

Examining Relations of Aggressive Communication in Social Networks

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Abstract

Aim of this research is the detection of aggressive communication parameters and typology. A network sample of 62 students (male = 32, female = 30) and 4 instructors (male = 2, female = 2) at the physical education and sport sciences dept. at the University of Thessaly has been collected in 2016. A standardized questionnaire consisting of network and non-network part was used. Social network analysis (algebraic analysis) combined with conventional statistics has been used. Basic results are the following ones: Persons dedicated to sport appear to target others and be targeted. Dedication to study content is proved to play a role of a refuge against criticism. High grade and ambition seem to protect against negative comments. Physical qualification (tallness) seems also to discourage rudeness. Spatial-regional discrimination is also revealed. Mockery seems to be even a cause of absence from the courses. A superiority-induced aggressiveness (on economic basis) has been detected. Threat may be regarded as a behavioral extension of mockery (or inversely). In the course of study time, more aggressive persons emerge who even threaten others. High grade students are unattractive for arguing. Internet seems to develop communication stimuli. The tendency for professional distinction is connected with arguing. Younger students show an integration deficit in terms of argumentation. Communicational types (three profiles of targets: “depreciated assaulted”, “attractive”, “repellent”, and two profiles of general involvement: “lively”, “controversial”) have emerged. A typology of targets is depicting a sharper fragmentation than a typology of general involvement (targeted and acting).

Keywords

Verbal Aggressiveness, Argumentativeness, Social Networks, Physical Education Students

1. Introduction

1.1. Verbal Aggressiveness

Aggressive intentions are prevalent in communicational interactions [1] [2]. Through verbal aggressiveness, the development of polite discussions among large groups and organizations is compromised, causing conflict and finally a possible failure [3]. Verbal aggressiveness is a person's tendency to attack the interlocutor's self-perception [4] [5]. Such aggressiveness constitutes part of an individual's personality [6] [7], although it is also the result of the environmental conditions where the individual acts [5]. Verbal aggressiveness consists of attacks on the character, the ability, in appearance and in the background, contempt, ridicule, threats, profanity, curses, loud voices, teasing gestures [4] [8]-[14]. When students receive verbal aggressiveness from their instructors, they indicate lower levels of motivation, satisfaction, rapport with the instructors and a more hostile learning environment [15]-[28] that is not conducive to attendance and class climate [29] [30] and interpersonal communication between students and instructors [31]-[36]. Also, research has shown that instructors' verbal aggressiveness is negatively correlated with affective learning [37] [38], interpersonal attractiveness [39] [40], fair play behaviors [41] of students, as they avoid asking questions and do not try to maintain the communication outside of the classroom [30].

1.2. Argumentativeness

The structure of human society, both in public and private sphere, consists of the essential features of dispute and argument [42]. Argumentativeness constitutes an individual's predisposition to oppose its opinions on controversial issues while trying to refute the positions of respondents [5] [43] [44]. [5] have pointed out that argumentative communication "is essential in a democratic society" (p. 320). [45] support that all persons have developed ability to use arguments. In the educational context, in cases when students perceive their instructors as argumentative, they are positively motivated to learn [46]. Argumentativeness is positively correlated with social, physical and task attraction [39], intrinsic reasons for discipline [47] and affective learning [48]. Also, students detect traits of assertiveness, intimacy and competence on argumentative instructors [27] as well as efficiency, sociability [39] and reliability [35]. Argumentativeness is positively correlated with positive classroom climate and emotional learning [25]. As noted by many studies [49]-[54], educational activities that promote argumentativeness are crucial for achieving the learning goals. Argumentativeness takes effect on students' comprehension of teaching concepts [55] [56].

1.3. Innovation of the Research

In general, the expected innovation of this research consists in quantifying results algebraically and statistically combined, depicting deeper and informal hierarchies of verbal aggressiveness and argumentativeness. In this way, personal

determinants of positioning in such hierarchies are detected. The overview on several determinants of aggressiveness and argumentativeness is supposed to constitute a practical added value of this paper while the exploration of argumentativeness and aggressiveness using algebraic indicators of network theory constitutes the academic added value of the research.

