

# The Influences of Defense Mechanisms on Learning

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## Abstract

Individuals demonstrate defensive mechanisms. The current study refers to the immature defense mechanisms of learners. It aims to investigate how immature defense mechanisms among learners, especially those of emerging adults, impair self-regulated learning. We analyze how immature defense mechanisms can affect the different processes of self-regulated learning based on the Defense Mechanisms Rating Scales (DMRS) and Zimmerman's cyclical model of self-regulated learning. This study shows that using immature defensive mechanisms may not only have a negative influence on the activated self-efficacy beliefs of the learner but also on the subsequent processes of the forethought, performance, and self-reflection phases of self-regulated learning. The consequence is a suppressed awareness of learning, which increases as the adaptiveness of defenses decreases. This research reveals the close connection between self-regulated learning and ego development, emphasizing the strong role of an educated ego for learning that obtains pleasure while acknowledging reality.

## Keywords

Learning, Self-Regulated Learning, Defensive Mechanisms, Emerging Adults

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## 1. Introduction

Psychoanalysts and educational scientists have written about the implications of psychoanalytic theory for education (e.g., Bettelheim, 1969; Freud, 1979; Kris, 1948; Mayes, 2009; Rasey, 1946).

Freud (1979), the daughter of Sigmund Freud, advocates an analytical pedagogy. She stated in 1935 that no analytical pedagogy would exist. According to her, education could benefit from psychoanalysis in three ways: First, psychoanalysis could provide a foundation for criticizing existing educational methods. Second, psychoanalysis would enrich the teacher's expertise and strengthen the relation-

ships with the learner. Third, the analysis of the child could contribute to repairing the injuries resulting from education (Freud, 1979: p. 109).

Ten years after Anna Freud's plea, Hofer (2017: p. 293) wrote in 1945 in the article "Psychoanalytic Education" that "it would be a mistake to assume that the relation between psychoanalysis and education has developed beyond its infancy."

About 20 years later, Bettelheim believed that psychoanalysis has received little attention in education because both psychoanalysts and educators have primarily focused on the treatment method, neglecting the human image and the overall goals of psychoanalysis and education that correspond with each other (Bettelheim, 1969). "... education and psychoanalysis may be similar in their aims—namely, to enable man to reach his own highest potentials" (Bettelheim, 1969: p. 74).

In his literature review, Mayes (2009) examined the psychoanalytic educational approaches from 1922 to 2002. He discovered that the focus in psychoanalytic literature from the 1920s to the 1950s was on problematic school experiences; there was a growing interest in the positive, emancipatory potentials of psychoanalytic pedagogy that emerged during the 1960s. However, in the 1970s, research again focused on educational problems, whereas between 1980 and 2002, both research programs were dominant. Summarizing the results of the study analysis, Mayes (2009) asserted that among the problems of teaching and learning studied by psychoanalytic researchers, the transference dynamics in teacher-student relationships seem to be the most important.

In this study, I will focus on the learner and his defense mechanisms, which are currently considered "heuristically useful concepts of psychoanalysis" (Kuhl, 2001, p. 78). The current project aims to explore the impact of immature defense mechanisms on learning. Studies by Labouvie-Vief et al. (1987) and Cramer (2012) stimulate this research: In a study with one hundred male and female participants in the age range of 10 to 77 years, Labouvie et al. (1987) found that ego level, which is a developmental measure, and source of stress can predict the use of defensive mechanisms. This allows the conclusion that defense mechanisms change over time. Cramer's study confirmed this observation and provided an argument for looking at emerging adults: Cramer (2012) found that the use of identification decreased, and the use of denial increased between late adolescence and adulthood.

The developmental component of defense mechanisms indicates that it makes sense to explore the immature defense mechanisms during the learning process, promoting pedagogically their development. Until recently, research of defenses has focused on clinical research (Karagiannopoulou et al., 2018).

## 2. Literature Review

Over the past five decades, there has been sustained research on how the functioning of defensive mechanisms affects psychological well-being (Tanzilli et al., 2022), mental health (Boldrini et al., 2020), personality disorders (Perry et al.,

2013), and treatment process-outcome (Drapeau et al., 2003; Perry et al., 2012).

Expanding this psychologically oriented research program, which has shown significant advancements, to include an educational topic is necessary to understand the learner and promote learning.

Sigmund Freud introduced the concept of defense mechanism in 1894 in his book “The Neuro-Psychoses of Defence.” He defined defense hysteria as “an occurrence of incompatibility in ideational life” (Freud, 1962: p. 47). The “ego was faced with an experience, an idea or a feeling which aroused such a distressing affect that the subject decided to forget about it because he had no confidence in his power to resolve the contradiction between that incompatible idea and his ego by means of thought-activity” (Freud, 1962: p. 47). Newer definitions of defense mechanisms understand the concept as an automatic psychological mechanism (American Psychiatric Association, 2013), as an implicit emotion-regulation construct (Rice & Hoffman, 2014), or as “*involuntary mental mechanisms* that distort our perception of internal and external reality to reduce subjective distress” (Vaillant, 2000: p. 89, emphasis in original).” In the current study we define defenses as automatic psychological mechanisms.

