an educational gender gap, where girls tend to be more likely to go to college, make higher grades, and aspire to higher status occupations than boys. Author accomplished participant observation and qualitative analysis of student interviews and confirmed a substantial gap favouring girls in this context. The findings suggest that boys' underachievement is actually rooted in hegemonic masculinity understanding and is related to particular constructions of gender and social class [33]. As previous research in higher education field demonstrated, parental socioeconomic status has strong effects on students' academic motivation, performance, academic commitments and aspirations.

Taking in consideration that families differ by various socioeconomic features, the hypothesis about possible impact of parents' socioeconomic status on their children's academic motivation interfering with gender socialization effects is held. Since Meece et al. documented the lack of research examining gender differences within socioeconomic groups [19] and literature review indicates the lack of research in higher education field, therefore the survey, aiming to seize gender differences in academic motivation and self-recorded improvement-oriented efforts as a result of socialization

processes operating in the families of low and high socioeconomic status, was designed.

IV. METHODS AND SAMPLE

A. Methods

Socioeconomic status (SES) of the respondent was determined by combining fathers' SES and mothers' SES subjectively evaluated by the respondent choosing from 9 possible levels each: 1) lower-lower SES level described as people without any stable income or homeless; 2) lower-middle SES level described as socially and financially vulnerable people, receiving state supplies; 3) lower-higher SES level described as people with minimal income, experiencing financial difficulties; 4) middle-lower SES level described as people earning lower than average earnings; 5) middle-middle SES level described as people earning average earnings; 6) middle-higher SES level described as people earning higher than average earnings (specialists, middle business owners); 7) higher-lower SES level described as well-known lawyers, architects, business owners; 8) higher-middle SES level described as rich and well-known people, such as politicians, sportsmen, other celebrities; 9) higher-higher SES level described as business magnates, millionaires, the richest people in the society. According to clustered aggregated SES score of both fathers' and mothers' SES levels, respondents obtained either lower SES or higher SES label, forming two groups.

Studies' motivational attitudes and self-recorded improvement-oriented efforts were assessed using scales from Qualitätsverbesserung in Schulen und Schulsystemen II

(QUISS II) survey methodology, elaborated by the scholars' team at Konztanz University, Germany [34]. In 2009 Lithuanian State Studies Foundation financed the scientists' group project "Academic Studies Quality and Social Context Survey", directed by Professor G. Merkys in which QUISS II was translated and culturally adapted [35], [36].

Questionnaire qualitative translation assessment was ensured by expert panel review. There were 3 versions of the questionnaire: English, German (original) and French. Each version was translated separately by an expert in social sciences methodology and two independent translators. The three translations were confronted aiming to elaborate the best possible translation. Once the panel of experts in social sciences research validated translation, the questionnaire was reviewed by another independent three-lingual expert (Lithuanian, German, and English) and returned to the expert panel review for finalisation of questionnaire translation procedure. After final expert panel translation quality review, the final Lithuanian questionnaire version was approved to be of a good quality and suitable for applying it as survey instrument [37]. In 2011 translated, culturally adapted and validated instrument [38] was used in another students' survey in Lithuania.

The results, presented in this paper are drawn from the data collected in two separate surveys by paper-pencil type questionnaire. In this paper the analysis of data collected by 52 items distributed in 10 Likert-type scales and subscales of different levels (from 3 to 7), with central categories is produced (see Table I).

