Class Leaders in Physics Lessons' Management

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Abstract

This paper discusses the possibility of educational process management in physics with the help of class leaders. Good morals were found to be a criterion for the selection of candidates for leadership training to help teacher with physics lesson management. The types of referent leaders (intellectual and guardian) are specified that may contribute to the effective management of a team of teenagers in teaching physics.

Keywords: School education; referent leader; types of referent leaders; classroom management at physics lessons.

1. Introduction

As has been shown in our previous studies, training group leaders make positive impact on the teaching process (including the same in physics). Training of such leaders requires development of special techniques. We offered one for a group of college students (Gnitetskaya, Gnitetskiy, 2011). In this paper we study the previously highlighted issue in respect of a difficult category of school students. It should be noted that the management issue is often neglected in studies of teaching physics to teenagers. Management is believed to be a natural part of the teaching process. Presently, researchers of teaching physics are mainly focused on searching for ways of organizing students' activities in the field of active teaching methods. However, if a management style does not match the classroom environment, the methods are unlikely to have a positive result. The need for searching a management

technique for physics lessons that would adequately address specific features of a teenager team is driven by many reasons, including the difficulty in perception of the discipline content. Indeed, compared to other disciplines, physics contain a greater number of abstractions and generalizations, therefore, the level of perception depends on how well the basic student skills have been developed. The skills primarily include the ability to "recognize" the logic of physical conclusions, to establish intra-disciplinary links within the structure of the educational material, to solve experimental and theoretical tasks. Obviously, both students' motivation and teachers' authority should be superior for the students to strive for solving the above mentioned difficult tasks. The leadership factor holds a prominent place in business management, hence it seems reasonable to refer to business leadership in order to study the laws of leadership training.

2. Duplication leadership

There is a common belief that one person is unable to do everything, that's why when business starts growing, human resources are needed to help maintain it. There comes a challenge of creating people, working for the good of the business. The better the person at managing people the more results he/she is able to get out of every employee, and therefore the more successful the business is. Organization, motivation and unity of the people working in one organization are the basic factors of this success. The manager doesn't have to do the work anymore, all he/she has to do is to make sure that the business, and is willing to contribute to the common goals of the firm.

Business is organized by defining a set of responsibilities for every position, and hiring the right people for every position.

Traditionally this activity is the only one a manager undertakes, when creating an organization. When this is the case business works as a mechanism, and people are better viewed as tools in it, staying in the same position for several years, getting expertise at what they do and treating this expertise as their own exclusive asset, which secures their job. People commonly use less than one percent of their abilities to routinely execute assigned responsibilities. When an organization grows people who used to limit themselves to executing only assigned tasks do not get promotions. They are better to be kept at where they are: why would the business spend money for hiring and training a new person for a position, which is already occupied by an experienced employee doing his job well enough. Instead of promoting existing personnel managers hire people from outside of the firm for newly opened managerial positions.

An alternative to abovementioned organization is the one, created by undertaking not only one step creating a «mechanism», but two additional ones: creating and delivering the common vision of the organization, training employees to lead others. Vision is the picture of the firm and an outside world in the future. It answers the question: who do we want to become and therefore serves as a common objective. For example, Coca-Cola has the vision that every person in the world tries its product someday. Delivering the vision to employees is making them see the sense of it. Training people to lead others is simply training them to deliver the same vision to others and create new «mechanisms», where certain responsibilities are assigned to followers.

These steps allow creating a frame work, called duplication of leadership. Every employee has an understanding where the firm is heading (vision); therefore he/she is free to invent new ways of contributing to the approach of the vision. Additionally, he/she was trained to create his/her own «mechanism» and can execute his/her ideas on his/her own, by hiring new people, delivering vision to them and teaching them the skills that he/she had acquired. In a framework of duplication of leadership everyone is able to create his small organization with an objective, representing a step on a way to vision.

Organization grows from its base, and the role of the ones in higher positions is to create leaders who bring new people and ideas into organization. Leaders are continuously duplicated as a business grows.

Duplication of Leadership Framework (DOLF) provides employee with an opportunity to act as an entrepreneur, making his/her own ideas come true, and developing him/herself as a leader. Such an empowerment, together with vision, makes an employee feel that he/she can make a difference, and makes him/her more inspired and motivated toward achieving the firm's objectives. The traditional framework, however, may offer only professional development and no inspiration toward business goals.