Regarding learning-related topics, researchers primarily focus on thinking styles (Gleser & Ihilevich, 1969; Witkin, 1965; Zhang & Stern-berg, 2006), intelligence (Haan, 1963), coping mechanisms (Silverman & Aafjes-van Doorn, 2023), emotion regulation (Sala et al., 2015), moral judgment development (Hart & Chmiel, 1992), academic performance (Waqas et al., 2015), and recall performance (Holmes & Schallow, 1969).

Studies on the relationship between defense and thinking styles (Zhang & Stern-berg, 2006) show that adaptive thinking styles require a higher level of cognitive complexity and foster creativity. This thinking style positively predicts adaptive defense mechanisms. In contrast, thinking styles directed toward negative emotions negatively predict them. Thus, thinking styles that tended to confirm norms needed a lower level of cognitive complexity and could explain the differences in less adaptive defense mechanisms.

Haan (1963) assumed that comparable processes occur in the coping and defense mechanisms about intelligence. She found that coping strategies contribute to an acceleration of IQ, while defense strategies result in an IQ decrease.

In line with these findings, Silverman and Aafjes-van Doorn (2023) showed an association between maladaptive coping and immature defense mechanisms and adaptive coping mechanisms and mature defense mechanisms. In their empirical research, Sala et al. (2015) found a connection between emotion regulation and defenses through the dimensions of adaptiveness and maladaptiveness. Thus, the most adaptive defense mechanisms relate to positive coping strategies (Di Giuseppe & Perry, 2021).

Hart and Chmiel (1992) demonstrated that teenagers with more mature defense profiles had higher levels of moral judgment inferences 10 to 20 years later than teens in a different group who had less mature defense profiles.

Waqas et al. (2015) found a small direct correlation between mature and neurotic ego defense mechanisms and academic performance and a small indirect association between immature mechanisms and academic performance among medical students in Pakistan. Additionally, Holmes and Schallow's (1969) experimental study on recall demonstrated that the decline in recall performance results from response competition, which might be thoughts triggered by threat, not repression as previously believed.

Regarding learning itself, Rentzios et al. (2019) stated that limited studies have investigated the relationship between defense mechanisms and learning. There was only one branch of research starting in 2015 that examined the relationship between learning approaches, such as deep, surface, and strategic ones, and defense mechanisms (Karagi-annopoulou et al., 2018; Karagiannopoulou & Milienos, 2015). Karagiannopoulou et al. (2018) conducted a study with 425 undergraduates and found that defense styles predict learning patterns (see Karagiannopoulou & Milienos, 2015). They distinguish between a mature/adaptive and an immature/maladaptive learning pattern. A mature/adaptive learning pattern consists of a deep and strategic approach to learning, personal engagement, and preferences for classes that support understanding. On the other hand, a surface approach represents an immature/maladaptive learning pattern, characterized by task completion with minimal personal engagement and preferences for the transmitted information. While mature defense styles are associated with the mature/adaptive learning pattern, immature defense styles predict the immature/maladaptive pattern. Furthermore, Karagiannopoulou et al. (2018) showed in this study that learning approaches mediate the impact of defense styles on achievement; however, with a low effect of defenses. Vlachopanou and Karagiannopoulou (2022) identified in a study on procrastination, a profile of students with immature defenses, a surface learning approach, and who perceive procrastination as a defensive attitude towards reality.

Rentzios et al. (2019) showed for undergraduates the dominant mediating role, especially of an immature defense style, in the relationship between negative emotions and approaches to learning.

To the best of my knowledge, no previous research has theoretically investigated the influence of immature defense mechanisms on learning, despite the studies in the field of learning approaches and defense mechanisms (e.g., Karagiannopoulou et al., 2018; Rentzios et al., 2019; Vlachopanou & Karagiannopoulou, 2022). Knowing about the relationship from a theoretical perspective lays a systematic foundation for empirical research.

The current study understands learning “as the acquisition of knowledge through reasoning” (Schneider, 2024: p. 791), and reasoning is the process of drawing conclusions (Leighton, 2004; Angeles, 1981). Kris (1948) asserts that self-regulation of human behavior occurs only in marginal areas, so my focus will be on the self-regulation of learning and on emerging adults. Schunk and Zimmerman (2013: p. 45) define self-regulated learning as learning “that results from students’ self-gen-

erated thoughts and behaviors that are systematically oriented toward the attainment of their learning goals.”

For the current study, we assume that immature defense mechanisms have a negative influence on self-regulated learning. This project aims to lay a foundation for future studies on empirical research and educational interventions to enable learners to develop defense mechanisms that are more appropriate. By understanding the existence and functions of the immature defense mechanisms in learning, teachers can support learners in adjusting the immature defense mechanisms.