TABLE I
 INSTRUMENT FOR STUDIES' MOTIVATIONAL ATTITUDES AND ACTIVE IMPROVEMENT-ORIENTED EFFORTS ASSESSMENT

Scales	Subscales	Item example
Studies' Motivational Attitudes 36 Items		
Factors for personal growth 8 items	Practical skills 5 items	How important/useful are these factors for your personal growth? <i>Participation in research project.</i>
	Successful studies 3 items	How important/useful are these factors for your personal growth? <i>The best possible results of examinations.</i>
Factors for professional perspectives 8 items	Practical skills 5 items	How important/useful are these factors for your professional perspectives? <i>Foreign language learning.</i>
	Successful studies 3 items	How important/useful are these factors for your professional perspectives? <i>After Bachelor Degree studies, enter Master Degree studies.</i>
Willingness to engage in improvement-oriented extracurricular activities 6 items		Would you like to make use of the opportunities to improve your qualification in extracurricular activities? <i>Attending open lectures.</i>
Personal advancement perception 14 items	Improvement in specific skills, related to the main studies field 3 items	How much of self-improvement could you record in these areas? <i>Practical skills, related to your studies field.</i>
	Improvement in general transferrable skills 11 items	How much of self-improvement could you record in these areas? <i>Analytical and scientific problems solving skills.</i>
Improvement-Oriented Efforts 16 Items		
Personal initiative and extracurricular activities 11 items	Engagement in improvement-oriented extracurricular activities 6 items	Are you attending any of below listed extracurricular opportunities to improve your qualification? <i>Foreign language courses.</i>
	Active improvement-oriented efforts by personal initiative 5 items	How often in your studies did it happen to you? <i>Reading some more studies related literature in addition to what was recommended by your teacher.</i>
Studying efforts and application of academic skills in curricular activities 5 items		Do these statements correspond to your situation? <i>You are able to learn quiet easily new material, facts and details.</i>

Studies' motivational attitudes were assessed by 36 items, regrouped in 4 scales, two of them measured the perceived

importance or usefulness of various factors for personal growth and professional perspectives, one scale measures

willingness to engage in different extracurricular activities and the last scale measures personal advancement perception as motivational force for further studying efforts. Self-recorded improvement-oriented efforts were assessed by 16 items regrouped in 2 scales, representing different aspects of active improvement seeking efforts. The scales of *Personal Initiative and Extracurricular Activities* described personal initiative demanding efforts that are not required by institution and teaching staff. The scale of *Studying Efforts and Applying Academic Skills in Curricular Activities* represented items related to the efforts that are more or less explicitly required by the institution and teaching staff.

Evaluating measurement instruments' psychometric characteristics (reliability and construct validity) statistical package SPSS 13.0 for Windows was used computing different statistics: 1) Spirmen-Brown formula and Cronbach's alpha, when appropriate, in order to assess internal consistency of the items in the scales; 2) corrected item-total correlation analysis in order to determine how well one item's

score is internally consistent with composite scores from all other items that remain; 3) factor analysis aiming to determine the dimensionality of the scales (see Table II).

Using Likert-type scales is imperative to calculate Cronbach's α (scale length from 6 items to 12) or Spirmen-Brown ρ . When scale is relatively short, it is important to relate psychometric reliability to test length. Since most of the scales are relatively short, therefore Spirmen-Brown ρ was computed forecasting scales' length of 12 items. The scale consisting of 11 items (*Improvement in General Transferrable Skills*) recorded excellent reliability score. Corrected item-total correlation analysis for each of the scale's items was computed. It is the correlation between a given item and the sum score of the other scale's items. The last column in Table II displays for each scale the range of its items corrected item-total correlations. This is a way to assess how well one item's score is internally consistent with composite scores from all other items that remain. This correlation is considered weak when the score is less than 0,30 [39].

