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Students' Team Project Experiences and Their Attitudes Towards Teamwork

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Abstract

Purpose: The aim of the study is to evaluate the influence of team project experiences of students (presence and role of a leader; fairness in team projects; conditions supporting teamwork created by a university) on their attitudes towards teamwork, especially the perception of teamwork effectiveness and the preference of working in teams.

Methodology: In the study the quantitative research was done among master degree Polish students of Management (105 questionnaires). The measures used for the study were developed specifically for the study referring to the previous research in the field.

Findings: Results indicate that leaders in team projects and conditions supporting teamwork are connected with the students' perception of teamwork effectiveness, while the fairness in team projects is connected with students' preference of working collectively.

Research implications: We conclude that in order to develop a positive attitude towards teamwork, the teamwork projects should be better supported by the instructors (especially supporting the emergence of leader(s) and minimising the problem of free riders) and the university should create a climate that facilitates teamworking, otherwise team projects might negatively influence students' attitude towards collective work.

Value: On the labour market the teamwork skills are one of the most important skills of employees, as the team-based organizational designs are becoming the norm in work organization. The study is contributing to the understanding of the relations between student experiences and their attitudes as well as the role played by high education in the development of these attitudes. Some previous research in Anglo-Saxon culture countries indicate that team project assignments realised by students during studies might even hinder their attitudes to teamwork and their willingness to work in teams in the future.

Keywords: students teamwork, attitudes toward teamwork, team experiences, team leader, fairness

JEL: I23, J24, A20

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Introduction

In view of the growing complexity of problems and the pace of changes companies must act flexibly and us are process-based approach in problem solving, which in the domain of work organization restricts the benefits of direct supervision and central coordination. Managers decide to do away with rigid, functional structures and limit the number of hierarchical levels striving toward horizontal structures based on projects and project teams. In this way they create so-called team-based organizations (e.g. Mohrman, Cohen and Mohramn Jr., 1995; Devine, Clayton, Philips, Dunford and Melner, 1999) or project-based organizations (e.g. Hobday, 2000), which depending on the needs and external opportunities, change projects, modify team composition and are highly objective and target-focused. Furthermore, narrowly specialised competencies of employees, combined with the complexity of the tasks at hand and problems, have demonstrated that efficient cooperation which results with synergy effect as well as knowledge sharing between team members, cannot presently be overestimated as it produces effects in both individual (e.g. satisfaction) and organizational (e.g. performance) dimensions (i.e. Morley and Heraty, 1995; Mohr, Young, Burgess, 2012). Teamwork has become a popular form of work in many organizations because it allows them to create an added value through the proper use of diversified knowledge, skills and abilities of employees. The specific features of a successful teamwork have been encapsulated in the article by Katzenbach and Smith (1993), who precisely described the advantages connected with this form of work.

Consequently, the ability to work in a team is presently one of the most sought after competencies of employees. This is corroborated by many studies conducted by recruitment companies and institutions of higher education itself. For example, in Poland a study on labour market expectations was conducted in 2012 by the Warsaw School of Economics with the American Chamber of Commerce in Poland and Ernst & Young. The teamwork skills were ranked fifth, after "effective communication", "foreign languages skills", "openness to learning", and "commitment" (Budnikowski, Dąbrowski, Gąsior and Macioł, 2012; Warsaw School of Economics 2012). Lipičnik and Mihelič in their research in Slovenia found that according to HR managers, the capabilities of teamwork are the second most important employment criteria (Lipičnik and Mihelič, 2007). In the USA, according to a study conducted by the National Association of Colleges and Employers (NACE) in 2013, teamwork was placed as one of the most important overall candidate skills and qualities desired by employers (NACE, 2013).