### 3. Theoretical Foundation

Resulting from her engagement with Sigmund Freud’s work on the origins and functions of the ego, Anna Freud published the book “The Ego and the Mechanisms of Defense” in 1936, in which she developed a theory of the mechanisms of defense. In this major contribution to psychoanalytic psychology, she examined the ways in which the ego defends itself against unpleasure and fear and exercises control over impulsive behavior, affects, and drives.

According to the structural model of the ego Sigmund Freud proposed in the essay “Beyond the Pleasure Principle” (1920), he divided the human psyche into three interacting instances: the id, superego, and ego. Following this model, the ego mediates between the id’s instinctual needs, the superego’s moralizing role, and the demands of reality.

The id represents the part of the personality that strives to satisfy its wishes, needs, and impulses. For the id, which is controlled by the pleasure principle, aspects such as social norms, morals, ideals, or reality have no relevance.

The *superego* represents the conscience and ideals. This aspect of the personality directs the ego to act morally and idealistically. While the conscience, as part of the superego, deals with the behavior and thoughts that are considered undesirable by important others, the ego ideal encompasses the behavior and thoughts that the ego idealizes and therefore wants to realize. By suppressing unacceptable instincts, the superego influences the ego to act in an ideal and moral manner.

In the id, the “primary process” (Freud, 1966: p. 7) is dominant, as “there is no synthesis of ideas” (p. 7), whereas, in the ego, “the association of ideas is subject to strict conditions, to which we apply the comprehensive term “secondary process”. (Freud, 1966: p. 7).

The structural model of the ego is a foundation to understand psychic conflicts. Based on this model, conflicts are conceivable between the id and the ego, the id and the superego, the id and the outside world, the superego and the ego, the superego and the outside world, and the ego and the outside world (Freud, 1966; Vaillant, 2000). The ego has the function of resolving conflicts (Freud, 1966).

Following Anna Freud (1966: p. 69), the drivers for defense mechanisms are three forms of anxiety: instinctual anxiety, anxiety of conscience, and object anxiety. While the conflict between the id and ego leads to instinctual anxiety, the

conflict between the ego and superego promotes anxiety of conscience, and the struggle between the ego and the outside world results in object anxiety. Moreover, conflicting impulses can also trigger defense mechanisms.

If the ego cannot deal with the demands of the desires, the conditions of reality, and the moral and ideal standards, anxiety and tension may result from this unresolved conflict. As anxiety and tension are unpleasant inner states that individuals want to avoid, the ego uses defense mechanisms to reduce anxiety-arousing thoughts and negative feelings. For instance, when the instincts are exposed to criticism and rejection by the ego, they persist in pursuing their goals, while the ego responds by permanently putting “the instincts out of action” (Freud, 1966: p. 7), thereby securing its own boundaries (Freud, 1966). “No longer do we see an undistorted id impulse, but an id impulse modified by some defensive measure on the part of the ego” (Freud, 1966: p. 7f).

Shill (2004) highlights the conflict between two perspectives that address the question of what the defense mechanism is directed against: For Anna Freud (1966), the object of defense is unpleasure; for Sandler (1985), the defense operates against the content of the wish, a view predominant in the literature (Shill, 2004). However, Shill (2004) argues that the pleasure principle is the motive for defense, and signal anxiety is the goal of defense and not the drives, ideas, affects, or the superego. Following Di Giuseppe and Perry (2021), the defense mechanisms protect the individual from anxiety, a sense of threat from internal or external sources or conflicts. Combining these diverse perspectives with Vaillant’s systematic scheme creates a more complex perspective: Vaillant (2000: p. 92f.) describes the object of defense mechanisms as “the extent to which it denies or distorts subject and object, idea and affect in the experience of an impulse expression.” Vaillant mentioned the following example for the expression of impulse: “Defense mechanisms can allow a person to ignore the affect (isolation, intellectualization), to ignore the cognitive representation of the affect (repression), to reverse the direction of an impulse (make the self the object; projection), or to make the object the self (suicide or passive aggression).” (Vaillant, 2000: p. 93).

Sigmund Freud stressed the role of education for ego development: He argued that “an ego thus educated has become ‘reasonable’; it no longer lets itself be governed by the pleasure principle but obeys the reality principle, which also, at bottom, seeks to obtain pleasure, but pleasure that is assured through taking account of reality, even though it is pleasure postponed and diminished” (Freud, 1976: p. 402f). Thus, the acceptance of reality, even when not appreciated, characterizes mature defense mechanisms. Theoretically, teaching this lesson is the responsibility of education, not analysis.

In the book “The Ego and the Mechanisms of Defence” (1966: p. 44), Anna Freud added a tenth defense mechanism, sublimation or displacement, to the nine defense mechanisms introduced by Sigmund Freud (repression, regression, reaction formation, isolation, undoing, projection, introjection, turning against one’s own person, and reversal into the opposite). Bibring, Dwyer, Huntington, and Va-

lenstein (1961) expanded this list to 24 basic defense mechanisms and 15 more that are complex.