2. Method

In 2016, a network sample of students class at the dept. of physical education and sport sciences of the University of Thessaly, Central Greece, has been collected. The sample consisted of a class at the 4th semester. The students were 62 (male = 32, female = 30) and 4 instructors (male = 2, female = 2). This was a judgment and not a random sample, as the purpose was the analytic and not the descriptive statistics. The researchers had guaranteed to the participants that their names will remain secret in order to increase the probability to obtain sincere answers. The network questionnaire was strongly based on previous concept [39] [57]. Nevertheless, it was strengthened by the approach of [58] and [59] [60] regarding social power. Thereby, questions concerning verbal aggressiveness and argumentativeness were added. The non-network part included classical personal-social parameters related to the individual profile of students (e.g. age, family, social-economic state). The basic network variables (degree, in degree, Katz status, pagerank, authority) were calculated by Visone 1.1. Spearman test between non-network and network variables has been applied for revealing correlations. Principal Component Analysis between has also been applied between network variables for suggesting a typology. Spearman test has been preferred to multivariate analysis, because it enables an overview on all relations [59] [61] [62] [63].

3. Results and Discussion

In **Figure 1**, examples of networks of verbal aggressiveness and argumentativeness networks are presented. The network of avoiding argumentation is the

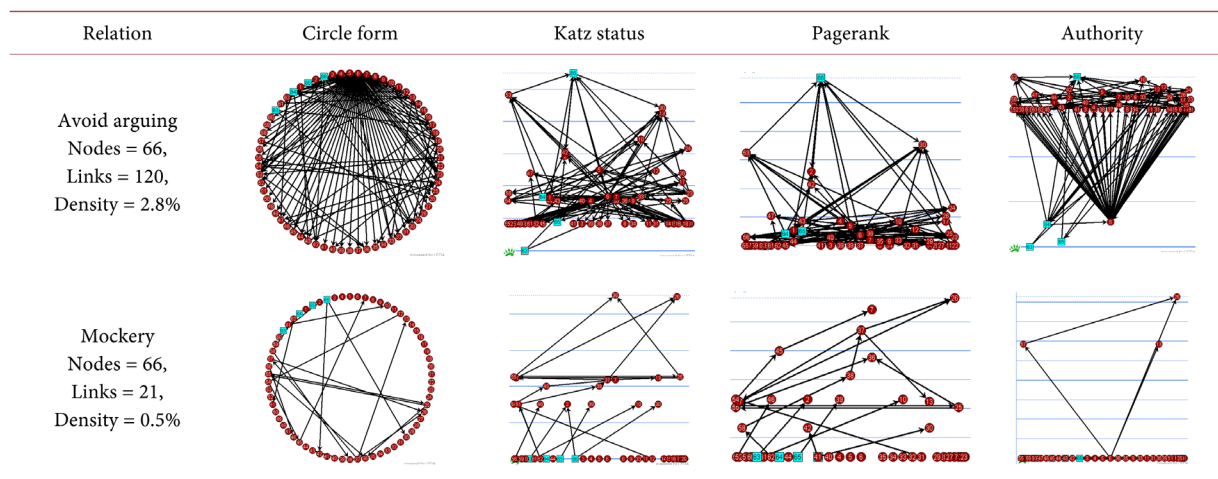


Figure 1. Examples of verbal aggressiveness and argumentativeness networks.

densest (2.8%) while this of mockery relations is the less dense one (0.5%). This is understandable, as the avoiding argumentation is an easy solution in the everyday life in order to restrict misunderstanding and conflicts. On the other hand, mockery is normally practiced only among people familiar to each other and not from all to all. Thereby, it remains a quite rare relation within a group. Beyond density, the Katz, pagerank and authority have been depicted. Particularly, the authority of avoiding argumentation is a quite peculiar and unusual one, as it clearly obtains the structure of inverse pyramid. This is understandable as most nodes tend to possess the “distinct” position in avoidance.

In **Table 1**, instructors and persons who consider themselves to inspire interest in sport show the stronger degree of negative comments. This is understandable, as instructors have the duty of critically evaluating others and subsequently becoming unpleasant and targets of criticism as well. Persons who inspire sport interest also become a target because of jealousy and simultaneously, keep a critical attitude towards persons who do not take seriously the sport study and career. Those who become target of negative comments maintain the course content itself as a crucial basis of continuing to be interested, as the school milieu is perceived as hostile and cannot be an attractive pole for them. In this way, the study itself becomes a refuge for these persons. This fact implies that the study curriculum looks substantial enough to cover socialization deficits. Finally, those who are diligent or able enough to have achieved high grade or are ambitious enough to desire a professional career seem to discourage negative comments against them. This discloses that a spirit of academic respectfulness is cultivated at the physical education department.

