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**THE AMERICAN UNIVERSITY IN CAIRO**  
**SCHOOL OF GLOBAL AFFAIRS AND PUBLIC POLICY**

**ON COMMUNICATION FATIGUE AMONG EGYPTIAN SCHOOL**  
**TEACHERS**

A Thesis Submitted to the  
Department of Journalism and Mass Communication

By: Nahla Khaled El Gendy

ID#: 900100475

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## **ABSTRACT**

Communication fatigue is a situation when a person is no longer able to engage in communication. This study, which is one of the very first in the field, determines the antecedents and consequences of communication fatigue among Egyptian school teachers to be used as a guide for decision makers in the educational sector. Communication between teachers and students is fundamental in the learning process and understanding the antecedents and consequences of communication fatigue is meant to improve the communication between teachers and students and positively reflect on the learning process.

This study answers three main research questions: What is communication fatigue? What are the antecedents of communication fatigue among school teachers? And what are the consequences of communication fatigue among teachers? A total of six focus groups were conducted over four weeks, two each of elementary, middle, and secondary school teachers. The results revealed that a lack of emotional intelligence, excessive communication, stressful communication, and non-communication energy depletion cause communication fatigue among school teachers. The consequences include difficulty encoding and decoding messages and communication energy drainage, sometimes leading to a complete shutdown.

**Keywords:** communication, fatigue, antecedents, consequences, school teachers.

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## Chapter One: Introduction

This study is a qualitative study on communication fatigue among Egyptian school teachers working in the public educational sector. Egypt is a special case in terms of education due to the various issues including oversized classes, overworked teachers, demotivated students, low salaries and a dysfunctional education system. Thus, this study is intended as a guide for managers, especially in the public educational sector, or people working in similar contexts, as identifying the antecedents and consequences of communication fatigue may help researchers gain more insight into the communication processes between teachers and students, and help policy-makers and administrators understand how to enhance the teachers' efficiency in the classroom and improve the student learning process.

Fatigue is a multifaceted phenomenon; including behavioral, biological and psychosocial factors that have challenged scientists for many years. It is not necessarily due to a physical disease, but can also present as mental fatigue due to inefficient communication. Yes, communication can be inefficient too. According to Caldwell and Coldwell (2003), defining fatigue is quite complicated. Renowned sleep expert, Dr. William Dement, had previously said that he had difficulty defining fatigue after researching the subject for over 50 years! (Caldwell & Caldwell, 2003) More recently, fatigue, burnout, and exhaustion are terms that have been used interchangeably in science and daily vernacular among non-specialist individuals. However, scientifically, these terms neither have the same meaning nor describe the same physical or mental state.

Fatigue is more than just a feeling of tiredness or drowsiness. Rather, the term describes when an “individuals’ mental or physical tiredness inhibits the ability to perform effectively and safely. It can be brought on by a constant feeling of sleepiness or weakness which can be physical, mental or a combination of both” (Wellteq, 2019).

According to Acta Physiol (2016), “almost everyone has experienced fatigue [at some point in life]; however, almost no one has been able to quantify or document fatigue or ‘feeling weaker than usual for a patient’s record” (Acta Physiol, 2016).

This study will investigate the antecedents and consequences of communication fatigue among teachers, widely viewed as a particularly challenging profession, where communication with multiple stakeholders is fundamental, to be used as a guide for policy makers in the education sector. Stress among teachers has a strong research base in previous literature, where “similar sources of occupational stress were reported by teachers at all grade levels,” (Gagnon et al., 2019, p.1).

## **Chapter Two: Literature Review**

### **The Antecedents and Consequences of Communication Fatigue**

#### **2.0. Fatigue, Burnout, and Exhaustion:**

In recent years, fatigue, burnout, and exhaustion are terms that have been used interchangeably in both scientific writing and among individuals in their daily lives. However, scientifically, these terms neither have the same meaning nor describe the same physical and mental state. This paper explores the discriminant validity between fatigue, burnout, and exhaustion to understand the concept of fatigue and differentiate it from similar notions.

According to Wellteq (2019), feeling tired is when a person needs sleep or rest. It is a state a person can feel after a restless night at work or a sleepless night. However, it is not a chronic condition.

Fatigue is more than just a feeling of tiredness or drowsiness. Fatigue refers to “when the individuals’ mental or physical tiredness inhibits the ability to perform effectively and safely. It can be brought on by a constant feeling of sleepiness or weakness which can be physical, mental or a combination of both,” (Wellteq, 2019). Fatigue is usually a symptom of other factors, including but not limited to:

- Lifestyle: Sleeping and eating disorders, excessive caffeine and alcohol consumption, etc.
- Work: Long working hours, physical labor, monotonous duties, etc.
- Psychological: being stressed out or anxious.
- General wellbeing: health issues or a particular illness.



Burnout, on the other hand, has always been recognized as a stress syndrome; however, the World Health Organization (WHO) recently updated its definition to a “syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed.” As described by the WHO, the three symptoms of burnout are:

- Energy depletion or exhaustion
- Growth of negative feelings towards one’s job, known as mental distance
- Decreased productivity (WHO, 2019)

However, exhaustion is a shorter-lived form of fatigue that can be experienced emotionally, mentally, and physically. Usually, periods of exhaustion build up to form chronic fatigue or contribute to burnout (Wellteq, 2019).

Emotional exhaustion is one type of exhaustion. According to Maier et al. (2012), it is described as a state of being emotionally overextended, which is an affective reaction and emotion.

According to Bianchi and Schonfeld (2018), burnout is a condition in which an individual is extremely exhausted due to a long-term accumulation of stress. It is a state in which negative thoughts start to outweigh positive ones.

In sum, tiredness is a normal, non-chronic state that is the result of continuous effort and a lack of rest; while exhaustion is a short-lived form of fatigue that is either emotional, mental, or physical. It can accumulate and lead to a state of fatigue. Fatigue is more than just a temporary feeling of tiredness or drowsiness; it is a state of mental and physical tiredness that hinders a person’s ability to act normally in their daily life. This state of fatigue, if not well-managed, can lead to burnout, which

is a chronic state in which a person's negative thoughts start to outweigh the positive ones. It is usually caused by long-term, poorly managed stress.