Colleges and universities have to and try to respond to these particular labour market needs, which is mostly apparent in decisions made by organizations that standardise

and supervise education at the tertiary level. In Poland, the student's ability to "coope-rate and work in a group where the student should be able to assume different roles" has been stated in the National Qualifications Framework as a part of the required education deliverables (part of social competencies), irrespective of the area of educa-tion (Ministry of Science and Higher Education, Regulation of 2 November 2011 on National Qualifications Framework for Higher Education). In Germany, the "Qualifi-cations Framework for German Higher Education Qualifications" at the bachelor level requires graduates to be able to assume responsibility in a team. Furthermore, the Association to Advance Collegiate Schools of Business (AACSB), an international accreditation institution for business schools, defined in 2013 new accreditation stan-dards for institutions of higher education to meet, among them in Standard 9 – devel-oping skills as interpersonal relations and teamwork (the ability to work effectively with others and in team environments) and in Standard 10 – development of curricu-lum including opportunities for student-student and student-faculty interaction.

Actions taken by colleges and universities aimed at the presentation of theoretical (features, components, team processes) and practical (involving student in teamwork tasks) problems connected with teamwork are not only related to the development of skills needed to be an effective team member in the future but also affect student attitudes toward working in teams. Research shows that team projects during the study period may, unfortunately, negatively affect student attitudes to teamwork (Pfaff and Huddleston, 2003).

In view of the problems enumerated above, we posed the following question. Whether and which of the Polish students' experiences with team projects during study period influence their attitudes to teamwork (i.e. their perception of the teamwork effective-ness and preference to working in teams)? We were motivated to embark on this research problem by the need to understand the behaviour of students so that the teaching process could be improved, positive attitude to teamwork fostered and finally students would be better prepared to meet market requirements. In the research three factors of experience have been analysed – the presence and actions undertaken by the leader in a project team; fairness during teamwork and team evaluation, and the conditions supporting teamwork created by the university.

The study is contributing to the understanding of the relations between student expe-riences and their attitudes to this form of work and the role of the university in the development of these attitudes. Moreover, most of the former studies on the students' project teams were run in the North American or Western European cultural context, while the presented study is located in the Polish cultural context. One of the most

important differences of teamwork attitudes between Poland and Western Europe is the level of interpersonal trust, which, according to the European Social Survey in Poland was significantly lower than in Western Europe (especially Denmark, Norway, Finland, Switzerland, UK, Holland) (Domański, 2014, p. 12).

Attitudes to teamwork

In accordance with the theory of planned action (Ajzen and Fishbein, 1980), an individual behaviour depends on the individual intention to behave. The intention, however, depends on the attitude towards the behaviour and the perceived (subjective) norms of the behaviour (perception to what extent one should act in a given way).

The intention to complete a task in the form of teamwork depends on the individual attitudes and the perception of the environmental expectations to a given conduct. It is assumed that positive attitudes are positively connected with the intention to work in a team and becoming committed to teamwork (Juchnowicz, 2014, p. 100). Furthermore, Lembke and Wilson point out that for effective teamwork it is required that team members perceive it as an attractive form of work. They propose that teamwork is the function of how team members perceive the team itself and their role in it (Lembke and Wilson, 1998).

In view of the demand for employees who are active team players there is a need to develop positive student attitudes to teamwork so that in their future professional careers they will not be hesitant to work in teams (they intend to work in teams) and they will become valuable team members. The need to properly develop student teamwork attitudes is also connected with the benefits that teamwork gives to acquiring knowledge and specialist skills through the team project completion. A negative attitude to working in teams can also lower the learning effectiveness of students.

According to Rokeach an attitude is "a relatively enduring organization of beliefs about an object or situation predisposing one to respond in some preferential manner" (Rokeach, 1966, p. 530). An attitude to teamwork can be defined as a general evaluation (positive or negative) of this form of work influencing an individual tendency to respond in a particular way (positively or negatively) to that form of activity (Mullins, 2013, p. 149). The constituent elements of an attitude are three components: cognitive (believes, opinions, personal knowledge about the object of attitude), emotional (emotions and feelings which a person associates with the object of attitude) and behavioural (intent to behave in a given way towards the object of attitude) (Breckler, 1984).