In **Table 2**, as discussed in the previous tables, instructors seem once again to be susceptible to be rude. However, they do not become a target of rudeness because rudeness is de facto externalized to the target. Thus, students can hardly demonstrate such a behavior to the instructors. Tall students tend also not to

Table 1. Negative comments.

	Negative_comments_ 9_degree	Negative_comments_ 9_indegree	Negative_comments_ 9_status	Negative_comments_ 9_pagerank	Negative_comments_ 9_authority
Student = 0, instructor = 1	0.403 (**)	-0.007	-0.013	-0.020	0.153
	0.001	0.958	0.915	0.874	0.221
Grade	0.098	-0.080	-0.073	-0.043	-0.319 (*)
	0.535	0.616	0.647	0.789	0.039
Inspiring interest in sports	0.319 (*)	-0.149	-0.143	-0.155	-0.168
	0.031	0.325	0.342	0.303	0.264
Desire for distinction as a professional	-0.124	-0.268	-0.252	-0.257	-0.382 (*)
	0.434	0.086	0.108	0.101	0.012
Interested in the subject	0.251	0.410 (**)	0.408 (**)	0.407 (**)	0.184
	0.092	0.005	0.005	0.005	0.222

**Correlation is significant at the 0.01 level (2-tailed); Correlation is significant at the 0.05 level (2-tailed).

Table 2. Rudeness.

	Rude_14_degree	Rude_14_indegree	Rude_14_outdegree	Rude_14_status	Rude_14_page rank	Rude_14_authority
Student = 0, instructor = 1	0.230	0.000	0.348 (**)	-0.007	0.009	-0.080
	0.063	10.000	0.004	0.957	0.942	0.522
Height	-0.375 (*)	-0.389 (**)	-0.220	-0.391 (**)	-0.363 (*)	-0.286
	0.010	0.008	0.141	0.007	0.013	0.054
Rural residence	0.405 (**)	0.371 (*)	0.283	0.388 (**)	0.356 (*)	0.245
	0.005	0.011	0.057	0.008	0.015	0.101
Urban residence	-0.405 (**)	-0.371 (*)	-0.283	-0.388 (**)	-0.356 (*)	-0.245
	0.005	0.011	0.057	0.008	0.015	0.101
Childhood in rural area	0.462 (**)	0.412 (**)	0.330 (*)	0.436 (**)	0.422 (**)	0.156
	0.001	0.004	0.025	0.002	0.004	0.300
Childhood in urban area	-0.462 (**)	-0.412 (**)	-0.330 (*)	-0.436 (**)	-0.422 (**)	-0.156
	0.001	0.004	0.025	0.002	0.004	0.300
Using internet for entertainment	-0.223	0.205	-0.363 (*)	0.204	0.204	0.108
	0.137	0.172	0.013	0.173	0.174	0.477

**Correlation is significant at the 0.01 level (2-tailed); *Correlation is significant at the 0.05 level (2-tailed).

become a target of rudeness, as tallness is a respectful and possibly awful qualification in physical education. It is, however, remarkable that the tall students do not show any clear susceptibility to be rude to others. Thus, if this is not attributed to tallness complex, then tallness seems to be so well integrated in a harmonious value system in physical education that seems to be connected with self-control. Rudeness seems to be related to regional determinants. This reveals a spatial discrimination, as people staying tend to be targeted for rude behavior and, also they exchange rudeness mutually (positive correlation to degree). However, being rude (outdegree) is a characteristic of a student originating from rural area rather than of a student being actually a resident of rural area. Thus, from a regional point of view, rudeness seems rather to be an aftermath of childhood-related setting and influence than an effect of actual milieu. The use of internet for reasons of entertainment seems to restrict the practicing of verbal aggressiveness in reality, as internet provides many options for relaxing (e.g. by listening music) or abreacting (e.g. let off outbursts in games or in chats). In this way, internet users have the chance to calm down in front of the computer and show a more sociable behavior in the everyday life.

In **Table 3**, mockery seems to be a cause of absence from the courses. It is natural that someone avoids attending the courses in order to avoid becoming a target of mockery. Moreover, the economic state of the family appears to be a basis of superiority-induced aggressiveness. Nevertheless, such a superiority-induced mockery does not remain without reaction: students of high economic state tend not only to mock others but also to become a target of mock-

Table 3. Mockery.