DOLF makes each employee of the organization autonomous, so that he/she can grasp every little opportunity that he/she discovers, bringing additional value to the business. Traditional framework leaves decision making to upper-tier management, and limits employee's activity to executing his/her responsibilities; even when an additional action could lead to added value to the business.

When vision is delivered to every employee, each of them thinks how to achieve it, the fact that makes people united in their goal and creates teamwork. In both traditional framework and DOLF, distribution of compensation crates competition for higher positions. In DOLF there is only one way for an individual to prosper: discover and implement ideas that will bring everyone closer to the vision. Whereas in traditional framework, where business goals are not always considered by employees, one can prosper by taking actions that will adversely affect his colleagues and therefore overall business.

In DOLF every leader shares his experience and skills with his follower. Knowledge is acquired on a practical need basis and therefore its practical value is constantly evaluated, as opposed to traditional educational system where knowledge is considered as dogma and delivered in bunches of material, which makes it hard to implement in life. And check it practical importance. When business expands fast DOLF, as any other network, works best to satisfy the need for new employees and their education. Everyone who becomes a part of the network, represent an attractor for new comers, as well as the source of knowledge for them; the larger the network, the more potential it has to grow further.

Reader can find plenty of examples of successful application of DOLF in the following publications: «Build to Last: Successful habits of visionary companies» by James C. Collins and Jerry I. Porras (2002); «Good to Great: why some companies make the leap… and others don't» by Jim Collins (2001),which present the results of extensive research of the culture and history of the most successful companies in America.

DOLF creates a passion to make a difference among the people of the organization, simultaneously directing their *efforts* toward business objectives. Successful manager still controls people to do what

they are supposed to do in time, empower employees to implement their own ideas bringing up a desire within them to get results for the business, and continuously deliver the vision in the minds of the followers to keep them united toward the common goal.

First we would like to answer the question whether we can extrapolate leadership growth in DOLF to the 15 years old.

3. Special aspects of leadership training in adolescence age

From our point of view, personal morality shall be assumed as a criterion for candidate selection in leadership training. This criterion was introduced by us on the basis of Y.L. Kolominsky's research results (2000). He found that "... in this age, the most high-status students possess good skills, even temper, they are sociable, initiative, loyal in friendship" (Kolominsky, 2000). Teenagers' aspiration for a high moral level is emphasized in E.M. Smekalova's work (2006) stating that "teenagers have strongly pronounced sense of community, fellowship, duty and honor. They quickly learn moral norms and rules of behavior adopted in a group of peers, set a high value on their friends' opinion" (Smekalova, 2006). As noted by O.V. Evtikhov (2007), an important feature of a teenage leader is a lack of denial of other leaders with a similar set of values: "... teen leadership may not only be concentrated within one person, but distributed among several or all members of a group of teenagers, since in different situations the leadership will be passed from one teen to another "(Evtikhov, 2007). All of the above statements are convincing arguments in favor of our research in developing a method of management with the help of classroom leaders selected by the criterion of morality. However, we can point out a number of leaders, different in their features, which are typical for the adolescence age. Thus, the issue of classroom management at physics lessons with the help leaders is preceded by the question about types of teenage leaders that may be useful to a teacher in terms of effective classroom management. The most suitable leader type classified by psychologists is a referent leader, which according to N.B. Rozhinskaya (2011) "... due to the nature of its generation, may occur in a school community as well,...".– A referent leader is defined as "... an individual who is perceived as a significant member of a group of people due to his or her individual and personal nature, who has a high value status and stimulates subordination, imitation and reframing, being a standard of looks, behavior and moral norms" (Rozhinskaya, 2011).

In our opinion, an introduction of a referent leader with high morals may solve the problem of effective classroom management at physics lessons. Our assumption that a referent leader can be developed in a specially organized environment is consistent with the specifics of its generation mentioned by M.R. Bityanova (1994). According to the author, "a referent leader is generated not only by his personal qualities or their particular combination, but by the structure of relations in this particular group. This system of interpersonal relationships is formed and defined by the group's objectives, values and norms. These values and objectives are the basis for nominating a specific group leader. The leader is sort of a personification of the system as he or she represents the group's objectives and values, being a carrier and a conductor thereof" (Bityanova, 1994). This statement formulates a specific task for a teacher, namely, to create conditions for the development of referent leaders whose range of values covers the ethical standards of a group.