Tiredness	Exhaustion	Fatigue	Burnout
When a person needs sleep or rest	It is Shorter-term form of fatigue. Can either be emotional, mental, or physical.	It can be brought on by a constant feeling of sleepiness or weakness which can be physical, mental or a combination of both.	A state in which negative thoughts start to outweigh positive ones.
It is a state a person can feel after a restless night at work or a sleepless night	Periods of exhaustion build up to form longer-experienced fatigue or contribute to burnout.	Due to lifestyle, work, psychological or general wellbeing	The three symptoms of burnout are: energy depletion or exhaustion, growth or negative feelings and decreased productivity
Short-lived	Short-lived	Long-lived	Long-lived
Not chronic	Not chronic	If not well-managed, can lead to burnout	Chronic

**Figure 1: Tiredness, Exhaustion, Fatigue and Burnout**

## **2.1 Communication**

### **What is Communication?**

According to Beukelman et al. “communication is the active process of exchanging information and ideas and involves understanding and expression” (2013). Daily communication is often so effortless and automatic that people may hardly think about its processes while interacting with one another, whether face-to-face, over the phone, through email, by texting, or through social media.

There are four main types of communication. These include verbal, non-verbal, written, or visual. According to Beukelman et al. (2013), people do not usually remember the effort they initially exerted as toddlers to learn to speak or communicate with one another. People express themselves by talking; formulating messages and executing speech movements. However, for some people, communication may be more challenging and may sometimes need more effort than others because they cannot meet their daily communication needs through natural speech (Beukelman et al., 2013).

There is no golden silence, as communication and connection is indispensable in every possible way for every human being. “It is a basic human need, a basic human right. And much more than this, it is a basic human power” (Bob Williams, 2000, as cited in Light & McNaughton, 2014, p. 248).

The word “communication” is originally derived from the Latin word “communicare,” which means to share. Communication is “the process of understanding and sharing meaning,” which focuses on the relationship between two or more people ((Pearson & Nelson, 2000 as cited in Urich, 2017)

The articulation of “process” is a key element in the definition of communication, because the process is dynamic and changes according to the environment in which communication occurs (Pearson & Nelson, 2000 as cited in Urich, 2017). The audience and the participants in a conversation significantly influence the context of communication. For example, imagine you are talking privately to your mother at home. What would change if a stranger joined this conversation to listen to what you are saying? Would the context of the communication affect your behavior? A change in environment may result in a change of perspective, and you might watch your words more closely. The feedback or response from your mother and the stranger (your audience) may cause you to reconsider what you are saying. All these factors, and many others, influence the process of communication (Urich, 2017).

A second key element of communication is understanding, which is :“to perceive, to interpret, and to relate our perception and interpretation to what we already know,” (McLean, 2003). In other words, when someone tells you a story about a particular item, how do you perceive it? When the person points out that item and makes you see it, it makes the concept clearer. Understanding people’s words and grasping the concepts they are discussing is an integral part of communication (Urich, 2017).

Then comes “sharing,” which, in this context, represents a shared activity with one or more people. In communication, sharing is about sharing thoughts and ideas, it does not necessarily occur with someone else; it can also take the form of intrapersonal communication, or sharing with oneself (Urich, 2017).

Last but not least, the final stage is “meaning,” which is ultimately the goal of communication. For example, the word “bike” can represent both a bicycle and a short name for a motorcycle. If meaning among people is not shared, the message

may be misunderstood. Meanings vary from one country to another and from one culture to another.

### **Components of Communication**

The Shannon and Weaver model is the pioneer model of communication that provides a framework for analyzing the process of sending and receiving messages from a source to the receiver. It is known as the “mother of all models” because of its wide popularity. The model is also known as ‘information theory’ or the ‘Shannon Theory’ because Claude Shannon was the main person who developed the theory.

It is a mathematical theory stating that human communication is composed of six key concepts: sender, encoder, channel, noise, decoder and receiver. A seventh concept was later introduced by Norbert Wiener, which is feedback, making it a cyclical model instead of linear (Drew, 2019).

In a similar context, according to Urich (2017), there are eight essential components of communication, including: source, message, channel, receiver, feedback, environment, context and interference.

Each of these eight components is integral to the overall process. The source is the sender of the message; the person speaking or conveying the message, characterized by tone of voice and body language. The speaker should first begin by forming the message—including what to say and how to say it. Then the message should be encoded by careful selection of word choice and order to accurately convey meaning. This is followed by the presentation of information to the receiver or audience.

The message is the “stimulus or meaning produced by the source for the receiver or audience in the communication,” (McLean, 2005, p.10). When communicating a message, the combination of word choice, syntax, and grammar help convey the meaning. Sometimes people choose to save the most important part of the message to the end, and sometimes they prefer to begin with it to grab people’s attention. The delivery is also greatly consequential; the voice pitch, body language, and physical appearance significantly impact how people perceive it. Part of the message may also be the environment, such as noise that could hinder it being perceived, heard, or seen (Urich, 2017).

“The channel is the way in which a message or messages travel between source and receiver,” (McLean, 2005, p.10). For example, a television combines both audio and visual signals so that a message can be seen and heard; they both facilitate the accurate transfer of the message. If a person mutes the device, you may still be able to understand the message. This can occur when the body language is strong enough to convey the message (Urich, 2017).

Then comes the receiver, who “receives the message from the source, analyzing and interpreting the message in ways both intended and unintended by the source,” (McLean, 2005, p.10).

Feedback is a response to the source, intentionally or unintentionally. It is the message that the receiver sends back to the source, and can either be verbal or nonverbal. This feedback tells the source how the message has been received and perceived. It allows the receiver to request further clarification from the source if needed. Therefore, as feedback increases, the accuracy of the messages tends to increase because feedback helps guarantee that the message is clarified and accurately perceived (Urich, 2017).

McLean (2005) describes the environment as “the atmosphere, physical and psychological, where you send and receive messages,” (p.10). The environment includes basically everything in the space where the communication occurs, such as tables, chairs, lighting, and sound equipment. The room itself could be an example of the environment (Urich, 2017).

The context of the communication interaction involves “the setting, scene, and expectations of the individuals involved,” (McLean, 2005, p.10). For example, the environment determines the formality of the communication. Context relates to people’s expectations. it is “what people expect from each other,” Those expectations are usually derived from environmental cues.