	Mock_15_degree	Mock_15_indegree	Mock_15_outdegree	Mock_15_status	Mock_15_pagerank
Non-attendance of courses	0.202	0.309 (*)	-0.080	0.305 (*)	0.334 (*)
	0.200	0.046	0.615	0.050	0.030
Family's economic state	0.461 (**)	0.279	0.396 (**)	0.277	0.305 (*)
	0.001	0.061	0.007	0.062	0.039

**Correlation is significant at the 0.01 level (2-tailed); *Correlation is significant at the 0.05 level (2-tailed).

ery. This may be attributed to the fact that mockery is often perceived as an intellectual interplay, which is relatively acceptable from anyone. Thus, a similar reaction to mockery is also acceptable as an intellectual challenge.

The “threat” seems to be an instructors’ means. From the instructors’ viewpoint, however, this may be perceived as simple “warning” (“if you don’t learn this correctly, you will fail the exams”). The afore-mentioned findings about the relation of being instructor and the regionality (rural vs. urban) are supported once again in the case of threat (**Table 4**). Additionally, students of higher semester feel well established within groups of friends. They also have tested their influence. Subsequently, they feel more comfortable to practice behaviors which are regarded by others as threatening. Similarly, these who have travelled abroad for sport reasons, feel also challengeable enough to practice behavior which is perceived by others as threatening. However, such a person also becomes a target of threats due to jealousy. On the contrary, the lack of experience of travelling abroad is discouraging for developing threatening behavior, as not having tested his social challenge ability. Finally, students showing interest in team sports tend to become target of threat, as a consequence of their involvement in activity of high competitiveness.

In **Table 5**, if one is an instructor seems to be rather undesirable for discussing and simultaneously reluctant to argue with others. This can be attributed to the fact that an instructor is often introvert and concentrated on his research interests and scientific approaches. Also, he may try to avoid being exposed to criticism. Students with high grade are rather unattractive for arguing, as they are regarded as strongly competent or self-contained and concentrated on their study interests. Persons who tend to spend time in internet are not unattractive for arguing. This is an evidence that internet is a source of communication stimuli. The same stands also for those who reveal a desire for professional distinction in future. They also are not unattractive for arguing, not only due to the discussion stimuli they provide but also due to the fact that they often are—or try to appear as—socially and/or intellectually challengeable.

In **Table 6**, though the instructors appeared to avoid and be avoided for arguing (s. **Table 5**), they show to be enthusiast and to inspire enthusiasm in argumentation. Thus, they seem to expect higher argumentation standards than they find within the class. The property (being instructor or student) has proved to be relevant for the aggressive behavior in previous papers [64] [65]. The younger a student is, the less enthusiasm for arguing he feels and he inspires to

Table 4. Threat.

	Threat_17_degree	Threat_17_outdegree	Threat_17_authority
Student = 00, instructor = 1	0.177	0.280 (*)	0.147
	0.155	0.023	0.239
Rural residence	0.210	0.367 (*)	0.220
	0.161	0.012	0.143
Urban residence	-0.210	-0.367 (*)	-0.220
	0.161	0.012	0.143
Childhood in rural area	0.334 (*)	0.450 (**)	0.316 (*)
	0.023	0.002	0.032
Childhood in urban area	-0.334 (*)	-0.450 (**)	-0.316 (*)
	0.023	0.002	0.032
Semester	0.186	0.318 (*)	-0.043
	0.238	0.040	0.785
Travelling for athletic reasons	0.308 (*)	0.281	0.215
	0.037	0.058	0.151
Never travelled	-0.192	-0.324 (*)	-0.033
	0.201	0.028	0.829
Interested in team sports	0.218	0.171	0.295 (*)
	0.146	0.257	0.046

**Correlation is significant at the 0.01 level (2-tailed); *Correlation is significant at the 0.05 level (2-tailed).

Table 5. Avoiding to argue.

	Avoid_argue_18_degree	Avoid_argue_18_indegree	Avoid_argue_18_outdegree	Avoid_argue_18_status	Avoid_argue_18_pagerank	Avoid_argue_18_authority
Student = 0, instructor = 1	0.247 (*)	-0.013	0.372 (**)	0.065	0.108	-0.222
	0.046	0.919	0.002	0.606	0.390	0.073
Grade	0.254	0.334 (*)	0.108	0.294	0.320 (*)	0.342 (*)
	0.105	0.031	0.494	0.059	0.039	0.027
Spending time in the internet	-0.150	-0.288	-0.022	-0.287	-0.330 (*)	-0.285
	0.319	0.052	0.884	0.053	0.025	0.055
Desire for distinction as a professional	-0.323 (*)	-0.339 (*)	-0.123	-0.372 (*)	-0.371 (*)	-0.135
	0.037	0.028	0.437	0.015	0.016	0.396