We focus on two components of the attitude towards teamwork separately – cognitive and behavioural. By the cognitive component of attitude we evaluate to what extent students perceive the effectiveness of teamwork in terms of the individual beliefs that teamwork leads to achieving better effects, enables innovation and the well-being of team members (West, 2012). With the behavioural component of the attitude towards teamwork we evaluate the preference of individuals to work collectively vs. individually.

If we assume the functional approach to attitudes advanced by D. Katz (1960), an attitude to teamwork plays an instrumental function (also called utilitarian or adaptive). It means that this attitude directs the behaviour of an individual in order to maximize rewards and minimize sanctions. It can thus be understood that a positive attitude to teamwork results from the perception of the possibility of achieving the intended aim through teamwork (perception of effectiveness). According to Locander and Spivey (1978) attitudes that perform utilitarian functions do not change under the influence of information only; it is difficult to persuade an individual to adopt a positive attitude only by presenting examples of others (through narration). These attitudes, including the attitude to teamwork, are developed over time, through the individual experiences in different circumstances. In the case of the attitude to the teamwork of students it means that the sheer presentation of the advantages and examples of effective teams is not enough to effectively develop it. Students' experiences and feelings gathered while running a group project are much more important (i.e. Pfaff and Huddleston, 2003; Ruiz Ulloa and Adams, 2004; Hillyard, Gillespie and Littig, 2010).

Project teamwork of students

Because of the advantages that they bring, group and teamwork projects are frequently used forms of teaching during the educational process at different education levels. Students working in a team and completing course assignment are a specific project team because they are a collection of individuals who independently carry out various activities and share responsibility for the outcomes (Cohen and Bailey, 1997), and the task they embark on is a onetime experience, and it has to be completed within a specified time.

There are many advantages of project teamwork as a form of joint learning. First of all, there are benefits related to the learning effect, like – collective problem solving, developing more and higher quality ideas and solutions, knowledge exchange and learning from each other, collective and active commitment to learning and spending more time on a task (Johnson, Johnson and Smith, 2007; Marks and O'Connor, 2013).

Furthermore, Chapman and Van Auken (2001) point to numerous social benefits of student teamwork, like – students becoming aware of the challenges, complexities and benefits of cooperation with others and in this way they better understand the process of cooperation with various people, and they develop communication, problem solving, trust building, work division and coordination skills. These advantages are also noticed by teachers and instructors. Furthermore, teamwork projects contribute to the development of the skills expected by the labour market, which we have pointed out earlier.

In the opinion of students, teamwork projects help to reduce the amount of effort of each member, build collective safety and allow for learning from each other as well as coming up with a greater number of ideas (Schultz, Wilson and Hess, 2010). Studies conducted by Marks and O'Connor (2013), among American students, have revealed that students generally notice the benefits of teamwork but their preferences regarding teamwork depend on the area of study. Students have, however, identified many drawbacks of collective working during credit-earning projects. Machemer and Crawford (2007) studied different learning techniques and noticed that team learning is least valued by students since, in their opinion, it does not contribute to a better grade. Furthermore, students are reluctant to be responsible for the entire group. Moreover during team assignments they are afraid about their final grade. Schultz et al. (2010) have identified the following fears that students have in relation to teamwork: lack of complete control over the grade awarded for the project, presence of free riders who rely on the work done by others, and problems with organizing the space and time for teamwork. An experiment conducted by Bacon (2005) revealed that students generally prefer working individually and that they associate group work with more work. Deeter-Schmelz, Kennedy and Ramsey (2002) identify the lack of a clearly defined and shared objective and the personal traits diversity of team members as factors discouraging students from their involvement in teamwork.

