ANGER IN THE CONTEXT OF LEARNING

The understanding of emotional process as a crucial part for gaining knowledge and abilities is the key for effective learning and teaching. Anger is one of academic emotions which is experienced during common activities connected with teaching, learning, and testing.

This article focuses on reviewing the anger presence in the context of learning process. It presents internal (tied to learners) as well as external (tied to the teacher and the situation) anger sources. Issues connected with the relation between anger and motivation, ways of using cognitive resource during problem solving tasks, learning strategies and self-regulation of learning are also discussed.

Key words: anger, learning, motivation, cognitive functioning, learning strategies, self-regulated learning

INTRODUCTION

Emotions may have influence on attaining knowledge and skills because they interlink such psychological processes as affect, cognition, physiological responses and motivation. (Pekrun, Goetz, Titz, Perry, 2002). Emotions are also the base for providing and maintaining reactions for events and internal states that are important for an individual. By focusing attention, modifying thinking, and evoking needs and intention related to action, they provide physiological and motivational (psychological) energy. Emotions can strongly affect thoughts, motivation and learners’ activity (Pekrun i in., 2002). Anger, as one of the basic human emotions, is present during learning process, too. It is one of a specific academic emotion. Academic emotions are the temporal affective states experienced during common activities connected with teaching, learning and performance on every level of education (Putwain, Larkin, Sander, 2013). Anger, specifically, is characterized by the experience of feeling insulted which provokes the desire for revenge. A person is sure about the causes of events which he or she experience and attributes them to the actions of other people. At the same time, she or he believes of having an influence on or power over the situation and the ability to cope with it (eg. Lerner, Tiedens, 2006). Meta-analysis on the subject of emotions related to the academic world shows that in comparison with other emotions very little research was devoted to this area of study (Huang, 2011). Anger is a subject of a huge importance, due to the specific impact on learning process. Research conducted by Pekrun, Elliot, and Maier (2009) shows that anger presence let to predict the level of academic achievement. The more anger student experiences, the weaker is the
mastery-goal approach, which characterizes people with high academic achievement. Therefore, the more anger somebody experiences, the weaker his or her achievement could be. Similar conclusion was provided in a study by Kim, Park and Cozart (2014). Participants during the second week of completing an e-learning mathematic course were asked to fill in two online questionnaires. The first one measured self-efficacy, internal motivation, forms of self-regulations, and learning strategies, whereas the second test measured academic emotions. The analysis also included the data on participants’ final score and course performance. The results revealed that students who declared experiencing more anger experienced lower self-efficacy, lower internal motivation and weaker learning self-regulation, too. Additionally, anger showed to be the best individual predictor of the final score. Students, who declared experiencing more anger throughout the course, scored lower than the other group.

THE SOURCE OF ANGER IN THE LEARNING CONTEXT

The causes of anger occurrence in the context of learning can be divided into two categories: internal – related to the student and external – related to teaching. Table 1 presents the fact sheets:

Table 1 Precedents of anger in the context of learning

<table>
<thead>
<tr>
<th>Precedents of anger in the context of learning</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Internal</strong></td>
<td><strong>External</strong></td>
</tr>
<tr>
<td>• The negative evaluation of content</td>
<td>• Too high demands</td>
</tr>
<tr>
<td>• Aversion towards invested effort</td>
<td>• Way of teaching</td>
</tr>
<tr>
<td>• Not attaining the goal (e.g. unsuccessful problem solving)</td>
<td>• Type of feedback</td>
</tr>
<tr>
<td>• Attributing failure causes to another person</td>
<td></td>
</tr>
</tbody>
</table>

Source: own work

INTERNAL SOURCES OF ANGER

Anger may be related to learning process itself (activity-focused emotion), when it refers to for example, experiencing irritation during reading the text (Putwain et al., 2013). According to Pekrun (2006) anger could be evoked when a student feels that a learning situation (e.g. problem solving) is controllable but the invested effort is experienced as aversive. According to the control-value theory (Pekrun, 2006; Pekrun, Frenzel, Goetz, Perry, 2007, Pekrun et al., 2002) subjective evaluation is the result of an entity’s conviction that she or he has the ability to cope with the task or the material, and that the learning activity lets him or her gain deliberate goals and this goal is dependent not only on the situation, but on a personal effort, too. However, anger may cause an unsuccessful realization of learning goals. Putwain et al. (2013) noticed that anger often appears when a student attributes personal failures to the other people: a teacher, who may have prepared an inadequate test or a classmate who talked during the class.