**Correlation is significant at the 0.01 level (2-tailed); *Correlation is significant at the 0.05 level (2-tailed).

others. This is an evidence of not instant integration of a young student in the climate or the mentality of the study milieu. Just as in the case of instructors, so the students with high grade show enthusiasm for arguing, as they desire to test their state of knowledge and intellectual capacity. However, these who desire to

be distinct as students or professionals are rather not inspiring to others enthusiasm for arguing. This may be attributed to the fact that they either are immoderately ambitious and challengeable or vain and provocative.

In **Table 7**, the instructors seem to enjoy arguing with others but the others do not enjoy arguing with them. This can be regarded as a lack of empathy in the part of instructors. The younger students seem not to enjoy arguing with others and these who desire to achieve professional distinction seem not to inspire others enjoyment for arguing with them for reasons similar to these described in **Table 1**.

In **Table 8**, three types of targets are revealed: a) the “depreciated assaulted”, b) the “attractive”, and c) the “repellent”. The “depreciated assaulted” is a type who is verbally aggressed in multifarious ways (negative comments, rudeness, mockery and even threat). Simultaneously, others tend to avoid argue with him, though they tend to assault him. Thus, they seem to use him as target, but

Table 6. Enthusiasm to argue.

	Argue_enthusiasm_19_degree	Argue_enthusiasm_19_indegree	Argue_enthusiasm_19_outdegree	Argue_enthusiasm_19_status	Argue_enthusiasm_19_pagerank	Argue_enthusiasm_19_authority
Student = 0, instructor = 1	0.355 (**)	0.182	0.407 (**)	0.176	0.178	0.255 (*)
	0.003	0.144	0.001	0.157	0.153	0.039
Birth year	-0.447 (**)	-0.085	-0.541 (**)	-0.088	-0.122	-0.067
	0.002	0.578	0.000	0.566	0.424	0.664
Grade	0.216	-0.118	0.366 (*)	-0.115	-0.073	-0.138
	0.169	0.458	0.017	0.468	0.647	0.384
Desire for distinction as a student	-0.183	-0.435 (**)	0.063	-0.479 (**)	-0.452 (**)	-0.396 (**)
	0.247	0.004	0.692	0.001	0.003	0.009
Desire for distinction as a professional	-0.215	-0.358 (*)	0.012	-0.347 (*)	-0.296	-0.419 (**)
	0.172	0.020	0.939	0.024	0.057	0.006

**Correlation is significant at the 0.01 level (2-tailed); *Correlation is significant at the 0.05 level (2-tailed).

Table 7. Enjoying to argue.

	Enjoy_argue_20_outdegree	Enjoy_argue_20_pagerank	Enjoy_argue_20_authority
Student = 0, instructor = 1	0.317 (**)	0.048	-0.417 (**)
	0.009	0.703	0.000
Birth year	-0.369 (*)	-0.034	0.247
	0.013	0.825	0.101
Desire for distinction as a professional	-0.004	-0.320 (*)	0.035
	0.980	0.039	0.827

**Correlation is significant at the 0.01 level (2-tailed); *Correlation is significant at the 0.05 level (2-tailed).

Table 8. Communicational types of target (received actions).

		“Depreciated assaulted”	“Attractive”	“Repellent”
	Negative_comments_9_sum	0.846	-0.093	0.092
Verbal aggressiveness	Rude_14_sum	0.581	-0.059	-0.618
	Mock_15_sum	0.432	0.090	0.296
	Threat_17_sum	0.856	-0.169	-0.238
	Avoid_argue_18_sum	0.526	-0.046	0.692
Argumentativeness	Argue_enthusiasm_19_sum	0.146	0.958	-0.013
	Enjoy_argue_20_sum	0.105	0.970	-0.052

Extraction Method: Principal Component Analysis. 3 components extracted.

they depreciate him as a discussant. This seems to be the profile of a strongly and adversely excluded student. This could be regarded as the antipode of integration. The “attractive” type is a person who is regarded by others as worth discussing with. They seem to enthusiastically expect to discuss with him and also to enjoy this discussion. At the same time, they do not tend to make him a target of verbal aggressiveness. Such a profile is obviously a quite ideal state in the communicational arena. Nevertheless, it proves to be realistic on the basis of these statistical results. Finally, the “repellent” is a type who just tends to discourage others from arguing with him. As this type does not appear to be targeted for aggression, such repulsion is not an effect of depreciation. This repulsion may be attributed to an inspiring or awesome impression. In general, the whole group seems to be fragmented in three quite different and clearly demarcated profiles of students which could be characterized as deplorable, adorable or even impressive. There is no profile combining common features. Thereby, the gap among these profiles seems to be unbridgeable. Such a group cannot be seen as a homogenous or united one.