In the current study, I am referring to immature defense mechanisms, as we assume that they are prevalent in the population (Di Giuseppe & Perry, 2021), particularly among emerging adults. Despite the lack of published studies on the prevalence of defense mechanisms in nationally representative samples, Blanco et al. (2023: p. 1) found in a recent national study of adults in the US that “neurotic, immature, and pathological defense mechanisms are prevalent in the general population and associated with psychosocial impairment.” Moreover, the study reveals that immature defenses were associated with younger age, never having been married, lower educational attainment, and lower income (Blanco et al., 2023). Taking these links into account shows that addressing the fact of how immature defense mechanisms impair self-regulated learning is an issue of educational justice. We do not refer our study to mature defensive mechanisms as the most adaptive defense mechanisms are already linked to positive coping strategies (Di Giuseppe & Perry, 2021).

#### 4. Methods

We theoretically explain how immature defense mechanisms can impair self-regulated learning through their definition and operationalization. Gleser and Ihilevich (1969) developed the Defense Mechanism Inventory (DMI) in 1969, marking a milestone in the collection of defensive mechanisms. The inventory is a paper-and-pencil test that asks respondents to complete multiple-choice items based on their thoughts, feelings, fantasized behavior, and actual behavior in hypothetical conflict situations. This research led to the development of one of the most established frameworks for defense mechanisms, known as “the gold-standard approach to the study of defense mechanisms” (Di Giuseppe & Perry, 2021: p. 2), which is the hierarchical model proposed by Vaillant (1971, 1992) and operationalized by Perry (1990).

For defining and operationalizing the immature defense mechanism, I refer to the Defense Mechanisms Rating Scales (DMRS) that Perry (1990) created based on Vaillant’s model. The DMRS Manual provides definitions of 30 defense mechanisms, hierarchically organized into seven levels of adaptiveness ranging from most adaptive to immature. They are categorized into three defensive groups: mature defenses, neurotic defenses, and immature defenses (Di Giuseppe & Perry, 2021; Vaillant, 1971, 1995). Prout et al. (2022: p. 833) showed that the three-factor structure of the DMRS-SR-30 has good psychometric properties. The immature defenses, the least adaptive category of defense mechanisms, encompass four of the above-mentioned seven levels, which are action (level 1), major image distortion (level 2), disavowal (level 3), and minor image distortion (level 4) (Di Giuseppe & Perry, 2021; Perry, 1990; Vaillant, 1971, 1995).

Di Giuseppe and Perry (2021) further divide immature defenses into two sub-categories: depressive and non-depressive defenses. The depressive defenses in-

clude the level 1 and 2 mechanisms of acting out, help-rejecting complaining, passive aggression, splitting of self-image, splitting of other's image, projective identification, projection, devaluation of self-image, and devaluation of other's image (Di Giuseppe & Perry, 2021). The level 3 and 4 defenses, which include denial, rationalization, autistic fantasy, omnipotence, idealization of self-image, and idealization of other's image, are regarded as non-depressive (Di Giuseppe & Perry, 2021). Following Vaillant (1971, 1992) and Perry (1990), **Table 1** shows the fifteen immature defense mechanisms, including their definitions. "Immature psychological defense mechanisms are psychological processes that play an important role in suppressing emotional awareness" (Costa & Brody, 2013: p. 535).

**Table 1.** List of immature defense mechanisms adapted from Di Giuseppe and Perry (2021, p. 3ff).

<i>Defense Level</i>	<i>Individual Defenses</i>	<i>Definition</i>
<i>Level 4: Minor Image-distorting Defense Level</i>	Idealization of self-image	"...attributing exaggeratedly positive qualities to oneself"
	Idealization of other's image	"...attributing exaggeratedly positive qualities to others"
	Devaluation of self-image	"...attributing exaggeratedly negative qualities to oneself"
	Devaluation of other's image	"...attributing exaggeratedly negative qualities to others"
	Omnipotence	"...acting superior to others, as if one possessed special powers or abilities"
<i>Level 3: Disavowal Defense level</i>	Denial	"... refusing to acknowledge some aspects of external reality or of his or her experience that would be apparent to others"
	Rationalization	„...devising reassuring or self-serving but incorrect explanations for his or her own or others' behavior"
	Projection	"...falsely attributing his or her own unacknowledged feelings, impulses, or thought to others"
	Autistic Fantasy	"excessive daydreaming as a substitute for human relationships, more direct and effective action, or problem solving"
<i>Level 2: Major Image-distorting Defense level</i>	Splitting of self-image	"...viewing himself or herself as all good or all bad"
	Splitting of other's image	"...viewing others as all good or all bad"
	Projective identification	"...has an affect or impulse which he finds unacceptable and projects onto someone else, as if it was really that other person who originated the affect or impulse"
<i>Level 1: Action Defense Level</i>	Passive Aggression	"...indirectly and unassertively expressing aggression toward others"
	Help-rejecting complaining	"...repetitious use of a complaint in which the subject ostensibly asks for help. However, covert feelings of hostility or resentment toward others are expressed simultaneously by the subject's rejection of the suggestions, advice, or whatever others offer"
	Acting out	"...acting without reflection or apparent regard for negative consequences. Acting out involves the expression of feelings, wishes or impulses in uncontrolled behavior with apparent disregard for personal or social consequences"