We assumed, that students treat teamwork projects instrumentally, as they are interested in tangible effects only, like individual grades, which add up to their grade point average. Therefore the project effectiveness and proper evaluation of their contribution to teamwork is very important for them. McCorkle et al. (1999) suggests that the diminished contribution of students to teamwork could be attributed to the lack of control mechanisms over teamwork, problems with communication and absence of specified and agreed group norms. Hansen (2006) has concluded his studies with an identification of the biggest problems that students have to face during teamwork projects: lack of a leader, conflicts resulting from the division of work, lack of team development, social loafing and the presence of students preferring individual work (the lone wolf effect).

Experiences affecting attitudes to teamwork

There are not many studies directed on analysis of the relations between the experiences of teamwork projects and student attitudes to teamwork. For example, Pfaff and Huddleston (2003), who treated the attitude to teamwork as the student's recent teamwork experience on a scale from awful to excellent, identified five factors, which affect this attitude – project grade, number of joint projects completed by the team, absence of free riders, class time allocated for the project and peer evaluation. Chapman and Van Auken (2001) analysed factors, which also affect the emotional component of the attitude to teamwork. In their study the attitude depends on the actions taken by the instructor, anxiety connected with the fairness of work contribution and the final grade. Ruiz Ulloa and Adams (2004) noticed that generally the attitude to teamwork depends on the quality of communication in the group, the feeling of psychological safety, co-dependence, the feeling of a common and clear objective, and a distinct division of roles. The research undertaken by us expands on this line of research, by analysing the cognitive and behavioural components of attitudes and studying outside of the Anglo-Saxon cultural environment. This can therefore help in understanding the relations between student teamwork experiences and their attitudes to this form of work.

On the basis of the studies described above three factors have been identified, which are connected with the work of the team and the conditions of teamwork – the emergence of a leader and the role he/she played, fair division of work between all team members and the overall conditions supporting teamwork at the university. We assume that those factors affect positively the perception of teamwork by students, both in terms of teamwork effectiveness and teamwork being the preferred form of work.

The team leader

A team leader performs important integrative, coordinating and problem solving functions – makes decisions, cares for the division of work and timely completion of all the tasks, cares for the resources and atmosphere and encourages others to work, etc. (West, 2012). According to Salas, Rosen, Burke and Goodwin (2009) it is one of the most important elements of teamwork. In a study conducted by Hansen (2006) students pointed out that an organized leader was a significant element in teams that gave them a lot of satisfaction. A task will not be performed or will be performed inadequately if no leader is appointed, and the atmosphere of teamwork will be negative. Consequently, participation in projects where no leader has been identified will negatively influence the effects of the work of such project teams and the attitudes to teamwork, i.e. the perception of the effectiveness and willingness to work in a team.

H1a: Positive experiences with leaders in team-projects strengthens the students' perception of team effectiveness.

H1b: Positive experiences with leaders in team-projects positively influences the student' preference of collective work over individual work.

Fairness in teamwork

If only the final teamwork outcomes rather than the contributions of individual team members is evaluated, then it is likely that there will be free riders in a team. For this reason team members are very sensitive to the fair division of work and fair grading. In a situation when the grade (award) for teamwork is not commensurate to the effort made by a student, the motivation diminishes and reluctance to continue work in a team increases. Consequently, an individual will either try to work on his/her own, where accountability and the award is clearly defined or will work in a team but will assume the role of a "lone wolf" (Blanchard, Bowles, Carew and Parisi-Carew, 2001). Teamwork does not produce any positive effectiveness effects for such a person.

H2a: Experiencing fairness in team projects positively influences students' perception of teamwork effectiveness.

H2b: Experiencing fairness in team projects increases the students' preference of working collectively.

Conditions supporting cooperation

The study by Chapman and Van Auken (2001) revealed that the conditions created by the instructor and student perception of the instructor's approach to teamwork project affects teamwork. Furthermore, norms of action manifested in the behaviour of instructors and other members of a given community (students of a given university) and formal conditions affect the behaviours of students and their perception of these behaviours. For this reason it has been assumed that if students felt a positive atmosphere of support outside the group during team projects conducted earlier, their positive perception of this form of work has been strengthened.