TABLE II
 INTERNAL CONSISTENCY AND CONSTRUCT VALIDITY STATISTICS

Scales (N varies from 1211 to 1517)	KMO	Explained variance (%)	Factor lodging	Spirmen- Brown ρ	Cronbach's α	Corrected item- total correlation
Studies' Motivational attitudes 36 items						
Factors for personal growth I: Practical skills 5 items	0,73	44,4	0,75-0,62	0,95 ^a	-	0,37-0,53
Factors for personal growth II: Successful studies 3 items	0,62	59,9	0,83-0,67	0,97 ^a	-	0,37-0,55
Factors for professional perspectives I: Practical skills 5 items	0,74	41,0	0,73-0,59	0,94 ^a	-	0,34-0,47
Factors for professional perspectives II: Successful studies 3 items	0,64	60,6	0,71-0,82	0,97 ^a	-	0,41-0,54
Willingness to engage in improvement-oriented extracurricular activities 6 items	0,82	47,6	0,76-0,63	0,97 ^a	0,77	0,42-0,59
Personal advancement perception I: Improvement in specific skills, related to the main studies field 3 items	0,70	70,7	0,82-0,87	0,98 ^a	-	0,60-0,68
Personal advancement perception II: Improvement in general transferrable skills 11 items	0,96	55,8	0,68-0,79	0,86	0,92	0,60-0,73
Active improvement-oriented attitudes 16 items						
Personal initiative and extracurricular activities I: Engagement in improvement-oriented extracurricular activities 6 items	0,84	48,0	0,63-0,73	0,98 ^a	0,79	0,48-0,57
Personal initiative and extracurricular activities II: Active improvement-oriented efforts by personal initiative 5 items	0,76	53,4	0,65-0,80	0,97 ^a	-	0,49-0,64
Studying efforts and application of academic skills in curricular activities 5 items	0,73	49,8	0,66-0,80	0,97 ^a	-	0,47-0,62

^aSpirmen-Brown ρ computed forecasting scales' length of 12 items.

Exploratory factor analysis involving the principle component analysis extraction and varimax rotation is commonly used to assess the construct validity. Factor analysis is based on the correlation matrix of the variables involved, and correlations usually need a large sample size before they stabilize. Sample size is expected to be at least 300, better 500 and 1000 or more is excellent. As a rule, a bare minimum of 10 observations per variable is necessary to avoid computational difficulties. As the sample size is from 1211 to 1517, factor analysis can be applied for the scales' dimensionality analysis. According to Kaiser-Meyer-Olkin measure of sampling adequacy, none of the scales records unacceptable sampling adequacy. None of correlation matrixes is an identity matrix (Bartlett's tests of sphericity are significant with probabilities less than 0.05). According to the results, both validity and reliability analyses of the instrument produced reasonably good results, therefore scales can be concluded and declared to have acceptable psychometric

properties and further analysis of the data may be produced.

B. Sample

Survey was conducted in two separate sessions: in 2009 the questionnaire was filled by 991 respondents and in 2011 by 555 respondents from 4 major Lithuanian towns. The sample is constituted of 1142 respondents from universities (616 females, 380 males and 146 gender not specified) and 404 respondents from colleges¹ (201 female, 138 male and 65 gender not specified), second and third study year of Bachelor Degree studies in different programmes. Characteristics of the sample are displayed in Table III. Producing data analysis "not specified" gender cases were removed. The paper-pencil

¹In Lithuania there are two types of higher education institutions: universities with more theoretical studies orientation requiring higher academic results for entrance; and colleges with more practical studies orientation, requiring lower academic results for entrance (2/3 of higher education students in Lithuania are studying in universities and 1/3 in colleges).

questionnaire was filled by Lithuanian higher education students most often in their studies institutions. There were a few cases when questionnaire were allowed to be filled at home and returned on the next day. In average it took about 75 minutes to fill the questionnaire.

TABLE III
 CHARACTERISTICS OF THE SAMPLE

Field of Studies	Higher Education Institution	Gender	Lower SES	Higher SES	Total
Social Sciences Studies	University	Female	86	121	207
		Male	16	34	50
		Total	102	155	257
	College	Female	33	31	64
		Male	21	21	42
		Total	54	52	106
Humanities	University	Female	51	43	94
		Male	19	21	40
		Total	70	64	134
Technologies	University	Female	19	29	48
		Male	48	65	113
		Total	67	94	161
	College	Female	1	2	3
		Male	18	20	38
		Total	19	22	41
Physical Sciences	University	Female	20	9	29
		Male	15	13	28
		Total	35	22	57
	College	Female	3	4	7
		Male	12	8	20
		Total	15	12	27
Biomedicine Studies	University	Female	34	37	71
		Male	19	32	51
		Total	53	69	122
	College	Female	42	43	85
		Male	1	12	13
		Total	43	55	98
Arts	University	Female	29	51	80
		Male	16	27	43
		Total	45	78	123