I will utilize a model of self-regulated learning to analyze the mechanisms by which the defense mechanisms affect the processes of self-regulated learning. In a review conducted by Panadero (2017), the most important models of self-regulated learning (SRL) that were developed were those introduced by Boekarts (Boekarts & Corno, 2005), Efklides (2011), Hadwin, Järvelä, and Miller (2011), Pintrich (2000), Winne and Hadwin (1998), and Zimmerman (2000). Tinajero et al. (2024) provided a comparative description of the theoretical models of SRL that founded the current empirical research. Based on the analysis of these models, I have selected the recognized, empirically validated, and often cited self-regulated learning model (Tinajero et al., 2024), which represents the cyclical phases of self-regulation created by Barry J. Zimmerman (2000: p. 16ff). Zimmerman (2000) proposed three cyclical self-regulatory phases, before, during, and after the learning process, with essential processes and components (Zimmerman & Moylan, 2009: p. 300):

- The forethought phase precedes learning and encompasses task analysis and self-motivation beliefs.
- Performance phase: This central phase, referring to the learning process itself, consists of self-control and self-observation.
- The self-reflection phase enhances sub-processes, such as self-judgment and self-reaction, after the execution of learning.

As a self-regulatory cycle, self-reflections influence forethought processes, such as task analysis and activating of beliefs regarding subsequent efforts, including self-control and self-observation that occur within the performance phase (Zimmerman, 2013).

The framework of Freudian defense mechanisms and Zimmerman's SRL model are compatible as there is a body of research showing that learning is not a fully conscious, deliberate process (e.g., Guo et al., 2011; Kuldass et al., 2013).

**Table 2** gives an overview of the components and sub processes of each phase.

**Table 2.** Components of the dynamic cyclical phase model Zimmerman (2000).

Forethought		Performance		Self-reflexion	
Motivational beliefs	Task analysis	Self-control	Self-observation	Self-judgment	Self-reaction
Self-efficacy	Goal setting	Task strategies	Metacognitive monitoring	Self-evaluation	Self-satisfaction/affect
Outcome expectations	Strategic planning	Self-instruction	Self-recording	Causal attribution	Adaptive/defensive inferences
Task interest/value		Imagery			
Goal orientation		Attention focusing			
		Environmental structuring			
		Help seeking			

## 5. Results

Defense mechanisms can manifest during the learning process, when learners experience anxiety, frustration, stress, or perceived threats. By employing immature defensive mechanisms during the learning process, the individual deals with emotional conflicts or stressors. However, these mechanisms can impede the self-regulation of learning.

### *Forethought*

According to Zimmerman (2000), two classes of forethought processes precede the execution of learning: the activation of self-motivation beliefs and task analysis. Starting with the activation of motivational beliefs, the question arises as to how immature defense mechanisms affect self-efficacy, outcome expectations, task interest/value, and goal orientation.

The term *self-efficacy*, coined by Bandura (1977), represents “the belief in one’s capabilities to organize and execute the courses of action required to manage prospective situations.” (Bandura, 1995: p. 2). Regarding learning, self-efficacy refers to the “students’ self-appraisal of one’s ability to master a learning task” (Pintrich et al., 1991). The minor and major image-distorting defense mechanisms influence the appraisal of one’s ability. Attributing exaggeratedly positive or negative qualities to oneself or viewing oneself as all good or undesirable has a distorting influence on the assessment of one’s ability, leading to a self-efficacy that is over- or underestimated. The mechanism of denial works here in a similar way, as the refusal to acknowledge some aspects of the learning experience, such as a comprehension problem, leads to an overestimation of one’s ability. Like idealization, omnipotence also results in an exaggeration of one’s own self-efficacy. According to the PSI theory, the omnipotence that is characteristic of the narcissistic personality results from the functional characteristics of sequential information processing (Kuhl, 2001). The varying degrees of adaptivity of the image-distorting defenses lead to the fact that positive or negative qualities of oneself are attributed to the person or others to a different extent and thus also influences the extent of the effect of over- or underestimation. Projecting an unaccepted deficient or lacking area-specific self-efficacy onto others prevents an individual from activating one’s own accurate self-efficacy in the forethought process.

We understand *outcome expectancies* as “students’ beliefs that their efforts to learn will result in positive outcomes” (Pintrich et al., 1991). Based on the expectancy-value models of motivation, such as the expectancy-value theory developed by Eccles et al. (1983), achievement choice is the result of the expectancy for success and the subjective task value. Factors such as self-efficacy shape the outcome expectancy of the forethought process, which in turn affects the subjective task value (Eccles, 1994). Similar to how self-efficacy affects outcome expectations, minor and major image-distorting defense mechanisms, as well as denial, can cause learners to either overestimate their future success or underestimate their current knowledge and competence (Dunning et al., 1990). The outcome expectation is also associated with performance (Eccles & Wigfield, 2002). Consequently, an un-

derestimation of outcome expectancy can lead to a lower learning performance.