H3a: The cooperation supporting climate at the university increases students' positive perception of teamwork effectiveness.

H3b: Perceiving a team-project friendly climate at the university strengthens students' preference of working collectively.

Methods

Data collection

A survey study was conducted in June 2013 among second semester full time and part--time master degree students of *Management* at the Faculty of Economics and Management, at the University of Szczecin in Poland. Students attending the master degree program have different bachelor degree backgrounds, taking into consideration the specialization and the university. We have concentrated research only on the students of *Management*, assuming that those students should be familiarized with the theoretical basis of teamwork and organizational behaviour. Moreover those students are to be working in managerial positions in the future, and therefore we found that this group is important for the purpose of the study.

The study was comprised of 118 students out of 130 students attending the programmes (12 students were absent when the study was done). The paper questionnaires were handed to students during the last class of the course and they answered the questions immediately. The questionnaire administrator did not teach the students who were participating in the study. The analysis comprised of 105 correct questionnaires. In the questionnaire students were asked about their team project experiences during their tertiary education and their general attitudes towards teamwork.

Measurement development and validation

Two areas of teamwork were studied. The first one was student attitudes to teamwork. On the basis of the analysis of the surveys conducted to date (Beigi and Shirmohammadi, 2012; Thompson, Anitsal and Barrett, 2008; Pineda, Barger and Lerner, 2009) measures were developed and used to evaluate the attitudes. Attitudes to teamwork were analysed in two dimensions (comprising the cognitive and behavioural components of the attitude). First the perceived effectiveness of teamwork (P_EF), understood as an extent, to which teamwork, according to students, generally contributes to better effects, was measured. The effects were perceived in the five categories of "faster", "better", "new things", "self-development", "satisfaction". Preference of teamwork (P_PREF) was another variable of the attitude, again evaluated with five items. In this case respondents evaluated their appreciation of individual work and then the answers

were reverse coded. It was assumed that teamwork is the opposite of individual work. In the survey, respondents defined how much they agree or disagree with the individual items, choosing a score between 1 (absolutely disagree) and 5 (absolutely agree).

Evaluation of the students' experiences connected with the teamwork project was the second issue studied. Student experiences connected with three factors were studied:

- leader in the team (4 items) – presence of a leader who performs roles supporting teamwork;
- fairness of teamwork (3 items) – perceived a fair division of work, contribution and evaluation;
- conditions supporting teamwork (4 items) – understood as a perceived approach and involvement of the instructor, approach of other members of the organization and support of the organization.

Students were asked to give an answer indicating the frequency of a given event, on a five point scale where 1 denoted never and 5 – always. Students were also asked to relate to their previous experiences with teamwork throughout their time in higher education. The measures we used were developed specifically for the study. Each of the variables is a composite measure and their values are mean values of the answers of a given student to all the items constructing variables (Table 1). Additionally, constructs of reliability and validity analyses were conducted. We used the exploratory factor analysis (EFA), Cronbach's α coefficient and confirmatory factor analysis (CFA).

The EFA (principle component analysis, Varimax rotation with normalization) revealed that the items of each of the variables rotate around one factor for each variable, without high loadings between the factors and the value of factorial loadings is generally above 0.6, with a few exceptions (Table 1). Furthermore, the measures of three variables have a correct reliability measured with Cronbach's coefficient at the level higher than 0.7 (recommended value) and the other two have reliability permitted for exploratory studies (higher than 0.6) (Templeton, Lewis and Snyder, 2002). Furthermore, the entire measurement model was tested using the confirmatory factor analysis, which revealed that the model has an adequate, although imperfect, fit (χ^2/ss=1.7; GFI=0.884; AGFI= 0.826; RMSEA=0.083; Bentler-Bonett fit index = 0.847).