V. RESULTS

Following an exploratory factor analysis, factor scores may be computed and used in subsequent analyses. Factor scores are composite variables which provide information about an individual's placement on the factors. For the scales of *Studies' Motivational Attitudes* and *Active Improvement-Oriented Efforts* there was applied a least squares regression approach to predict factor scores. The procedure of the least squares regression is a multivariate procedure, which takes into account not only the correlation between the factors and between factors and observed variables (via item loadings), but also the correlation among observed variables, as well as the correlation among oblique factors. Under this process, the computed factor scores are standardized to a mean of zero; however, the standard deviation of the distribution of factor scores (by factor) will be 1 if principal components methods

are used and will be the squared multiple correlation between factors and variables (typically used as the communality estimate) if principal axis methods are used [40]. This procedure was applied for the scales maximizing validity of estimates and producing a standardized summarizing scale variable for each of the scales. Then normality of the distributions was verified and discovering that none of the variables was normally distributed, non-parametric tests were chosen to assess the gender and socioeconomic status differences in academic studies' motivational attitudes and self-recorded improvement-oriented efforts.

A. Gender Effects

Analysis of gender effects was accomplished using data displayed in Table IV. First of all significant differences in the two samples is indicated by the difference between the two groups' means significant at 0,20, then Mann-Whitney Test statistics analysed. Gender effects are also discussed in Turcinskaite-Balciuniene and Merkys publication [4].

The highest means' difference is recorded in the scales of academic studies' motivational attitudes, when students assess the importance of successful studies factors for the personal growth and professional perspectives. The smallest means' differences are obtained in the scales of self-recorded improvement-oriented efforts: *Personal Initiative scale* and *Extracurricular Activities* scale. Relatively small mean difference is recorded in one scale of academic studies' motivational attitudes assessing personal advancement in skills related to the main studies field. According to the results, females score higher in almost all scales, except the two scales of self-recorded improvement-oriented efforts with one of the smallest means' difference: in extracurricular activities scale males record relatively higher score than females even thou this difference is not statistically significant.

For gender differences assessment using the Mann-Whitney Test, it appears that the distribution functions in gender groups differ with respect to median in all cases of studies' motivational attitudes and in the case of one scale, measuring self-recorded improvement-oriented efforts: *Studying Efforts* and *Applying Academic Skills in Curricular Activities* scale. According to the data displayed in Table IV, in all cases except one, the significance level $\alpha=0,000$ in the case of *Personal advancement Perception*: the subscale, expressing improvement in specific skills, related to the main studies field $\alpha=0,016$. In the case of the other two scales, measuring self-recorded improvement-oriented efforts: *Personal Initiative* scale and *Extracurricular Activities* scale, the distribution functions in gender groups have identical distribution functions (see Table IV).

TABLE IV
MANN-WHITNEY TEST STATISTICS FOR GENDER

Scales	Gender	N	Mean Rank	Means Diff.	Mann-Whitney U	Asymp. Sig. (2-tailed)
Studies' Motivational Attitudes						
Factors for personal growth I: Practical skills (N=1224)	Female	746	663,06	0,33	140576,5	0,000
	Male	478	533,59			
Factors for personal growth II: Successful studies (N=1251)	Female	761	686,75	0,43	140214,0	0,000
	Male	490	531,65			
Factors for professional perspectives I: Practical skills (N=1177)	Female	719	640,08	0,33	127923,5	0,000
	Male	458	508,81			
Factors for professional perspectives II: Successful studies (N=1200)	Female	738	653,53	0,40	131342,5	0,000
	Male	462	515,79			
Willingness to engage in improvement-oriented extracurricular activities (N=1033)	Female	629	556,28	0,36	102348,5	0,000
	Male	404	455,84			
Personal advancement perception I: Improvement in specific skills, related to the main studies field (N=1294)	Female	799	667,25	0,14	181974,0	0,016
	Male	495	615,62			
Personal advancement perception II: Improvement in general transferrable skills (N=1295)	Female	799	689,87	0,30	164697,0	0,000
	Male	496	580,55			
Improvement-Oriented Efforts						
Personal initiative and extracurricular activities I: Engagement in improvement-oriented extracurricular activities (N=994)	Female	588	500,57	0,04	117559,0	0,681
	Male	406	493,05			
Personal initiative and extracurricular activities II: Active improvement-oriented efforts by personal initiative (N=1303)	Female	804	641,66	0,08	192284,0	0,208
	Male	499	668,66			
Studying efforts and application of academic skills in curricular activities (N=1310)	Female	803	701,73	0,31	166441,0	0,000
	Male	507	582,29			