The *task interest/value*, which is a component of the self-motivation belief, relates to the learner's task's interest, the subjective task importance, and their enthusiasm for the subject matter (Pintrich et al., 1991). This motivational belief represents the second factor that predicts achievement motivation. As Eccles and Wigfield (2002) found, expectancy for success predicts task value. Individuals are more likely to place less value on domains in which they do not feel competent.

The *goal orientation* describes the degree to which the learners perceive themselves to be participating in a task for reasons such as grades, rewards, performance, evaluation by others, and competition external to the task. Therefore, goal orientation typically functions as an external reinforcement (Pintrich et al., 1991). Denial and rationalizing goal orientation as providing self-serving but incorrect reasons for action, like interest instead of goal orientation, are examples of inaccurate motivational beliefs that make it harder for a person to access motive-congruent learning goals. The discrepancy between goals and motives contributes to decreases in volitional strength and has a negative influence on subjective well-being during the learning process (Kehr, 2004).

Task analysis is another process of the forethought phase that includes goal setting and strategic planning:

*Goal setting* refers to deciding upon specific outcomes of learning or performance (Zimmerman, 2000: p. 16f). Interestingly, self-regulation influences the individual goal systems: „The goal systems of highly self-regulated individuals are organized hierarchically, such that process goals operate as proximal regulators of more distal outcome goals.” (Zimmerman, 2000: p. 17) Self-efficacy influences the goals that individuals set. The higher self-efficacy, the higher the goals learners set for themselves (Bandura, 1977, 1995, 1997). Consequently, self-image-distorting defenses and denial influence the goals learners set. For instance, learners who rely on denial may avoid addressing difficult challenges that pose a threat to their ability self. This avoidant behavior affects engagement with these challenges. For learners showing passive-aggression, they set unreachable high or low learning goals if they relate to tasks they are asked about (Weiner, 1971). Setting ambitious goals allows an underachiever who fears failure to ignore and deny his limitations (Weiner, 1971). In contrast, underachievers who fear success set unrealistically low goals to avoid any accomplishments that could threaten the affection of their parents or caregivers (Weiner, 1971). Regarding task value, low expectancy for success predicts a decrease in task value, which strongly interacts with achievement-related choices (Eccles & Wigfield, 2002). Therefore, low task value can lead to the choice of less challenging learning tasks.

Strategic *planning* refers to the “purposive personal processes and actions directed at acquiring or displaying skill” (Zimmerman, 2000: p. 17). Individuals utilizing immature defense mechanisms may face problems with the strategic planning of learning. They may have limited self-awareness and reflection on the painful experiences that triggered them, due to denial and projection. Because of an

inaccurate self-representation of their strengths and weaknesses, their typically automatic immature defenses hinder the individual from strategically planning the learning process. Such a behavioral style may lead learners to prioritize immediate self-protection instead of following long-term learning goals. The lack of reflection on past learning experiences and opportunities makes it difficult to learn from them and develop learning plans. Externalizing learning problems may impair the motivation to develop learning plans proactively.

Self-control and self-observation form the performance phase, which represents the volitional control phase. The processes of self-control function to help individuals focus on the task and optimize their effort (Zimmerman, 2000).

*Task strategies*, as a component of self-control, contribute to breaking down the tasks into their essential components and arranging them (Zimmerman, 2000). Tasks that are regarded as unreasonable or unnecessary are called illegitimate tasks in the work-related context (Semmer et al., 2010) and are identified as stressors (Ding & Kuvaas, 2023). Related to the learning context, if individuals perceive learning tasks as illegitimate, they may respond by developing task strategies using defense mechanisms. Zimmerman (2013) categorizes the learner in terms of self-regulation into proactive and reactive learners. “Proactive learners are motivated by higher self-efficacy beliefs, outcome expectancies, mastery learning goals, and/or task interest/valuing. By contrast, reactive learners display inferior forms of motivation and, as a result, are less self-motivated to analyze tasks, select goals, or plan strategically than proactive learners” (Zimmerman, 2013: p. 143). Because of their unfavorable attributions and low level of satisfaction, reactive students typically react with defensive mechanisms to analyze illegitimate tasks (Zimmermann, 2013). Even though there is a variance in the performance and achievement of students showing passive-aggressive behavior (Igbo, 2022; Morrison et al., 1998), the typical learner showing passive-aggressive behavior is an underachiever suffering from fear of failure or success (Weiner, 1971). Passive aggression in underachievers, often associated with inattention, impulsivity, and poor social skills (Morrison et al., 1998), serves as an indirect means of expressing aggression through task sabotage. This prevents learners from breaking down tasks. Poor academic performance of learners may be regarded as an aggressive act against their restrictive and unjust parents or caregivers (Weiner, 1971). An example of how passive-aggression influences task strategies is when a learner perceives an oral exam as a threat, leading to procrastination.