Interference, or noise, can come from any source. It is defined as anything that blocks or alters the meaning of the message (McLean, 2005). For example, a person driving a car can be surrounded by noise like car horns, radio, etc., which can significantly hinder or interrupt a conversation with a passenger (Urich, 2017).

Communication is not just about the exchange of information between two or more people, or the act of conveying a message. Beyond these characteristics, it is about delivering the intended meaning behind the message in a way that is consistent with the intentions of the source.

Senders influence the communication process as a result of variability in terms of communication skill level, background and/or culture, and attitudes toward receivers. Messages and channels influence the communication process because senders consciously control, encode, and send messages. Receivers affect the communication process because they have prior information about senders, different communication skill levels, and prior beliefs based on their socio-cultural context (Byron, 2008).

## **Contexts of Communication**

Further contexts could later be investigated that influence the communication process among school teachers. Different communication contexts greatly affect the communication process. There are four Communication contexts in which each and every context has its own uses as well as pros and cons. contexts are: intrapersonal, interpersonal, group, public, and mass communication. Contexts may overlap, creating an even more dynamic process. We've all communicated in one or more of these contexts across our lifetime, depending on communication components. For example, communicating with a friend or a family member in an informal setting is not the same as presenting a topic at work or in class to your professor in a stressful environment.

Intrapersonal communication involves one person, it is known as "self-talk," because it's a person's conversation with himself (Wood, 1997). Donna Vocate's book on intrapersonal communication explains how we talk ourselves through situations and use language to reflect on our own experiences. An example of intrapersonal communication is your conscious or one's inner voice saying, "Keep on Going! You can DO IT!". Intrapersonal communication also affects a person's communication with others as people's communication with each other is usually influenced by their own culture, perceptions, language, and beliefs. According to Jürgen Habermas, a German philosopher: "Every process of reaching an understanding takes place against the background of a culturally ingrained preunderstanding," (Habermas, 1984).

Interpersonal communication usually involves two or more people and can either be formal or informal.

Group communication is usually dynamic, as it involves a small number, three to eight people, engaging in a conversation. (McLean, 2005) It may sometimes include



people from different backgrounds, especially larger groups where diversity increases. A communicator should find more about his audience by breaking them down into smaller groups to improve communication effectiveness.

Public communication occurs when a person communicates with a group of people; the speaker or writer may ask questions and engage the audience in a discussion. In a public speaking situation, the speaker usually addresses the public, and the public defers to the speaker. Public communication may include an email discussion or letters to the editor.

Mass communication is about sending a single message to the mass audience. It is about communicating a unified message to a group of people without tailoring it based on different groups.

Based on these findings, the antecedents of communication fatigue among Egyptian school teachers of all educational stages are emotional intelligence, excessive communication, stressful communication, and non-communication energy drainage. Its consequences are difficulty encoding and decoding and communication energy drainage. Based on the qualitative research conducted in this study, various interrelated contexts during communication between teachers and students include the Egyptian cultural context; school context and environment; and the communication inside the classrooms. All of which directly affects the communication's efficiency and effectiveness and might either increase or decrease the chances of communication fatigue. They could be further investigated in future research.

## **2.2 Fatigue**

## **Defining Fatigue**

Defining fatigue—given all the factors involved including the physical state, psychosocial phenomena, and behavioral manifestations—has challenged scientists for many years.

According to Aaronson et al. (1999), fatigue is defined from a physiological perspective as “functional organ failure that is attributed with excessive energy consumption and can be characterized by hormonal disorder, neurotransmitters or essential substrates of physiological function,” (p.45). Whereas, from the psychological perspective, fatigue has been defined as a “state of weariness related to reduced motivation,” (Lee et al., 1991 as cited in Aaronson et al., 1999, p.46). Fatigue is considered “one of the most common 13 mood states,” (p.46). Psychological fatigue is usually accompanied by stress and other intense emotional experiences, it may also be associated with depression and anxiety, and is usually viewed as a natural reaction to internal or external demands that exceed a person’s capabilities or available resources (as cited in Aaronson et al., 1999).

In an attempt to integrate the psychological and physiological aspects of fatigues, the North American Nursing Diagnosis Association defined fatigue as: “The self-recognized state in which an individual experiences an overwhelming sustained sense of exhaustion and decreased capacity for physical and mental work that is not relieved by rest,” (Carpenito, 1995, p. 379 as cited in Aaronson et al. 1999). According to Aaronson et al. (1999), fatigue is a widespread symptom that is not only common among people with chronic illness but also ordinary, healthy people. While some studies differentiate general fatigue from pathological and

psychological fatigue, other studies characterise general fatigue as acute and pathological fatigue as chronic (Aaronson et al., 1999).

As described in the volume *Fatigue in Aviation*, Dr. William Dement believed that over 90 percent of fatigue cases result from sleep deprivation or undiagnosed sleep disorders rather than boredom, monotony, stress, or ambiguous biological processes (Caldwell & Caldwell 2003). Although the book's authors managed to identify some of the main causes of fatigue, including taxing mental work, physically exhausting activities, or mental health problems, they chose to define fatigue as the "state of tiredness that is associated with long hours of work, prolonged periods without sleep, or the requirement to work at times that are 'out of synch' with the body's biological or circadian rhythms," (Caldwell & Caldwell, 2003).

In contrast, Whitehead (2009) states that although fatigue is prevalent among humans and is sometimes debilitating, it is still largely unexplored, undefined, and almost unmeasurable. Studies have revealed that fatigue causes slower brain activity, changes in eye movements and pupillary responses, and other physiological differences discussed later in this paper. Obviously, fatigue is not just a state of mind, and can sometimes lead to significant problems, whether physical or mental. However, the literature has not yet quantified fatigue because to date, no biochemical markers have been discovered. There is no Breathalyzer™ for fatigue like the one used by police officers to identify alcohol-impaired drivers. Thus, it is challenging to accurately determine if a person is too fatigued to engage in mentally demanding tasks, as it depends on subjective judgment.

Everyone knows what it feels like to be fatigued, and sometimes we can detect the signs of fatigue in someone else. What remains unquantifiable is a determination of

the level of fatigue that crosses the line or starts to hinder performance or impact safety (Caldwell & Caldwell, 2003).