The results correspond to the gender differences observed by [22]. Females recorded statistically significant higher scores in all the scales of academic studies' motivational attitudes. Similar results were obtained in the self-recorded improvement-oriented efforts' scale which concerned Studying Efforts and Applying Academic Skills in Curricular Activities. When focusing on the two scales of self-recorded *Improvement-Oriented Efforts*, expressing personal initiative and involvement in extracurricular activities there were no statistically significant gender difference observed.

B. The Effects of Socioeconomic Status

Analysis of socioeconomic status effects was accomplished using data displayed in Table V. According to the difference between the two group means, only one of them is higher than 0,20 – in the case of scale assessing *Engagement in Improvement-Oriented Extracurricular Activities*. In the same scale Mann-Whitney Test statistics indicate that students from higher SES families engage in improvement-oriented extracurricular activities more often with the significance level $\alpha=0,001$.

Results indicate that students from lower and higher SES families don't differ in academic motivation attitudes. The difference appears in the case of improvement-oriented efforts and is stable for the three scales of active improvement-oriented efforts. When both groups almost identically are willing to engage in improvement-oriented extracurricular activities (difference between the two group means is 0,00), students from higher SES families record significantly higher engagement in those activities score (difference between the two group means is 0,21).

The results correspond to the observations provided by Mokrova et al., stating that mothers from higher status

families value self-direction in their children more than do mothers from lower status families [26]. Active improvement-oriented efforts in extracurricular activities or improvement oriented efforts by personal initiative depend on self-direction, which is more characteristic to higher social status families. The difference in studying efforts and in abilities to apply academic skills in curricular activities may be related to the positive academic self-concept describe by Swalander and Taube (academic self-concept is more easily developed by parents with better education) [18]. The major contribution of the survey was to separate studies' motivational attitudes from active improvement-oriented efforts that led to the original findings.

C. Interference of Gender and Socioeconomic Status Effects

After having analyzed the results reflecting the effects of gender and socioeconomic status on academic motivation and self-recorded improvement oriented efforts, the hypothesis of interference of these effects was formulated.

In order to verify the hypothesis about the interference of gender and SES effects, first of all, two separate databases for females and males were generated and SES effects were analyzed in each of these samples (see Table VI). The same procedure was repeated creating two separate databases for low and high SES samples in order to analyze gender effects separately in each of these samples (see Table VII). The results were compared to those displayed in Tables IV and V, searching for changes in results.

TABLE V
MANN-WHITNEY TEST STATISTICS FOR SOCIOECONOMIC STATUS

Scales	SES	N	Mean Rank	Means Diff.	Mann-Whitney U	Asymp. Sig. (2-tailed)
Studies' Motivational Attitudes						
Factors for personal growth I: Practical skills (N=1189)	Low	539	605,9	0,08	169278,5	0,314
	High	650	585,9			
Factors for personal growth II: Successful studies (N=1218)	Low	550	596,3	0,07	176416	0,226
	High	558	620,4			
Factors for professional perspectives I: Practical skills (N=1145)	Low	525	577,3	0,05	160495,5	0,684
	High	620	569,4			
Factors for professional perspectives II: Successful studies (N=1170)	Low	540	588,1	0,03	168706,5	0,804
	High	630	583,3			
Willingness to engage in improvement-oriented extracurricular activities (N=1007)	Low	459	504,8	0,00	125391,5	0,935
	High	548	503,3			
Personal advancement perception I: Improvement in specific skills, related to the main studies field (N=1256)	Low	565	618,1	0,08	189331	0,358
	High	691	637			
Personal advancement perception II: Improvement in general transferrable skills (N=1246)	Low	557	604	0,11	181014,5	0,085
	High	689	639,3			
Improvement-Oriented Efforts						
Personal initiative and extracurricular activities I: Engagement in improvement-oriented extracurricular activities (N=959)	Low	432	449	0,21	100437	0,001
	High	527	505,4			
Personal initiative and extracurricular activities II: Active improvement-oriented efforts by personal initiative (N=1260)	Low	567	602,3	0,14	180500,5	0,013
	High	693	653,5			
Studying efforts and application of academic skills in curricular activities (N=1266)	Low	567	605,2	0,15	182126,5	0,013
	High	699	656,4			