*Self-instruction* includes the sub-process of “describing how to proceed as one executes a task” (Zimmerman, 2000: p. 18). Meichenbaum and Goodman (1971) found that being able to use self-instruction increases performance. For self-instruction, McGuire and McGuire (1996) showed that self-esteem increases when a person focuses on the desirable characteristics that apply to him rather than on the undesirable traits that do not characterize him. Consequently, constructive self-instruction is difficult to realize in a learning process if a person devaluates or splits the self in a negative way. Regarding projection, the false attribution of one’s

own unacknowledged feelings, impulses, or thoughts to others does not allow for constructive instruction on how to execute further tasks.

*Environmental structuring* refers to the student-initiated efforts to select or arrange the physical setting to make learning easier (Zimmerman, 2013: p. 138). I refer in the following to the physical setting not only as the material environment but also as the social one. Splitting others' images by viewing collaborating peers or teachers negatively affects these relationships.

A further subprocess of self-control is *attention-focusing*. This process has the function of improving one's concentration (Zimmerman, 2000). The defense mechanism of autistic fantasy has the function of coping with emotional conflicts or stressors through daydreaming. This substitute for problem solving during the learning process diverts the individual's attention from the upcoming task. Another defense mechanism that can impair the focusing of attention is denial. For example, in the case of learning scientific ideas, scientific denial is a phenomenon in which individuals resist accepting reliable scientific evidence (Fackler, 2021). "One of the reasons for denying scientific evidence is that scientific ideas may threaten people's beliefs, ideologies, and background assumptions, which are often wrong and misleading" (Fackler, 2021: p. 447). Personal beliefs and assumptions interfere with scientific evidence. The backfire effect, among other things, explains the adherence to personal beliefs. This effect reflects a cognitive bias, where subjective beliefs intensify when they encounter contradictory information. False background assumptions impair the focus of attention (Fackler, 2021).

The same applies for the learning component of imagery. *Imagery* refers to constructing mental pictures to support encoding and performance (Zimmerman, 2000: p. 19). According to Clark and Paivio (1987), encoding processes are strong predictors of how well learners remember new information. Several factors, including "the reflexive application of the learning strategies themselves to strategy acquisition," predict the probability of imagining (Clark & Paivio, 1987: p. 24). Automatic immature defenses may hinder the reflexive application of encoding strategies.

*Help-seeking statements* indicate student-initiated efforts to solicit help from peers, teachers, and adults (Zimmerman, 2013: p. 138). However, the use of help-rejecting complaining negatively influences the sub-process of help-seeking during the performance phase. Due to the hidden resentment towards the person asked for help, the support is rejected as not good enough, which leads to social costs such as not offering help anymore when further requests are made.

As for self-observation, *meta-cognitive monitoring* refers to informal mental tracking of one's performance processes and outcomes, while *self-recording* consists of creating formal records of learning processes and/or outcomes (Zimmerman, 2013: p. 143).

Denial can impact metacognitive monitoring, as learners may fail to recognize certain aspects of their performance processes and outcomes that are threatening to themselves, leading to biased self-observation. Regarding self-recording, auto-

matic immature defenses may hinder or prevent the practice of it.

Regarding the processes, posterior to the learning act, self-judgments include *self-evaluations* of the effectiveness of one's learning performance and *attributions of causality* regarding one's outcomes (Zimmerman, 2013: p. 143).

Denial can distort an individual's self-evaluation of the effectiveness of one's learning performance by refusing to acknowledge negative results. This denial could result in a lack of awareness of one's own mistakes and prevent the initiation of further learning processes. For instance, reacting with anger to a threatening poor grade may prevent a learner from reflecting on their performance. The devaluation of others' self-image can also impact their self-evaluation of effectiveness, as individuals who have an easily threatened self-image typically respond with downward social comparisons (Wills, 1981). Although these comparisons may serve as a form of self-protection, they may also prevent the learners from learning. This also applies to learners who display passive-aggressive mechanisms. Their unrealistically high goals lead them to justify failure with extremely high-performance demands, thereby avoiding the need to explain it with factors such as a lack of effort (Weiner, 1971).

According to Weiner's (1986) attribution theory of motivation and emotion, students' explanations for their success or failure affect their achievement strivings and their performance. Weiner (1986) emphasized that perceived control is central to students' academic achievement. When a defense reaction of omnipotence occurs, the attribution of causality may result in the externalization of failures to protect the self. An example of this could be assigning responsibility to the teacher. Such an attribution does not require any further initiation of a learning process. Regarding omnipotence, self-esteem is "artificially propped up at the expense of positively distorting one's self-evaluation in response to real experiences that bring up contrary feelings" (Di Guiseppe & Perry, 2021: p. 1). The same applies to the defense mechanism of rationalization: Here, too, a self-serving but incorrect explanation for the deficit learning behavior is given. This might prevent learners from acknowledging their deficits. Another defense mechanism, namely projection, can also impair the attribution of knowledge by falsely attributing unacknowledged feelings or thoughts in terms of learning deficits or outcomes to others, such as teachers or peers. Splitting one's self-image as all-good also prevents one from taking responsibility for errors in the learning process.