“Almost everyone has experienced ‘fatigue’ [at some point in life]; however, almost no one has been able to quantify or document fatigue or feeling weaker than usual for a patient’s record.” (Acta Physiol, 2016)

Fatigue is subjective and indefinable and should be considered a symptom rather than a measurable sign of disease. However, there seem to be three factors that help in its identification: It is (i) gradual, (ii) differs from weakness as fatigue can usually be relieved by rest, and (iii) lasts more than six months. Moreover, it is possible to differentiate physical from mental fatigue, as physical fatigue relates to muscle performance and weakness, whereas mental fatigue pertains to cognitive function (Hawley & Reilly, 1997; as cited in Acta Physiol, 2016)

Mental fatigue appears to be even harder to understand than physical fatigue resulting from a certain illness. Both types usually present simultaneously as chronic fatigue. Chronic fatigue is usually a medical diagnosis of unknown reason or cause and it is usually diagnosed when all chronic diseases are excluded. “Potential factors that leads to fatigue include vegetative and immune dysfunction, central somatosensory control mechanisms, genetic disposition, and post-traumatic disorders” (Yancey & Thomas 2012; Alexandre et al., 2015; Al-Sajee et al., 2015 as cited in Acta Physiol, 2016).

Piper et al (1989) suggests that most logical classification for fatigue is acute and chronic fatigue. According to Piper (1989), “acute fatigue is characterized as protective, is identifiably linked to a single cause, generally occurs in healthy individuals, is perceived as normal, has a rapid onset and short duration, is usually alleviated by rest, diet, exercise, and stress management, and has minor or minimal

effect on activities of daily living and quality of life. However, chronic fatigue has an unknown function or purpose, primarily affecting ill clinical populations, having multiple, additive, or unknown causes. It is often experienced with no relation to activity or exertion,” (p. 46). Chronic fatigue is also severe, sustained and usually persists over time. Individuals with chronic fatigue tend not to respond to normal soothing techniques, and the condition directly impacts the person’s daily activities.

Despite the scarcity of literature on communication fatigue, fatigue itself has been broadly studied in various contexts. According to Ace (2020), there are six types of fatigue: social, emotional, physical, pain, mental, and chronic illness, where combinations of two or more types do exist and could even lead to the other. Social fatigue is the fatigue one could get after speaking to people for an extended period of time, whether face-to-face, on social media, video calls or even via zoom. “Video calls are a new way of communicating and require a whole new level of energy, especially for those who aren’t tech-savvy. Setting up a call and appearing on screen might cause someone to feel stressed.” (P.1) Emotional fatigue relates to being emotionally drained; it may lead to emotional outbursts, depression or anger. Physical fatigue is the type of fatigue that follows a physical activity, like playing sports, or can result from a chronic illness. Pain fatigue is “when pain causes a bad night’s sleep, leading to fatigue the next day.” (P.1) It is usually accompanied by emotional fatigue, which can be triggered when the person in pain tries to explain their condition. Sometimes the mental exertion of living with pain can lead to depression. Mental fatigue comes from expending a lot of mental energy, like answering questions or explaining concepts. It is associated with any mental activity that involves a mental effort. Finally, there is chronic illness fatigue that is associated with a chronic illness (Ace, 2020).

According to Russell et al (2019), fatigue has been defined in sports as “a reduced capacity for maximal performance.” (p.1) It is recognized as an essential determinant of exercise capacity and sporting performance. A study about mental fatigue and its relationship with sports performance suggests that “fatigue is a multifaceted phenomenon.” (p.1) Studies show that mental fatigue is also one aspect of fatigue gaining traction in the scientific world (Russell et al, 2019)

According to Russell et al (2019), mental fatigue has been defined as a psychobiological state caused by prolonged periods of demanding cognitive activity. (p.1) It is a feeling of mental or psychological fatigue and decreased intellectual performance, often following a stressful task. Studies suggest that since elite athletes usually tend to be more disciplined compared to nonathletes, they may be more resistant to mental fatigue through superior inhibitory control. Our research may refer to this case as emotional intelligence that athletes usually develop to understand and manage their emotions, especially in cases of defeat. Mental fatigue influences athletes’ outcomes in elite sport. (Russell et al, 2019)

With the COVID-19 pandemic taking over the world, people are starting to get pandemic fatigue, which is defined by the World Health Organization as “distress which can result in demotivation to follow recommended protective behaviours, emerging gradually over time and affected by a number of emotions, experiences and perceptions.” It is a predicted reaction to the extended health crisis that the world is facing and the restrictions and precautionary measures that people are required to do that are directly affecting their daily lives. (WHO, 2020 p.1)

Although different types of fatigue have been studied in literature from different perspectives, fatigue that results from inefficient communication has neither been

studied nor how it could trigger other types of fatigue like mental and physical fatigue.

### **Typical Effects of Fatigue**

According to Caldwell and Caldwell (2003) fatigue degrades mental abilities, performances, and psychological well being. Some of the major effects of fatigue include reduction in accuracy and performance, inability to divide attentional resources, inability to integrate information efficiently, difficulty in performing activities, inability to interact socially, deterioration in attitude and mood, impairment in logical reasoning, reduction in the ability to view a clear picture of the overall situation, waning attention, and sleeping disorders (Caldwell, Caldwell 2003).

According to Russell et al. (2019), research suggests that, besides physical fatigue, mental fatigue can also affect sporting performance in terms of physical, technical, tactical, and decision-making elements of the game. Research also shows that some individuals are more prone to mental fatigue than others, and identifying them will enable the development of specialized programs to accommodate their needs.

## **2.3 Communication Fatigue**

### **Defining Communication Fatigue**

Communication fatigue has been discussed in literature but not entirely within the scope of this study, thus, very little is known about communication fatigue and its antecedents and consequences. Given the general lack of consensus in the literature on a definition of communication fatigue, the purpose of this study is to characterize

the excessive, draining, and stressful communication undertaken by teachers during teaching. It investigates to what extent their fatigue is related to external stimuli, such as the classroom acoustic conditions, and physical and mental fatigue from the working day.

In this study, the operational definition of communication fatigue is the “*breakdown in the capacity to communicate.*”

According to Sjödin and Neely (2017), the more stressed teachers are, the lower the quality of care they are able to provide for the children. Teaching is about delivering value to students in an educational context, which doesn't necessarily require administrative work, dealing with misbehaving students, assessments, and keeping the children safe. Studies also reveal that improving teachers' working conditions may lead to an overall improvement in the quality of education throughout all stages. In a review by Dunn (1993), students in smaller classes receive better care from their teachers. More intimate settings are also associated with better communication between teachers and students, as the teachers have more capacity and energy to communicate and interact with the students.