TABLE VI
MANN-WHITNEY TEST STATISTICS FOR SOCIOECONOMIC STATUS IN FEMALES' AND MALES' SAMPLES

Scales	SES	Females					Males				
		N	Mean Rank	Means Diff.	Mann-Whitney U	Asymp. Sig. (2-tailed)	N	Mean Rank	Means Diff.	Mann-Whitney U	Asymp. Sig. (2-tailed)
Studies' Motivational Attitudes											
Factors for personal growth I: Practical skills (N=637/412)	Low	298	320,6	0,03	50044	0,839	177	218,6	0,19	18650	0,072
	High	339	317,6				235	197,4			
Factors for personal growth II: Successful studies (N=650/421)	Low	304	318,1	0,07	50335	0,332	182	202,9	0,10	20277,5	0,232
	High	346	332				239	217,2			
Factors for professional perspectives I: Practical skills (N=613/392)	Low	286	311	0,06	45620,5	0,597	175	204	0,12	17668,5	0,235
	High	327	303,5				217	190,4			
Factors for professional perspectives II: Successful studies (N=630/395)	Low	298	316,5	0,00	49165	0,889	176	196,7	0,02	19037,5	0,834
	High	332	314,6				219	199,1			
Willingness to engage in improvement-oriented extracurricular activities (N=536/344)	Low	252	263	0,06	34399,5	0,439	150	176,2	0,06	13993	0,542
	High	248	273,4				194	169,6			
Personal advancement perception I: Improvement in specific skills, related to the main studies field (N=678/424)	Low	312	324,3	0,16	52366,5	0,062	183	212,4	0,09	22032,5	0,988
	High	366	352,4				241	212,6			
Personal advancement perception II: Improvement in general transferrable skills (N=675/427)	Low	310	321,3	0,15	51384,5	0,040	183	202,9	0,18	20297,5	0,108
	High	365	352,2				244	222,3			
Improvement-Oriented Efforts											
Personal initiative and extracurricular activities I: Engagement in improvement-oriented extracurricular activities (N=501/341)	Low	233	232,7	0,21	26969,5	0,008	149	161,9	0,20	12953,5	0,128
	High	268	266,9				192	178			
Personal initiative and extracurricular activities II: Active improvement-oriented efforts by personal initiative (N=679/425)	Low	311	325	0,14	52567,5	0,067	183	208	0,09	21225,5	0,464
	High	368	352,7				242	216,8			
Studying efforts and applying academic skills in curricular activities (N=680/431)	Low	314	320,4	0,17	51159,5	0,014	180	205,6	0,17	20715	0,142
	High	366	357,7				251	223,5			

Aiming to answer the question whether there were some academic motivation differences by SES separately in females' and males' samples the results are displayed in Table VI. There was no significant difference obtained in motivational attitudes by SES neither in females' sample nor in males' sample, except in the case of personal advancement

perception, concerning improvement of general transferrable skills showing that females from higher SES families are more positive about their academic advancement than females from lower SES families. As to the three scales of active improvement-oriented efforts, it looks like the difference by SES in females' sample is much stronger than in males'

sample. This result is not without ambivalence, because in males' sample according to the difference between the two groups means the Mann-Whitney U statistics should record significant difference, too, but this is not the case in the scale of engagement in improvement-oriented extracurricular activities. Further research is needed in order to clarify the ambivalent result. Nevertheless, based on the results a conclusion can be drawn stating that lower SES females come to involve in active improvement-oriented efforts far less than higher SES females.