We believe that in in adolescence such conditions can be generated step by step through continuous promotion of the moral norms. At the first stage, it is necessary to identify candidates among school students for training referent leaders of the desired type. The following types of referent leaders are known: directive, power, charismatic, intelligent, high-status, guarding and tutelary extrapunitive (punishing) (Rozhinskaya, 2011).

We have determined types of referent leaders, suitable for our purpose, by revealing the semantic content of their names given in encyclopedias and dictionaries (see Table 1). Table 1 shows that neither directive nor power, nor extrapunitive types should be selected to assist a teacher, given the discrepancy of their values with moral norms. For example, a referent directive leader (see Table 1) with an ability to bend other teens to his will uses undemocratic methods of influence, which can lead to conflict and hidden resentment in the group. In this case, a teacher is not able to create an environment where achievement of the educational goal is dictated by the motive of school students. Obviously, the other two types (power and extrapunitive) are not suitable for our purposes by default.

Table 1. Summary table of referent leader type semantics and their characteristics

Referent leader type	Type characteristics	Referent leaders type semantics
Directive	Gains authority in a group through clear guidance and instructions is, impatient to objections, expects subordination and asserts him or herself through a convincing demonstration of the benefits of obeying to his will	Prone to assert his or her power and authority, uses undemocratic methods of influence: pressure, orders, regulations, etc. (Golovin. 1998))
Power	Gains recognition in a group of teenagers never mind using physical force, strongly demonstrating his or her physical superiority and suppressing resistance by aggressive pressure	Based on the use of considerable physical strength (Great Russian Encyclopedia, 2009)
Charismatic	Brings a vivid image associated with modernity, uniqueness, challenge to traditions, as well as with attractiveness, mystery, and social magnetism	Charismatic; strong-willed, overbearing. The charismatic leader (a person endowed with authority by his or her followers based solely on the properties of his or her charisma) (Great Russian Encyclopedia, 2009)
Intelligent	Gains authority in a group of teenagers by his or her verbal and cogitative advantages, speed of reaction, general outlook, innovative solutions and attractive initiatives	Spiritual, thinking, with a highly developed intellect (Great Russian Encyclopedia, 2009)
High-status	Moves toward leading positions among the teens, is a representative of a status social group, has material superiority and opportunities, is an example of a dream of social well-being, is associated with hopes of achieving life goals and self-affirmation of an individual	Good-looking, fashionable, prestigious, luxurious (Trishin 2013)
Guarding	Gains authority because of his or her humanistic goals, willingness for communication activities, desire to help, empathy and philanthropic actions	Taking care of, responsible, patronizing, guarding , guiding (Trishin 2013)
Extrapunitive (punishing)	Achieves authority as a result of accusative reactions that lead to the suppression of individual initiative, appearance of feelings of guilt and dependence on the source of accusation	Prone to shift the blame for the failures on other people (Golovin, 1998)

As it has been noted, a physics teacher refers to the subjects which are impossible to comprehend under the lash, for one needs a motive. For classroom management to be successful a teacher might need charismatic, intelligent, high-status and guardian referent leaders. Among them, intelligent and

high-status leaders are distinguished by their moral values. These types of referent leaders can give a hand to a teacher in classroom management at physics lessons thanks to their humanistic and cognitive characteristics. Indeed, a leader who is in charge of his followers and caring about the result (guardian one) can cover not only successful, but also weak teenagers with his or her influence, patronizing them in the classroom and creating a communication comfort. Intelligent type is characterized by judgment and gives others confidence in the possibility of success through achieving results, creating a motive, drawing teenagers by innovative solutions and initiatives. To identify these types of referent leaders we have developed a method of situational matrix, which will be published in the next paper.

4. Conclusions

Thus, as a result of the study we came to the following conclusions.

1. Presented business-oriented idea of Duplication of Leadership Framework (Gnitetskaya & Gnitetskiy, 2011) can be extrapolated to the process of teaching physics for teenagers in schools with regard to peculiarities of the age.

2. Peculiarities of adolescence (mostly - openness, faith in good intentions of others, lack of perception patterns, need for friendship with their peers, as well as vulnerability, denial of authorities, etc.) and difficulty of achieving the ultimate goal (the organization of leadership support system for the teacher in classroom management at physics lessons) were the basis for the introduction of criteria for candidates selection for leadership training according to their morality level.

3. Using correlation of moral values in semantic content of the characteristics of referent leaders we identified the types of referent leaders (Intelligent and Guarding), which may contribute to effective management of a group of teenagers at physics lessons.

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