Teaching is one of the most stressful professions that is associated with multiple stressors on a daily basis that might lead to teachers' job dissatisfaction or quitting. Being accountable for the students' wellbeing, oversized classes, insufficient resources, tough working conditions, misbehaving students are among those stressors that negatively affect the teachers' social, mental and emotional wellbeing. “Forty-six percent of K-12 teachers in the United States report high levels of stress throughout the school year” (Gallup 2014 as cited in Gagnon et al., 2019). Besides,



30–50% of new teachers leave the profession within the first 5 years (Prilleltensky et al. 2016 as cited in Gagnon et al., 2019).

## **2.4 Antecedents**

Swedish statistics show that preschool teaching is the fourth riskiest profession after people working in healthcare, nursing, ambulance services and industrial workers. For every 1,000 preschool teachers eight are at more prone to major risk factors that may lead to long-term sick leave (over 90 days) due to psychological issues including fatigue, depression, anxiety, and burnout. (Sjödin, & Neely, 2017)

The same study included 12 preschool departments and showed that high-stress teachers communicated more with their colleagues than low-stress teachers. They also seem to have spent more time on academic planning, and had young kids at home (Sjödin & Neely, 2017).

In Taiwan, Turkey and Romania, preschool teachers have reported mild to high levels of stress related to low teaching independence (Hung 2012 as cited in Gagnon et al., 2019), bad salary scheme, overworked teachers, oversized classes, and having to take care of the students' daily routines including dressing children, managing their lunch and nap times (Clipa and Boghean 2015 as cited in Gagnon et al., 2019). These stressors have shown to lead to a high turnover among teachers which negatively affects the students and their early learning process, which would accordingly lead to a dysfunctional educational system (Cassidy et al. 2011 as cited in Gagnon, S. G., et al., 2019 p.1 and 2).

Accordingly, this section will discuss the four main antecedents that lead to communication fatigue among school teachers, based on the available literature.

### **1. Emotional Intelligence**

One of the most crucial antecedents to effective communication is emotional intelligence (EI). Emotional intelligence helps people tune into their emotions with awareness, avoiding reaching a state of emotional exhaustion resulting from ineffective communication. Emotional intelligence expert Daniel Goleman states in his book *Working with Emotional Intelligence* (2006) that uncontrollable emotions can make smart people stupid. He also noted in his book that the rules of work are changing, as people are no longer being judged only by how smart they are or how many training courses they have completed, but by how good they are at controlling their emotions (Goleman, 2006).

The original definition of EI conceptualized it as “a set of interrelated abilities (Mayer & Salovey, 1997; Salovey & Mayer, 1990 as cited in Mayer & Caruso 2008 p.503). It has also been described as “an eclectic mix of traits, many dispositional, such as happiness, self-esteem, optimism, and self-management, rather than as ability based.” (Bar-On, 2004 as cited in Mayer & Caruso p.503). people with high EI are usually able to “pay attention to, use, understand, and manage emotions, and these skills serve adaptive functions that potentially benefit themselves and others” (Salovey & Grewal, 2005 as cited in Mayer & Caruso 2008 p.503). Emotional intelligence is basically “an instance of a standard intelligence that can enrich the discussion of human capacities” (Mayer, Salovey, Caruso, & Sitarenios, 2001 as cited in Mayer & Caruso 2008 p.503).

According to Goleman (2006), emotional intelligence “determines our potential for learning the practical skills that are based on its five elements: self-awareness, motivation, self-regulation, empathy, and adeptness in relationships.” As Goleman explains, emotional intelligence is not about being nice all the time, nor does it mean giving free rein to feelings, or, “letting it all hang out.” It is, however, about managing emotions to express appropriately and effectively, helping people work together efficiently and smoothly (Goleman, 2006).

Two American psychologists, John Mayer and Peter Salovey, who first defined emotional intelligence in 1997, described an emotionally intelligent person to be skilled in four areas: identifying emotions, using emotions, understanding emotions, and regulating emotions. They defined it as: “The capacity to reason about emotions to enhance thinking. It includes the ability to accurately perceive emotions, to access and generate emotions to assist thought, to understand emotions and emotional knowledge, and to regulate emotions to promote emotional and intellectual growth reflectively.”

According to Lorraine Dacre-Pool and Pamela Qualter in their edited volume as cited in *An Introduction to Emotional Intelligence* (2018), emotional intelligence indicates “a generic competence in perceiving, understanding, and regulation of emotions (both in one’s self and in others).” Thus, its importance appears in people’s ability to differentiate, understand, or express their emotions effectively in social contexts or regulate their emotions successfully (Dacre-Pool & Qualter, 2018).

In contrast, emotional exhaustion in this context is defined as “an affective reaction and emotion due to being emotionally overextended in an ineffective communication.” EI is not the same as IQ, but according to Goleman and others, is

an even more important tool to succeed in life (Goleman, 2005 as cited in Mohamad and Jais 2016). Emotion is the state of discrete feeling, including happiness, fear, and anger. Emotions are usually categorized based on their valence (positive, negative, neutral) and intensity (Byron, 2008).

According to Daniel Goleman (2006), there are five main aspects or domains to EI:

1.1 Knowing your emotions

1.2 Managing your emotions

1.3 Motivating yourself

1.4 Recognizing and understanding other people's emotions (empathy)

1.5 Managing relationships

Firstly, knowing your emotions is crucial for effective communication. If we are unaware of how we feel about something, communicating can be challenging. How a person feels about something or someone dramatically impacts their body language and verbal communication. For example, imagine coming back from work after a long and busy day. Understanding your feelings can help avoid miscommunication with your family and friends due to stress. Self-awareness and understanding your emotions allow you to better manage them. EI helps you control your emotions by moderating negative or unnecessary feelings and regulating them. The third aspect of EI is self-motivation, which is the key to career and personal success.

The last two domains of EI relate to understanding people's emotions, which is significant in any interaction. In the example previously mentioned, a person returning home after a stressful day at work should have the emotional intelligence to understand whether their partner is too stressed to handle their crankiness. Emotional intelligence helps people understand each other and communicate better.

An absence of emotional intelligence may lead to communication fatigue. (Urich 2017)

Goleman (2006) argues that these domains form the basis for 12 'subscales' of EI.