EXTERNAL SOURCES OF ANGER

Apart from the factors related to a learner, the teacher’s behavior is a vital source of anger. Goetz, Lüdtke, Nett, Keller, Lipnevich (2013) conducted research on students to investigate the intensity of emotions and the assessment of teacher’s behavior. The study revealed that experience of anger correlated with high teacher demands regardless of the subject. High teacher demands may lower the sense of control and increase the importance of external motivation, which is related with rising negative emotion experience, within anger. The study also
concluded that the supportive presentation style of a teacher, characterized by understanding, using many examples and illustrations, is related to lesser anger experience in students.

Another important factor that has an influence on the anger experience is the type of feedback provided by the teacher. In an experimental study (Pekrun, Cusack, Murayama, Elliot, Thomas 2014) participants were informed beforehand about the kind of feedback they would receive (their individual progress or other people’s performance). The control group, however, was informed that they would not receive any feedback. The participants were asked to fill in a questionnaire investigating the learning goals. Moreover, during the experiment, the measurement of emotions experienced was conducted three times (before, in the middle and after the experiment). Results showed that feedback based on the evaluation of the progress of an individual causes less anger experience that a feedback including comparison to another student or lack of such feedback.

### CONSEQUENCES OF ANGER IN THE CONTEXT OF LEARNING

Pekrun et al. (2002) identified four areas in a learning process on which anger may have an influence: motivation, cognitive functioning, learning strategies and learning self-regulation. Consequences of anger may be favorable or unfavorable for the process of knowledge and skills. Table 2 presents positive and negative effects of anger in the context of learning:

#### Table 2. Antecedents of anger in the context of learning

<table>
<thead>
<tr>
<th>Negative</th>
<th>Positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Declining internal motivation</td>
<td>· Evoking strong motivation to cope</td>
</tr>
<tr>
<td>· Performance-avoidance goals</td>
<td>· Resistance to distractors</td>
</tr>
<tr>
<td>· Reducing self-efficacy</td>
<td>· Increasing effort resulting in adapting adequate actions</td>
</tr>
<tr>
<td>· Attention narrowing</td>
<td></td>
</tr>
<tr>
<td>· Heuristic precessing</td>
<td></td>
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<tr>
<td>· Reduction of possible solutions</td>
<td></td>
</tr>
<tr>
<td>· Surface approach to learning</td>
<td></td>
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<tr>
<td>· Ineffective self-regulation in learning</td>
<td></td>
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</tbody>
</table>

Source: own work

### ANGER AND LEARNING MOTIVATION

The activating role of anger may induce strong power to cope with the obstacles in learning (Bandura, Cevone, 1983). On the other hand, as showed in above-mentioned study (Kim et al., 2014, Pekrun et al., 2002) anger is related to lower self-efficacy and can lead to the decline of internal motivation. Additionally, Putwain et al. (2013) conducted research on students showing that anger refers rather to the comparison to others than to a personal or external standards. In the longitudinal study by Putwain et al. (2013) participants were asked to fill in questionnaires about learning goals and academic emotions three times: at the beginning of three subsequent semesters. Results revealed that anger correlates with students’ will to avoid displaying incompetence (performance-avoidance goals) in each of measured periods. Additionally, students who experienced anger at the beginning of a second semester tended to alter their behavior leading to a rise of performance-avoidance goals.
in following semesters in order to gain learning results that would not be worse than the results of others (mastery-avoidance goals).

ANGER AND COGNITIVE FUNCTIONING

Anger, especially the very intensive one, may cause attention narrowing. In such a case, a person most probably focuses on stimuli that is only significant to him or her in a particular moment. This, in turn, inhibits the processing of other stimuli which are not given a high priority by an individual. Therefore, it could bring a positive effect on learning since a student solving a problem would be completely devoted to one task only, separating distractors from the surrounding. On the other hand, this phenomenon may block access to alternative solutions which could include the proper answer. Finunce (2011) investigated the influence of anger on students’ attention. In the experiment, 98 Participants had anger induced by watching a part of film „My Bodyguard“ (Devlin, Bill, 1980), after which they were asked to complete the Flanker test, allowing to measure the effectiveness and power of resilience for distractors action. Students had to react to the central stimulus, which was surrounded by distractors (flankers) which were either more similar, less similar, closer or farther to the main stimulus. The results showed that anger induction increases attention selectiveness. This meant that the reaction time in the Flanker test was significantly shorter in the first group in comparison to the results in the control group. Thus, in some learning situations selective attention may be helpful (eg. when a student should be resilient to distracters), but in other situations which demand divergent thinking, it could become a burdensome obstacle.