Table 1. Factor loadings, means, standard deviations and reliability of constructs

Composite variables		Items	Factor loading EFA	Composite mean	Composite standard deviation	Cron-bach's α
Perceived team effectiveness	P_EF_1	I get better results when I take part in a team project.	0.720	3.617	0.628	0.75
	P_EF_2	Work is done faster when I do a team project.	0.618			
	P_EF_3	Teamwork helps me to learn new things.	0.672			
	P_EF_4	When I work in a team my ability to work effectively is increased	0.766			
	P_EF_5	Teamwork is more satisfactory to me than individual work.	0.648			
Preference of teamwork	P_PR_1	Only those who rely on themselves can be successful in life. [r]	0.657	2.947	0.677	0.651
	P_PR_2	If I want to do something well, I have to do it myself. [r]	0.476			
	P_PR_3	In the long run I can count on myself only. [r]	0.752			
	P_PR_4	I prefer to be evaluated individually rather than as a team. [r]	0.577			
	P_PR_5	I do not like teamwork because there are always persons who do not want to get involved. [r]	0.681			
Leader in teams	L1	One team member, as a leader, assigned work for other persons.	0.737	3.583	0.74	0.784
	L2	One team member, as a leader, monitored the work of other persons.	0.855			
	L3	One team member, as a leader, motivated others to work harder.	0.778			
	L4	One team member, as a leader, cared for the right atmosphere which was conducive to teamwork.	0.730			

Fairness in teams	PR1	The contribution of each team member was not appropriately evaluated during the project's evaluation.[r]	0.699	2.794	0.83	0.719
	PR2	Each team member has done the same amount of work.	0.842			
	PR3	A few team members have done most of the project work. [r]	0.815			
Conditions supporting teamwork	M1	The team had a clearly defined aim which they tried to achieve.	0.566	3.557	0.597	0.613
	M2	Physical conditions favouring teamwork are created at the university.	0.709			
	M3	The approach of lecturers to team projects encourages joint work in teams.	0.645			
	M4	The atmosphere at the university among students favours the completion of teamwork.	0.731			

[r] items reverse coded.
Source: own elaboration.

Hypothesis testing

In order to answer the question whether differences in experiences of teamworking in course projects are related to the differences in attitudes, a t-student test was conducted for identifying the differences in experiences between the two groups of student cases characterized with high and low intensity of the attitudes toward teamwork. The cases studied were divided into groups with a high and low perceived effectiveness of teamwork and groups with a high and low preference of teamwork. To that end the data clustering with k-means clustering method was used. Three clusters with high, medium and low level of attitude were identified for both types of attitudes. Only extreme groups (high and low level) were further analysed; these groups are presented in Table 2.

Afterwards we studied the differences (using the t-students test) in the evaluation of students' experiences between the identified groups of high and low attitude. The analyses revealed that student groups with a higher and lower perception of the teamwork effectiveness are statistically significantly different with respect to their experiences about the presence of a leader in a project team (p<0.01) and their perception of the

atmosphere supporting project work (p<0.001), see Table 3. In the case of the perceived effectiveness of teamwork, the atmosphere in which a team project is conducted at the university and identification of a person acting as the leader of the project team are important.

Table 2. Mean values attitudes for aggregations of high and low attitudes

Attitude 1: Perceived team effectiveness			Attitude 2: Preference of teamwork		
Items	High level N=52	Low level N=21	Items	High level N=55	Low level N=30
P _ EF1	3.923	2.809	P _ PR1 [r]	3.41	1.67
P _ EF2	4.173	3.095	P _ PR2 [r]	3.05	2.14
P _ EF3	4.231	3.143	P _ PR3 [r]	3.49	2.09
P _ EF4	4.192	2.476	P _ PR4 [r]	3.45	2.09
P _ EF5	4.019	2.190	P _ PR5 [r]	3.81	2.09
Composite	4.108	2.743	Composite	3.447	2.019

[r] Items reverse coded.
Source: own elaboration.