He suggests that these subscales are:

- Emotional self-awareness
- Emotional self-control
- Adaptability
- Achievement orientation
- Positive outlook
- Influence
- Coaching and mentoring
- Empathy
- Conflict management
- Teamwork
- Organizational awareness
- Inspirational leadership

## Emotional Intelligence Domains and Competencies

SELF-AWARENESS	SELF-MANAGEMENT	SOCIAL AWARENESS	RELATIONSHIP MANAGEMENT
Emotional self-awareness	Emotional self-control	Empathy	Influence
	Adaptability		Coach and mentor
	Achievement orientation		Conflict management
	Positive outlook	Organizational awareness	Teamwork
			Inspirational leadership

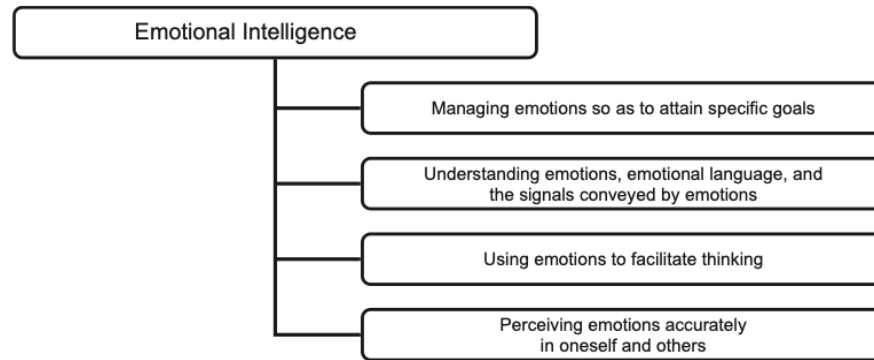
SOURCE MORE THAN SOUND, LLC, 2017

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**Figure 2: Emotional Intelligence Domains and Competencies (More Than Sound, 2017)**

However, Mayer & Salovey (1997) introduced the hierarchy of four-branches of EI, where they divided emotional abilities along a continuum from lower-level basic psychological functions, to more developmentally complex ones that attain personal self-management and goals. The lower level skills include the basic understanding of one's emotions as well as others. However, higher level skills include the ability to best manage these emotions. These branches refer to a tree-like diagram that include the abilities to (a) perceive emotions in oneself and others accurately, (b) use emotions to facilitate thinking, (c) understand emotions, emotional language, and the signals conveyed by emotions, and (d) manage emotions so as to attain specific goals (Mayer & Salovey, 1997 as cited in Mayer & Caruso 2008 p.503). These four branches are illustrated in Figure below.

*The Four-Branch Model of Emotional Intelligence (Mayer & Salovey, 1997)*



According to Liu and Yu (2019), emotionally stable people are less prone to emotional exhaustion for two reasons. Firstly, emotionally stable individuals tend to more easily adapt to new or changing conditions and are usually more resilient when facing employment obstacles. Similarly, they tend to have good coping skills, which allows them to weather difficult situations and people. They are less likely to adopt avoidance-based coping strategies (Cullen & Sackett, 2003). Therefore, emotionally stable individuals are more efficient in using their skills to deal with dynamic job demands and working environments.

Second, emotionally stable people tend to be more aware of their emotions (Caprara et al., 2013). Typically, they have fewer negative emotions because they view themselves more positively and can always see the good situations. They also tend to perceive less of a threat of resource loss when facing obstacles on or off the job (Liu & Yu, 2019).

According to Dacre-Pool and Qualter (2018), the higher the emotional intelligence a person possesses, the better they are at coping with work stress, passing exams, fixing a failing marriage, and surviving other troubles of life. Training EI in the

workplace and schools is also said to offer a viable and valuable solution to many perceived individual and community needs.

Emotional intelligence was first defined and established as a construct in psychology back in the 1990s. However, in recent years, interest has grown exponentially, as its importance in the workplace has increasingly gained recognition. With respect to its application in working environments, according to Goleman (2006), a 1997 survey done by the American Society for Training and Development on the benchmark practices among major corporations found that four out of five corporations are promoting emotional intelligence among their workforce. These efforts include training and development during the evaluation process and at the beginning of the recruitment process (Goleman 2006).

Goleman states in his book *Working with Emotional Intelligence* (2006) that a former project manager at Ford Motor Company once told him that learning about emotional intelligence was a kind of epiphany for him. On the other hand, emotional competence shows how much of that potential from emotional intelligence is translated into on-the-job capabilities. For the purposes of this research an example of emotional competence based on empathy is being good with students and teaching them well. Trustworthiness is an emotional competence based on self-regulation or handling one's impulses (Goleman, 2006). Therefore, high emotional intelligence (especially high self-awareness) negatively correlates with fatigue and burnout, and positively correlates with job satisfaction in people who work in the public sector (Lee, 2017).

### **Emotional Intelligence in Teaching**



A study conducted by Mohamad and Jais (2016) on the relationship between emotional intelligence and job performance among Malaysian school teachers found that teachers with higher emotional intelligence generally perform better in their jobs (Mohamad & Jais, 2016). Teachers are constantly faced with multiple stressors and challenges in the working environment, such as assessments, misbehaving students, parents' expectations, and long working hours. (Ishak et al., 2010 as cited in Mohamad & Jais 2016). Such conditions can have negative emotional and psychological consequences on them, which may sometimes lead them to early retirement or quitting altogether. Generally speaking, researchers agree that teachers' roles in today's societies have become more complex and varied than before (Williams & Burden, 2000 as cited in Mohamad & Jais 2016).

As articulated by Mohamad and Jais (2016), more studies have begun to explore the role of emotional intelligence in education to improve teachers' performance on the job. An example of such a study was published by Corcoran and Tormey (2012) who found that emotional intelligence contributes positively toward the teaching role. Specifically, researchers assert that employees' emotional intelligence leads to better work-related outcomes, such as job satisfaction and job performance (Bachman et al., 2000; Prati et al., 2003; Wong & Law, 2002 as cited in Mohamad & Jais, 2016).

Mohamad and Jais (2016) also cited research that found that teachers who are skilled at evaluating their own emotions are better able to communicate their needs to others. They tend to be more caring and attentive to other people's needs and better at providing emotional support and cooperating with others to achieve a common task and improve overall performance. Previous studies have shown that high

emotional intelligence leads to outstanding performance among teachers (Mohamad & Jais, 2016).