In **Table 9**, two types of behavioral degree (general involvement) are presented. The “lively” type is a person who both is attacking and targeted for aggression of various forms (from comments to threat). However, at the same time, this person is not avoided for arguing but rather attracting others for an enthusiastic conversation as well as involved in discussions enthusiastically. Thus, the multifarious verbal aggressiveness which he exerts or incurs from others obtains a different state than this of mere oppression. It seems rather to become a continuous social or intellectual challenge. The “controversial” type shows a quite controversial synthesis. It depicts a person who, on the one hand, tends to avoid and simultaneously is avoided by others in the argumentation, and on the other hand, he tends to seek the exchange of arguments in enthusiastic and enjoyable climate. This behavioral controversy can be described as indecisiveness or as a courageous behavior afflicted, however, with inhibitions. It could be characterized as a rather normal everyday behavior (everyone would desire to develop or maintain a certain social state or dominance, but not fully free of any constraint or question about the correctness of his behavior).

Table 9. Communicational types of involvement (degree).

		The “lively”	The “controversial”
Verbal aggressiveness	Negative_comments_9_degree	0.836	0.167
	Rude_14_degree	0.861	-0.120
	Mock_15_degree	0.703	-0.196
	Threat_17_degree	0.857	-0.231
Argumentativeness	Avoid_argue_18_degree	0.019	0.313
	Argue_enthusiasm_19_degree	0.303	0.787
	Enjoy_argue_20_degree	0.066	0.831

Extraction Method: Principal Component Analysis. 2 components extracted.

Such typology formulation has been made also in previous papers revealing profiles consisting of particular behaviors, attitudes or other characteristics [59]-[64] [66].

4. Conclusions

The afore-mentioned academic and practical added value is expected to be fulfilled to certain extent by the findings discussed above. Concisely, results concerning particular forms of aggressiveness and argumentation have been revealed. Rudeness is ascribed to instructors, who hence could pay more attention to the communication style. Dedication to sport leads to target others and be targeted. Dedication to study content proved to play a role of a refuge. High grade and ambition seem to be protective. Thus, these two elements could be considered as an unwritten but structured value system (organizational culture) at the physical education department. This value system consists not only of mental and social but also of physical dimensions as it is enhanced with physical qualifications (tallness) which seem to discourage rudeness. Spatial-regional and economic discrimination (urban vs. rural origin and residence) is also revealed. This can be considered for paying more attention to the communication style and to public relation with certain students groups as well as to the support of such discriminated student groups. Internet entertainment leads to restriction of rudeness. Thus, such a digital means could be used at the department at more organized level (e.g. in the intervals between courses) in order to improve the climate at the department. Mockery should be paid attention more than rudeness as it may even be a cause of absence from the courses. Threat shows features similar to these of mockery while a certain evolutionism in verbal aggressiveness in the course of study has been proved. This tendency of evolutionism which is further enhanced by social challenging and the team sports competitiveness should draw the attention of the instructors. Instructors and high grade students discourage argumentation. An antidote to exclusion of arguing seems to be internet use. The instructors and high grade students are also related with enthusiasm for arguing, though their abstention from arguing. Therefore, a gap between real and expected argumentation is obvious. Younger students show an

integration deficit in terms of argumentation.

Communicational types have also been detected. More precisely, three profiles of targets (“depreciated assaulted”, “attractive”, “repellent”) and two profiles of general involvement, namely being both targeted and acting (“lively”, “controversial”) have emerged. The three target types are so clearly demarcated that the whole network appears to be quite fragmented in fully different communicational milieus (from quite integrated to totally marginal). The two types of involvement seem to be not so clearly demarcated. They could be characterized as normal (everyday) behavioral patterns rather than as fully integrated or marginal. In general, a typology of targets is rather depicting a much sharper fragmentation than a typology of general involvement (targeted and acting). In other words, targeting induces gaps while acting seems to fix them up. This means more simply that mutuality of actions, even in case of verbal aggression, tends slightly to mitigate fragmentation more than passiveness (being targeted).

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