Table 3. T-test for high and low perceived team effectiveness

Experiences	Mean		t	df	p
	High Perceived team effectiveness	Low Perceived team effectiveness			
Leader in teams	3.731	3.202	2.878*	71	0.006
Fairness in teams	2.891	2.492	1.795	71	0.077
Conditions supporting teamwork	3.764	3.178	4.249**	71	0.000

* p<0.01; **p<0.001.
Source: own elaboration.

On the other hand, groups of students with a higher and lower preference of teamwork are significantly statistically different regarding the experiences about the fair division and evaluation of work in team projects (p<0.05) (Table 4).

Table 4. T–test for high and low preference of teamwork

Experiences	Mean		t	df	p
	High Preference of teamwork	Low Preference of teamwork			
Leader in teams	3.568	3.220	1.793	74	0.077
Fairness in teams	3.024	2.301	3.444	74	0.001
Conditions supporting teamwork	3.654	3.428	1.582	74	0.118

Source: own elaboration.

In order to determine the direction of the relation between the experiences of earlier projects and the present attitudes of students a multiple regression analysis was conducted, independently for the two types of attitudes studied. The results are presented in Table 5.

Table 5. Regression analysis summary

	Perceived team effectiveness (N=105)	Preference of teamwork (N=105)
Leader in teams	0.20** (0.075)	0.096 (0.083)
Fairness in teams	0.090 (0.067)	0.293*** (0.075)
Conditions supporting teamwork	0.406*** (0.095)	0.154 (0.107)
(Constant)	1.206** (0.436)	1.22* (0.492)
R^2	0.215	0.1586
Standard error of estimate	0.559	0.622
Model analysis of variance	F = 10.591***	F= 7.53***

*p<0.05; **p<0.01; p***<0.001; standardised errors are in brackets under unstandardized coefficients.
Source: own elaboration.

With respect to the student perception of the effectiveness of teamwork, the conditions supporting teamwork (β=0.406; p<0.001) and the presence of a leader in the team

(β=0.2; p<0.01) are significantly and positively related to the development of a positive attitude to teamwork. In the case of student preference of teamwork only experiences connected with the fair division of work and evaluation are related to that attitude at a statistically significant level (β=0.293; p<0.001). Consequently, the higher the sense of fairness students have with reference to earlier team projects, the more they prefer teamwork. Summing up, three hypotheses have been supported (H1a, H2b and H3a) and the other three have been rejected.

Discussion

The results reveal that some experiences affect student perception of teamwork as an effective form of work and other experiences affect their preference to take up this form of work. The perception of teamwork as an effective form of work, in the both individual and task based meaning, is connected with student experiences about the presence of a person in the team who acts as the leader and work coordinator, a person who distributes roles, who motivates and monitors work progress. Furthermore, the perception of the effectiveness of teamwork also depends on external factors which support cooperation – conditions, norms and the precise definition of the task at hand and requirements for the team. Similar results were obtained by Pineda and Lerner (2006), where the perception of the achievement of an assumed aim and perception of personal development through teamwork are connected with the good preparation for teamwork (definition of the aim, division of roles, accountability) and the progress of work (progress monitoring, work coordination). The important role of preparations of teamwork in the achievement of positive effects of the work has also been identified by Riuz Ulloa and Adams (2004).

The results show how important is the first step of the teamwork process. Instructors, when assigning team project work, should encourage students to identify a team leader, whose job would be to monitor the work progress, and defining and adjusting the rhythm of the work according to changing circumstances. The leader himself/herself should be obliged to define, together with other team members, the schedule of the work, the rules of work division, responsibilities and accountabilities as well as the work monitoring rules and mechanisms. Consequently, the instructor should devote time to start projects in every team and explain what should be done. Furthermore, the teacher could additionally support the leader in the coordination of work during the project.