Against all odds and unlike a person's IQ, emotional intelligence can be learned and acquired over the years. According to Goleman (2006), the level of emotional intelligence is not genetic and can develop at any age and not only in early childhood. Studies that tracked emotional intelligence levels over time showed that people get emotionally more intelligent as they grow, learning to motivate themselves and better manage their emotions and impulses. Only then do they reach a stage of "maturity."

Mayer and Salovey, who first developed the concept of emotional intelligence, have come up with two widely used tests for EI: the Multifactor Emotional Intelligence Scale (MEIS) and the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT). According to Dacre-Pool and Qualter (2018), the problem with these tests is that it is hard to objectively test emotional levels and functioning, as the best way to handle tricky life situations varies greatly depending on circumstances and the people involved (Dacre-Pool & Qualter, 2018).

## **2. Excessive Communication**

Excessive communication leads to information overload. Naomi Karten (2014) states that too much communication can be as bad and harmful as too little. Karten (2014) states that communication can be in different forms including texts, emails, video or phone. As the number of communication methods increases, valuable and meaningful communication seems to be declining.

Within the classroom context, a study conducted by Hagekull and Hammarberg (2004) as cited in Sjödin & Neely, 2017, found that the number of interactions initiated by children towards teachers increases as the teacher/child ratio decreases. The number of interactions and amount of support given to the children from the teachers also decreases as the number of children increases, since the teachers have less time and energy to support and communicate with the children. Interestingly, the satisfaction is mutual in classes with fewer students, as better communication and interaction also seem to be a significant source of fulfillment for both teachers and their students (Hall-Kenyon et al., 2014 as cited in Sjödin & Neely, 2017).

### **3. Stressful Communication**

Research conducted across different cultures indicates that school teachers are among those professionals with the highest level of job stress (Mohamad & Jais, 2016).

A study by Skaalvik and Skaalvik (2017) found that there are four potential stressors in the school environment related to teachers' burnout. They are discipline problems, time pressure, low student motivation, and value dissonance. "They lead to teachers' fatigue and burnout which includes: emotional exhaustion, depersonalization, and reduced personal accomplishment," (Skaalvik& Skaalvik, 2017).

As previously mentioned, tiredness and stress are not chronic and usually are not harmful to people as long as they have the time to rest and recover. According to Sjödin and Neely (2017), 20% of high school and compulsory school teachers in Sweden do not have the luxury of time for recovery outside of work, and thus get more fatigued. Long-term stress may lead to fatigue, burnout, sleep difficulties, hypertension, and increased risk of heart complications. Research shows that

preschool teachers are exposed to multiple stressors that simultaneously occur in class, creating a tough working environment, these stressors include time pressure, non-teaching tasks, parental issues, and interpersonal relationships, among others (Sjödín & Neely, 2017)

#### **4. Non-Communication Energy Drainage (Physical, multitasking, psychological, etc.)**

Failing to organize daily priorities and multitasking also seem to be among the antecedents of communication fatigue. According to Sjödín and Neely (2017), teachers have little or no time to complete the non-teaching tasks including meetings and assessments. Therefore, when these tasks are conducted out of school hours, they increase the overall work responsibilities. (Sjödín, F., & Neely, G. 2017)

### **2.5 Consequences of Communication Fatigue**

Based on the available literature and as mentioned above, communication fatigue can be a reason for a multitude of physical and mental ailments. In an article titled *“Perception, consequences, communication, and strategies for handling fatigue in persons with rheumatoid arthritis of working age,”* results from a focus group indicate that a frequent consequence of fatigue is an imbalance in daily life created by an increased amount of time required for rest and sleep (Feldthusen et al., 2013). This study discusses “a vicious circle” where initial fatigue is compounded by more fatigue among participants due to physical and mental aspects of their condition (Feldthusen et al., 2013). Consequences of communication fatigue may also include emotional barriers and taboos, lack of attention, interest, distractions, or irrelevance to the receiver, and differences in perception and viewpoint.

According to Crippen (2008), “stress, emotions and fatigue decrease understanding.” In the book *End-of-life Communication in the ICU*, patients’ families are advised to write down information for better understanding since they are often so deeply impacted by the stressful situation, which might hinder their understanding of what doctors are saying or explaining. While further in-depth understanding of communication fatigue, with examples, will later be shown in the findings, after further research on the topic, the researcher’s suggested consequences of communication fatigue are:

- 1. Difficulty Encoding**
- 2. Difficulty Decoding**
- 3. Communication Energy Drainage**

## **2.6 Fatigue and School Teachers:**

Communication fatigue is a poorly covered concept in science. Very little is known about communication fatigue, its antecedents, and consequences. Given the general lack of consensus in the literature on a definition of communication fatigue, it is a priority to define the term. This exploratory study aims to characterize excessively draining and stressful communication. The case of school teachers during teaching seemed like a good context to study the phenomenon as recent research worldwide indicates that teaching is an intensely stressful occupation, and that fatigue and burnout among teachers have become an international phenomenon (Skaalvik & Skaalvik, 2017). Fatigue among teachers can greatly affect their mental health and the quality of education and care they provide to their students inside and outside of the classrooms. This directly reflects on the wellbeing of their students since teachers

are basically the engine that supports the students' social-emotional learning. A study by Oberle et al. (2020) argued that "teachers' own social-emotional competence (SEC) and well-being are central to the social-emotional support they provide to their students and that teachers with higher levels of burnout tend to score lower on measures of SEC, and vice versa." Thus, the teacher's own wellbeing seems to be crucial in the students' learning process.

Moreover, according to Chang (2009), the high rate of turnover among teachers is due to occupational fatigue and burnout. Research shows that many teachers quit their jobs for non-retirement reasons, especially during the first years of teaching and sometimes through early retirement. (Skaalvik & Skaalvik, 2017).

In other words, teaching has always been one of the most emotionally-demanding professions due to the high level of face-to-face communication it requires with multiple stakeholders including: management, parents, colleagues, administrators, and most importantly students. These days, with emerging technologies and shifting expectations, it is becoming even more dynamic and challenging. It is of little surprise that while dealing with these emotional demands, negative consequences appear along the way such as teacher burnout, job dissatisfaction, and decreased enthusiasm (Lee, 2019).