Analyzing academic motivation differences by gender separately in higher and lower SES samples: 1) females from higher SES families consider practical skills as more

important for personal growth and are much more willing to engage in improvement-oriented extracurricular activities than males from the same SES families (in lower SES sample the differences between the two groups means correspondingly are 0,26 and 0,28, while in higher SES sample – 0,43 and 0,40); 2) females from higher SES families perceive much more personal advancement in the scale assessing improvement in specific skills, related to the main studies field than males from the same SES families, whereas in lower SES sample there is no significant gender difference at all. Other scales of academic motivation attitudes and improvement-oriented efforts demonstrate similar results in both lower and higher SES samples.

TABLE VII
MANN-WHITNEY TEST STATISTICS FOR GENDER IN LOW AND HIGH SOCIOECONOMIC STATUS SAMPLES

Scales	Gender	Low SES					High SES				
		N	Mean Rank	Means Diff.	Mann-Whitney U	Asymp. Sig. (2-tailed)	N	Mean Rank	Means Diff.	Mann-Whitney U	Asymp. Sig. (2-tailed)
Studies' Motivational Attitudes											
Factors for personal growth I: Practical skills (N=457/574)	Female	298	253	0,26	21898,5	0,002	339	318,1	0,43	29469	0,000
	Male	177	212,7				235	243,4			
Factors for personal growth II: Successful studies (N=486/585)	Female	304	268,7	0,47	20007	0,000	346	322,9	0,45	30989,5	0,000
	Male	182	201,4				239	249,7			
Factors for professional perspectives I: Practical skills (N=461/544)	Female	286	248,8	0,32	19938,5	0,000	327	298,7	0,37	26923	0,000
	Male	175	201,9				217	233,1			
Factors for professional perspectives II: Successful studies (N=474/551)	Female	298	260,2	0,43	19458,5	0,000	332	301,4	0,45	27926,5	0,000
	Male	176	199,1				219	237,5			
Willingness to engage in improvement-oriented extracurricular activities (N=402/478)	Female	252	213	0,28	16006	0,010	284	260,9	0,40	21472,5	0,000
	Male	150	182,2				194	208,2			
Personal advancement perception I: Improvement in specific skills, related to the main studies field (N=678/607)	Female	312	251,1	0,08	27589	0,532	366	316,8	0,16	39419,5	0,027
	Male	366	242,8				241	284,6			
Personal advancement perception II: Improvement in general transferrable skills (N=675/427)	Female	310	263,4	0,32	23271,5	0,001	365	326,7	0,29	36615	0,000
	Male	365	219,2				244	272,6			
Improvement-Oriented Efforts											
Personal initiative and extracurricular activities I: Engagement in improvement-oriented extracurricular activities (N=382/460)	Female	233	193,2	0,01	16961,5	0,701	268	235	0,02	24514	0,383
	Male	149	188,8				192	224,2			
Personal initiative and extracurricular activities II: Active improvement oriented efforts by personal initiative (N=494/610)	Female	311	241	0,12	26448,5	0,190	368	302	0,07	43223	0,540
	Male	368	285,5				242	310,9			
Studying efforts and applying academic skills in curricular activities (N=680/617)	Female	314	263,2	0,33	23334	0,001	366	334,6	0,33	36565	0,000
	Male	180	220,1				251	271,7			

VI. CONCLUSION AND DISCUSSION

According to the literature review, gender identity formation is understood as a result of reflected appraisals, social comparisons, self-attributions, and identifications, strongly affected by social environment and family context.

Social inequality was conceptualized according to distributional approach and was operationalized by such socially valued individual attributes as education, income, and professional status. Conceptualizing socioeconomic status effects on academic motivation, Bourdieu's *habitus* concept reflecting the role of unconscious and internalized cultural signals proper to low and high socioeconomic status family context was applied.

Literature review indicated the lack of research in higher education field and the lack of research examining gender differences within socioeconomic groups, therefore the survey, aiming to seize gender differences in academic motivation and self-recorded improvement-oriented efforts as a result of socialization processes operating in the families of low and high socioeconomic status, was designed.

Studies' motivational attitudes and self-recorded improvement-oriented efforts were assessed using some scales from QUISS II survey methodology, translated, culturally adapted and validated. According to the results, both validity and reliability analyses of the instrument scales were concluded to have acceptable psychometric properties for data analysis.