Studies have shown also that the climate at a given university – the attitude of the instructor and the willingness of students to work in a team – is also important. Besides,

the instructor should precisely tell the students what he/she expects of their work and indicate the range of work and requirements of cooperation within the team in order to achieve a satisfactory effect in the form of a grade.

A university as an institution itself exerts a significant impact on the attitudes of students: the curriculum, forms used to verify the effects of education (number of completed team projects), incentives motivating the faculty to assign team projects to students, preparation of students for teamwork by explaining the principles of teamwork and the factors which determine the effectiveness of teamwork. Furthermore, the architectural layout of the university is also important – an appropriate, easily accessible to students space for teamwork should be created, which would be an artefact showing that cooperation is highly valued.

The preference of teamwork over individual work, on the other hand, is connected with the feeling of a fair, equal distribution of work and a fair evaluation of the contribution made in earlier team experiences. It appears that the effect of free riders and the feeling of unfairness in the work division and unfair evaluation of the contribution made by individual persons discourage students from taking part in teamwork. Students more often feel the effect of social loafing than social facilitation. The team leader and the instructor play an important role – they should implement tools permitting evaluation of the contribution made by individual team members and award the grade/prize accordingly. Such a positive role of the instructor in the diminishing of fears connected with the unfairness of work and evaluation has been shown by Chapman and Van Auken (2001) in their study. It is possible that work evaluation should take place not only at the end of the project as the final grade but also during the course of the project in order to motivate, and to direct those who do not work diligently enough. The introduction of the peer evaluation of team members could be another solution. However, peer evaluation must be properly implemented and approved by students. The open discussions with students that followed the survey study moderated by us showed that they are rather reluctant to evaluate each other and have problems with constructive criticism (if they have something negative to say, they prefer to keep silent).

Conclusions

The limitations of the study that must be taken into account include the limited territory, i.e. one university, one area of study and one national culture. As the study revealed the impact of the perceived norms and values developed by the university community on the attitude to teamwork, it can be assumed that general values and

norms specific for a given national group can also have an influence on the specific character of factors, which contribute to the attitudes toward teamwork.

However, the cohesion of the results (significant experiences connected with teamwork) with studies conducted at universities in other countries, indicates a common problem of perceiving teamwork by students and the significant role played by instructors. With respect to the expectations of the important stakeholders of universities – i.e. employers – universities should focus more on the improvement of the effectiveness of teaching through project work. The need to train instructors on how to conduct classes that require project teams is now evident (Jasińska and Podgórska, 2015). Moreover, instructors should be motivated to introduce team project assignments and help students to develop not only knowledge and skills in the subject but also their soft skills and social competences, but this requires more time (both in the class and after) and effort from the instructors. Like in the business world, people made responsible for leading projects must know the principles of group dynamics, determinants of teamwork effectiveness and use tools, which support effective teamwork, therefore instructors should remind the teamwork basis before starting team projects. It turns out that it is not enough to assign a team project to students and after all evaluate the total project effect; sometimes it is even harmful. Instructors should give students reliable individual feedback concerning their soft skills and their group behaviour on different stages of their team project and remained them the key teamwork effectiveness factors. CATME, a student teamwork tool developed by American universities, which supports both students and instructors, could be an interesting solution (Loughry, Ohland and Woehr, 2014).

Moreover, the research also suggests that the university should create team-project friendly conditions, like disposable spots for team meetings; collective working after classes and encouraging instructors to use team-projects and evaluate not only the project results but also students individual effort and teamwork skills.

As for future research, the identification of the criteria which students take into account when they select members of project teams seems to be interesting from the point of view of the supervision of student teamwork by instructors. Furthermore, an analysis of the effects of other attitudes, type of trust, willingness to share knowledge and attitude to learning on the attitude to teamwork and individual behaviour of students during teamwork is necessary. It is also worth analysing any changes in student attitudes to teamwork through the educational cycle and identification of differences between the study programs.

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