

BAR-ILAN UNIVERSITY

**What is the Relationship between Mindfulness,
Psychological Availability and Cognitive Load**

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Abstract

The purpose of this study is to examine the relationship between three variables: Psychological Availability, Mindfulness and Cognitive Load, relating to precise characteristics and adjacent concepts of these variables and examining the differences between them.

The underlying idea at the Cognitive Load Theory (CLT) is that cognitive ability of Working Memory is limited, so that if a learning task requires high amount of abilities, it will be learnt with difficulty (de Jong, 2010). The Cognitive Load Theory deals primarily with the learning complex cognitive tasks, in which learners are often loaded with a high number of information elements and their interactions, which they are required to process simultaneously (Sweller, 1988).

Research specifies various types of definitions and characterizations of Cognitive Load. Some of which emphasize the Cognitive Load **created during Thinking Processes** – the Cognitive Load Theory supposes that cognitive structure consists of the Working Memory, and is limited in its ability to deal with information containing secondary components obtained through hearing/ verbal material and visual information (Sweller, 1988); and some of which emphasize Cognitive Load **Created by Information Overload** – Information Overload refers to a situation where an individual feels stressed by massive quantities of information received at a too high rate for processing or using effectively (Sweller, 1988). This occurs when the input is more than the system is able to process (Milford & Perry, 1977; Edmunds & Morris, 2000). According to Sweller and his colleagues (Sweller, Van Merriënboer, & Paas, 1998), Information Overload and Cognitive Load may occur in any one of our learning processes, in both cognitive and meta-cognitive processes, and their presence is in fact harmful to the learning process.

Moreover, the Cognitive Load Theory deals with the development of effective methods that teach people how to use their limited cognitive processing ability, in order to stimulate their ability to implement acquired knowledge and skills in new situations (e.g. transfer) (Paas, Tuovinen, Tabbers, & van Gerven, 2003). Hence one may conclude that dealing with Cognitive Load more effectively may be achieved if

we learn how to conduct ourselves properly in situations of Cognitive Load, and in order to avoid, to the extent possible, situations of Cognitive Load, learners or teachers must pay attention to the quantity of information and its way of presentation, as well as to given environmental, physical and mental circumstances of a specific learning situation.

This situation of awareness to the context, in which the information content is assimilated, is directly related to the concept of Mindfulness, constituting one of the three key variables in this study, and defined as a state of awareness in which an individual is aware of the context and content of information (Langer, 1992). Mindfulness involve individuals' ability to discern and observe their own thoughts. Moreover, Mindfulness is many times defined in professional literature as bringing experiences occurring in the current moment to a person's attention, without judging or accepting them (Brown & Ryan, 2003; Kabat-Zinn, 1990; Baer, Smith, Hopkins, Krietemeyer & Toney, 2006).

Studies from the last decade indicate that individuals' ability to use Mindfulness can be developed and improved through specific instruction that includes training workshops. Emphasis in such workshops will be given to increasing peoples' awareness to their internal and external world, and to developing personal and interpersonal insights. (Lamger, 2002). Another way to develop Mindfulness is Mindfulness Meditation. Such meditation is mainly based on breathing and deals with focusing on present experiences (Ie, Haller, Langer, & Courvoisier, 2012). Another way of training mindfulness, developed and researched recently, is training Mindfulness with an emphasis on increasing attention and concentration skills (Kaveh, 2011).

Studies regarding the impact of mindfulness on learning, found that Mindfulness aids the learning process in a number of ways: firstly, it helps turning learning to an active and productive process incorporating mental efforts as well as the use of voluntary and Meta-cognitive processes that are not automatic (Salomon & Globerson, 1987, Bochun, 2011). Secondly, Mindfulness helps decreasing the gap between peoples' learning ability and the actual use of such abilities (Salomon & Globerson, 1987). Furthermore, Mindfulness helps learning through its association with the facet of

openness to experience, including receptiveness, i.e. the ability to absorb and accept knowledge, as well as to being interested in new experiences. When individuals are open to absorbing and accepting new information, their learning is naturally more effective and efficient (Brown & Ryan, 2003). Additionally, the impact of Mindfulness on learning is also implemented in the different educational frameworks. Teachers attest to their own attempts to develop and teach Mindfulness; when Mindfulness training in class usually involves conscious attention to breathing while sitting down during experiential learning, enabling students to focus and consciously rely on their senses, their physical sensations, and their thoughts (Bochun, 2011).