The results displaying *gender effects on academic motivation* confirmed and complemented the gender differences observed by [22]:

1. Females appeared to be more motivated by all the scales assessing academic studies' motivational attitudes.
2. Studying efforts and abilities to apply academic skills in curricular activities were more characteristic for females than males, demonstrating females as making harder studying efforts and applying more effectively their academic skills in curricular activities.
3. There was no difference between females and males in the two scales of self-recorded improvement-oriented efforts, expressing personal initiative and involvement in extracurricular activities.

The results displaying *the effects of socioeconomic status on academic motivation* corresponded to the observations provided by [26], [18]:

1. Active improvement-oriented efforts in extracurricular activities and improvement oriented efforts by personal initiative were more characteristic to the students from higher socioeconomic status families. This result might depend on self-direction, which is more characteristic to higher social status families.
2. Studying efforts and abilities to apply academic skills in curricular activities were more characteristic to the students from higher socioeconomic status families. This result may be related to the positive academic self-concept, which is more characteristic to higher social status families.

The results displaying *the interference of gender and socioeconomic status effects on academic motivation* were analysed by 1) searching academic motivation differences by socioeconomic status separately in females' and males' samples; 2) searching academic motivation differences by gender separately in higher and lower socioeconomic status samples:

1. There was no significant difference obtained in motivational attitudes by socioeconomic status neither in females' sample nor in males' sample. Therefore, gender differences in motivational attitudes are considered to be a pure gender effect.
2. Active improvement-oriented efforts in extracurricular activities and improvement oriented efforts by personal initiative were more characteristic to the students from higher socioeconomic status families and this effect is much stronger in females' sample. Therefore, females from lower socioeconomic status families come to involve in active improvement-oriented efforts far less than females from higher socioeconomic status families.
3. Females from higher socioeconomic status families are much more willing to engage in improvement-oriented extracurricular activities than males from the same socioeconomic status families. The difference is still statistically significant, but less pronounced in lower socioeconomic status sample. Nevertheless, females don't engage more often than males in those activities.

4. Females from higher socioeconomic status families perceive much more improvement in specific skills, related to the main studies field than males from the same socioeconomic status families. In lower socioeconomic status sample there is no gender difference in this case at all.

The results obtained in the survey indicate gender socialization differences revealing females either being socialized as more academically motivated or more submissive and agreeing to academic requirements when recording higher scores in self-reported efforts and academic skills required by the curricular activities than males. It could be explained according to Sanches-Lopez et al. description of gender behaving styles' differences: submissiveness and cooperation/agreeing being characteristic to women, while independence and unconventionality being characteristic to men [20]. This result may reflect a gender role regarding appropriate behaviour which is a direct outcome of socialization. Similar observations are made by Raty & Kasanen describing social stereotype by which females are supposed to work hard while males refer to natural ability [17]; or by Marrs & Sigler finding that masculinity is related with academic achievement without much work [22]; or by Morris males' underachievement in lower socioeconomic status population explaining as rooted in hegemonic masculinity understanding [33]. On the other hand, females being more motivated and assumingly working harder in curricular activities than males, don't demonstrate higher personal initiative and involvement in extracurricular activities than males. This may also be related to the gender socialization issues and is visibly related to the *habitus*, because females from lower socioeconomic status show the smallest rate of involvement in active improvement-oriented efforts. The scale measuring assessment of improving specific skills related to the main studies field demonstrates the interference between gender and *habitus* effects. *Habitus* may not determine academic motivation attitudes, but it affects academic behaviours such as active improvement-oriented efforts, studying efforts and application of academic skills. These academic behaviours are probably related to self-direction and academic self-concept.

The major contribution of the survey was to separate studies' motivational attitudes from active improvement-oriented efforts. This led to the conclusion that students from different socioeconomic status families in higher education may not differ in their academic motivation attitudes, but they do differ in academic behaviours.

Further research would be helpful for developing a greater understanding of the interference between the effects of gender and socioeconomic status in academic studies' motivational attitudes and behaviours as a result of socialization.

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