Further learners' self-reactions, which arise after the learning effort, include self-satisfaction and adaptive inferences.

*Self-satisfaction* reactions refer to perceptions of satisfaction or dissatisfaction regarding one's performance (Zimmerman, 2013: p. 143). In the case of image-distorting defenses, they serve as a protection from feelings of dissatisfaction with the self or as a source of gratification (Di Guiseppe & Perry, 2021). Thus, this type of defense may impair self-awareness of experienced perceptions of dissatisfaction, for example. In the case of passive aggression, the underachievers are not required to feel frustrated about their poor performance due to the unrealistically

high learning goals they have set (Weiner, 1971).

Adaptive or defensive inferences, as defined by Zimmerman (2013, p. 144), “refer to conclusions about whether one needs to alter his or her approach during subsequent efforts to learn.” Adaptive inferences modify a problem-solving strategy, while defensive inferences protect learners from future dissatisfaction (Zimmerman, 2013). Idealization, as stated by Cushman (2020: p. 1), “concocts the beliefs or desires that would have made it rational” based on previously performed actions. The defense mechanism that corresponds with defensive inferences does not require modifying the learning.

## 6. Conclusion

This study provides for the first time an integrative perspective of the disciplines of psychoanalysis and educational science on self-regulated learning. Understanding the existence and the meaning of immature defense mechanisms in self-regulated learning allows learners to cope with threatening events more effectively. This goal plays a significant role in education, given that immature defenses are the most common ones, especially among emerging adults.

According to Bandura (1997), self-efficacy beliefs strongly influence task choice, level of effort, persistence, and performance. This research shows that exhibiting immature defense mechanisms may not only have a negative influence on the activated self-efficacy beliefs but also on the subsequent processes of self-regulated learning. The poorly adapted defense mechanisms further reinforce the major effect self-efficacy beliefs have on learning.

Even learners with the most developed immature defense mechanisms, such as minor image-distorting defenses, have problems self-assessing and self-regulating their learning appropriately. The assessments refer to such things as self-efficacy, outcome expectations, metacognition, evaluation, causal attribution, and satisfaction. The distorted perception of self-assessments in self-regulated learning leads to an inappropriate transference of learning goals, strategies, self-instructions, and conclusions for the learner. This results in a self-alienated learner, even if they exhibit minor image-distorting defenses. The consequence is a suppressed awareness of learning. The learning awareness increases as the adaptiveness of defenses, such as major image-distorting defenses or action defenses, decreases.

Additionally, the Personality Systems Interaction Theory (PSI-Theory), developed by Kuhl, can explain that when there are negative emotions that go along with immature defense mechanisms, it is harder to self-regulate learning. In self-regulation, positive affect and the change of affect play a central role. The dialogue between reason and feeling, the conscious will (intention memory) and the unconscious will (extension memory), is dependent on the change between different feelings. Positive affect makes the implementation of the intention from the intention memory into intuitive behavioral control possible, and it initiates a will when it loads the intention memory with a desired action and promotes the implementation of object recognition in extension memory (Kuhl, 2001). If an indi-

vidual regulates negative affect below the threshold, the person feels stronger again and thus becomes more self-confident. As a result, the person can access the self-system, and the parallel processing of information enables us to make complex decisions in the learning process (Kuhl, 2001). In the case of defensive reactions, there is neither access to the self nor parallel information processing, but rather sequential processing (Kuhl, 2001). Immature defenses are less likely to result in affect regulation and parallel information processing than it is for integrating negative experiences into experiential memory.

As immature defense mechanisms have a negative effect on self-regulated learning, a close connection exists between the development of ego and the self-regulation of learning. Therefore, we can underscore the crucial role of an educated ego that obtains pleasure by acknowledging reality (Freud, 1976) in promoting self-regulated learning. Education fosters the development of a reasonable ego (Freud, 1976), which manifests in the use of mature defense mechanisms, thereby promoting self-regulated learning and learning awareness. Although immature defensive mechanisms may not be ideal for self-regulated learning, they can have a protective function in specific situations, such as in settings that trigger strong emotions, which may temporarily enhance a learner's capacity to engage with their learning challenges.

Based on these findings, the approach to overcoming the immunity to change introduced by Kegan and Lahey (2009) might help learners, as a first step, become aware of their defense mechanisms more effectively.

Further research necessitates the empirical validation of these theoretical considerations, as well as studies that explore the impact of immature defense mechanisms on teaching. These studies establish the basis for addressing learners' and teachers' defense mechanisms pedagogically.

## Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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