According to the above, it can be seen that Mindfulness is associated with positive feelings as a result of which individuals are emotionally and mentally free to be attentive to other areas as well as to learning. The connection between Mindfulness and positive feelings with respect of oneself and others creates, in fact, a connection between Mindfulness and the concept central to this research – Psychological Availability.

The term Psychological Availability was initially obtained from the field of Work Relations and defined by Khahn (1990) as an emotional psychological state affecting the ability of individuals to be cognitively available for work. A person will be psychologically available only when he/she believes that he/she has the physical, emotional (Khahn, 1990) and cognitive resources (May, Gilson & Harter, 2004) required in a certain situation. Later on, the concept was extended to fit a more general Socio-emotional area. In this context, Khahn defined (Khahn, 1990) Psychological Availability as an individuals' belief that they possess the physical, emotional and cognitive resources required in order to express themselves, feel involved and personally bond with an existing social system.

According to Bergman and Gardiner (2007) being psychologically available means the accessibility of an individual in respect of time, place and responsibility to the needs and wishes of others (e.g. employer's wishes or family needs).

The Study Rationale is that Mindfulness and Psychological Availability may have a significant positive or a negative effect on the treatment and decreasing of Cognitive

Load and thus may help in improving mental abilities in general and the decreasing of Cognitive Load in particular.

In view of the research, the hypotheses of this research were that a positive connection will be found between individuals' measure of Mindfulness to their measure of Psychological Availability, so that the higher the level of Mindfulness is the higher the level of psychological Availability is. Moreover, a positive relation will be found between an individuals measure of Mindfulness to their ability to handle a situation of Cognitive Load, so that to the extent the measure of Mindfulness increases the level of Cognitive Load will decrease in step. In addition, a positive relation will be found between the measure of Psychological Availability of individuals to their ability to handle a situation of Cognitive Load –The higher the level of Psychological Availability rises the more effective the feeling of Load will become.

Research sample included 102 adults ages 18-53, in a medium-high socio-economic status, with no diagnosed learning disability, completing a full course of studies within academic study frameworks for BA and MA, participating in high-demand courses such as: statistics and research methods.

To conduct the research sample the following questioners were used: Psychological Availability - Psychological availability scale taken from Kashi-Rosenbaum's research (2011), Mindfulness - Mindfulness Attention Awareness Scale (MAAS), taken from Brown and Ryan's research (Brown, & Ryan, 2003) and Cognitive Load - Cognitive Load scale taken from Windell's research (Windell, 2006) and adapted for the purposes of this study.

Study results indicate that Psychological Availability has an impact, basically emotional, on individuals' state of Mindfulness, which is primarily cognitive, and the later in turn affects the level of Cognitive Load. In other words, when a person is in a situation that renders him Psychologically Un-Available, his level of Mindfulness decreases, as a result, and consequently he may deal less effectively with situations of Cognitive Load; and that due to the fact that a positive relation was found between

Mindfulness and Psychological Availability, when according to the model, Psychological Availability has a direct impact on Mindfulness.

From the above one may conclude that when people are Psychologically Available, their level of Mindfulness increases as a result. In addition, a significant positive relation was found between the level of Lack of Mindfulness and the level of Cognitive Load (this relation is also affected by Psychological Availability, as specified in the first hypothesis) where a state of Lack of Mindfulness impacts peoples' Cognitive Load.

Thus, for instance, when a person is in a low level of Mindfulness, consequently he will deal with the Cognitive Load less effectively. Furthermore, Psychological Availability was found to impact the level of Cognitive Load; however, this relation mostly occurs with the mediation of the Mindfulness variable, with the Mental Availability variable, constituting a sub-variable of the Psychological Availability variable, also directly affecting Cognitive Load.

The Implications stemming from this research are very extensive; especially regarding the field of education, particularly in view of the fact that many students experience Cognitive Load during their studies, and that, in view of the fact indicated by this research that Cognitive Load stems from Psychological Un-Availability and lack of Mindfulness. Therefore, it is not unlikely that the level of Cognitive Load students face may possibly be decreased through the construction of effective intervention programs, designed to help individuals become more Mindful and more Psychologically Available to learning.

Furthermore, it can be hypothesized that by raising teachers' awareness to this issue and guiding them in the construction of lesson plans and ways of conveying the material in class including parameters to help increasing the level of Mindfulness and Psychological Availability and decreasing Cognitive Load, it will be possible to improve students' performance as well as the emotional and mental state in class, and that the latter, in time, will impact the emotional and mental state in their personal life as well.

Additionally, there is room for further research in this area for the clarification of these points and others.