Studies (Bodenhausen Sheppard, Kramer,1994, Tiedens, Linton, 2001) has shown that anger activates heuristic information processing (eg. more stereotypic evaluations, paying less attention to quality of arguments and prizing surface feature of communicates). Tiedens and Linton (2001) conducted research on students who were asked to recall a situation from the past which was associated with experiencing personal anger. Secondly, participants assessed ambiguous statements which could have be interpreted as hostile. The results showed that people who experienced anger treated experimental items as less ambiguous. Lerner and Tiedens (2006) state that anger reduces the number of ways of reasoning. This means that a student could experience problems with finding a correct solution. Furthermore, Lerner, Kertner (2000, 2001) claim that anger evokes more optimistic outlook on risky events in future, which can be related to providing answers quickly. The study by Lerner, Kertner (2000) was based on completing questionnaires regarding the state-trait anger and risk assessment of possible negative events. Results showed that anger is related to underestimation of likely hazards.

ANGER AND LEARNING STRATEGIES

A study by Trigwell, Ellis, Han (2012) indicates that anger triggers the use of surface approach more frequently than the deep approach to learning. The surface approach to learning is connected with relying on study guides and other materials that have been partially or completely edited for the purposes of self-studying. Conversely, deep approach to learning is characterized by the preference for stimulating and demanding materials (Enwistle, 1991). In the research by Trigwell et al. (2012) first-year students completed two questionnaires regarding academic emotions and approaches do learning (in the context of employed strategies and motives to learn). Results did not demonstrate the relation between anger and specific motivation to learn. However, what the study showed was that anger is linked to the surface approach to learning. Trigwell et al. (2012) state that students who experience anger may display the surface approach to learning because anger can hinder the ability to
look at different associations and elements within a subject. Additionally, Pekrun et al. (2002) claim that anger may cause an individual to apply such learning strategies as simple rehearsals and algorithmic procedures in problem solving and learning.

ANGER AND SELF-REGULATED LEARNING

Self-regulated learning is related to planning, monitoring, evaluating one’s learning and adapting strategies of acquiring knowledge and abilities to current task demands (Pekrun et. al., 2002). According to above-mentioned studies (Pekrun i in., 2009, Kim i in., 2014) anger causes lowering of effective self-regulated learning in both traditional and in e-learning forms. Anger prones the student to rely on the external forms of managing learning (by teacher or parent). In the research by Gonzalez (2012), high school students completed two questionnaires that measured approaches to tasks, academic achievement and learning goals, emotional and motivational control and strategy of controlling and regulating cognitive processes connected to realizing school tasks. Results showed that people who declare a higher number of motivational and emotional control strategies (including anger) are more engaged in the learning process and more often use cognitive control strategies related to eg. the evaluation of an accomplished task. However, Pekrun (2014) noticed that in some situations anger may positively impact the self-regulated learning. If a student is convinced of his or her success, some level of obstacles in solving problems may increase effort invested in coping and, therefore, adapt strategy which may have an influence for change in conception of solving, leading to developing of advanced knowledge.

FUTURE DIRECTIONS

Hitherto little amount of research was conducted to examine anger influence on the process of consolidation knowledge and skills. Therefore, there is a vast area for exploration. It is absolutely essential to identify factors which will show whether anger has a positive or negative impact and on which parts of the learning process, eg. motivation. It might be essential to look at the influence of anger intensity and individual differences (eg. temperament or cognitive style). Moreover, comparing the number of favorable and unfavorable antecedents of experiencing anger, it seems that until now little attention was paid to positive implications. In the case of learning strategies it is possible to predict that in acquiring some types of materials eg. new words from foreign language, the surface learning strategy could increase learning effectiveness. In the future research, it would desirable to include other research groups as eg. teacher to investigate relations between teacher’s anger and student’s anger. The above-mentioned studies do not consist of learners of all age groups. Age or emotional development stage may have different impact on the learning areas related to anger in the context of the various level of education. Another area for research is the investigation of relations between anger and different types of tasks (eg. divergence vs convergence) or teaching methods (eg. discussion, practical workshops, simulations). It is worth to design research, in which real-life pedagogical materials are used.

SUMMARY

A few studies conducted on anger in the context of learning show that it could be caused by internal as well as external factors. Additionally, anger may influence positively or negatively on various aspect connected to motivation, learning self-regulation, cognitive functioning and learning strategies. Currently, little is known about what kind of factors decide what characteristics of anger impact the learning process. For the practical use, it is essential to extract dual nature of such influence. It is essential to create circumstances for gaining knowledge.
and skills, which could neutralize unfavorable effects and in the same time let to productively use profits of anger in learning process.

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