Accordingly, understanding the factors related to teachers' fatigue helps them determine solutions to boost their job satisfaction and mental and emotional wellbeing on and off the job, which results in the delivery of high-quality education. Understanding these factors also helps unpack to what extent their fatigue is related to external stimuli such as the classroom acoustic conditions and physical and mental fatigue during the working day.



### **Chapter Three: Research Methodology**

This chapter will discuss the methods used in this study to reach the findings and answer the following research questions: RQ1: What is Communication Fatigue? RQ2: What are the primary causes of communication fatigue among school teachers? and RQ3: What are the consequences of communication fatigue?

The research used qualitative methods to achieve the research objectives and develop a profound understanding of communication fatigue for Egyptian school teachers. The focus groups method was deployed to provide an in-depth understanding and exploration of the topic under investigation. For such exploratory research, a straightforward descriptive narrative is appropriate and often necessary.

A total of six focus groups were conducted over four weeks: three groups featuring male teachers and three groups featuring female teachers. Two focus groups were comprised of teachers working in elementary schools, two with middle-school teachers, and two with secondary-school teachers. This design allowed for every educational level to be represented by two focus groups; one female, and one male. Groups were intentionally divided into male and female participants to avoid gender bias issues and so the participants would feel more comfortable answering freely given the Egyptian cultural context.

Each focus group included six to eight teachers. Their professional experience ranges from 10 to 25 years. Teachers' years of experience was decided based on a 2019 study by the National Commission on Teaching and America's Future that states that teachers' attrition rates rise in a U-shaped pattern where up to one third of new teachers in the United States leave the profession in their first 3 years. The study indicates high turnover rates for new teachers, lower rates for experienced teachers



and higher rates again for more experienced teachers approaching retirement age (Klassen & Chiu, 2011).

The guide used for the focus groups contained 10 key questions, with probes and spontaneous follow-ups by the professional moderator. Each focus group took around 60 to 90 minutes. The interviews were conducted after working hours at the market research agency's facility in downtown Cairo, which was chosen as the location for the focus groups due to its accessibility by public transportation. The teachers were given an incentive of 200 EGP as compensation for their time. The incentive was handed to them in unlabeled envelopes immediately after the completion of each focus group.

The proceedings of each focus group were transcribed, with comments and answers for each interview protocol question arranged appropriately. For each question, the researcher extracted the main ideas implied in the answers, grouped them into themes, and identified recurring ideas enriching interpretation for previous comments. The full focus group discussion guide is available in the appendix.

This study does not include a theoretical framework as the analysis of qualitative material tends to be rather descriptive without a theoretical lens that helps to explain the results.

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<b>Six Focus Groups of School Teachers</b>		
<b>K1 - K6</b>	<b>Men</b>	<b>Women</b>
<b>K7 - K9</b>	<b>Men</b>	<b>Women</b>
<b>K10 – K12</b>	<b>Men</b>	<b>Women</b>

**Figure 3: Methodology focus groups**

## Chapter Four: Research Findings

Most interviewed teachers stressed the importance of communication, especially in their field; as one of the teachers explained in the focus group: *“Communication is important to all of us, especially that a teacher’s job is mainly based on communication, explanation, understanding others, and helping them greatly. In addition, communication goes beyond speaking and listening, to reading, writing, watching and playing roles.”*

1. With respect to defining communication fatigue (RQ1) through the focus groups, teachers expressed that they reach a point while teaching where they feel fatigued. Below are some of the feelings they experience at this point. This section is categorized according to “feelings, thoughts, and actions.”

- 1.1 The feelings of teachers at this point in time are represented by the following statements:

*“A feeling of tension and fatigue, as well as helplessness and the inability to continue.”*

*Feeling a little nervous and tense, a negative feeling haunts me.”*

*“I need to restore my energy.”*

*“lack of focus, The dispersion of thoughts.”*

*“I lose contact with the students.”*

*“I cannot deliver or receive.”*

*“I feel a lack of information on my mind.”*

- 1.2 The thoughts that teachers think at this time are represented in; *“Trying to find another way to communicate, by changing the method of explanation.”*

*“Giving a simpler example to students and descending to their level.”*

*“I try to arrange the topic in my mind again for a few minutes or seconds so that I can continue.”*

*“I try to take my mind off the things that lead to this feeling.”*

**1.3** The actions in class that teachers do at this point are represented in;

*“Do some exercises for students, and stop explaining.”*

*“Take a break and then resume.”*

*“I try to continue despite exhaustion.”*

*“Take off the topic to side conversations with students.”*

**2.** To answer research question number two (RQ2), these are the situations that make teachers reach a challenging level of communication fatigue, in their own words:

**2.1** Too much communication; There are many types of excessive contact with others. This excess of interaction causes exhaustion, whether physical, psychological, or mental for most teachers. However, some teachers try to continue despite feeling exhausted;

*“I feel nervous as a result of the continuous and overlapping conversations.”*

*“Sometimes I get over the situation and carry on.”*

*“It makes me feel paused.”*

*"I can't keep communicating."*

*"It is something that bothers me most of the time."*

*"I feel exhausted when I communicate for a long time. I lose focus, but I got over that over time."*

*"I feel exhausted and unable to continue if I communicate over the phone or Facebook for too long."*

- 2.2** Most teachers face many different types of stress, such as too much noise, the need to speak in a loud voice, the need to control the conversation, fast-paced communication or time pressure, and the need for emotional communication, in addition to multitasking. The following are the most important comments that touch upon the different types of stress a teacher faces during communication;

*"Yes; the noise distracts me as I lose the ability to communicate."*

*"Conversations with students must be controlled with discipline."*

*"I have to set rules from the start for dealing with students in the classroom."*

*"It causes me to continue but not efficiently, and the information is not well-explained."*

*"The bad behavior from students makes you nervous."*

*"The bad behavior from students makes you lose control of communication. I feel bored, unmotivated, and unable to continue."*

*"You can't seem to lose control in front of the students, so I follow a policy of laughter until I regain my strength back."*

*“The teacher needs to be able to control the conversation with the students.”*

*“In contrast; Emotional communication helps us to communicate more and to clarify information better.”*

*“Emotional communication gives more energy and the ability to continue communicating.”*

*“I usually do more than one task in the classroom, explaining and observing at the same time.”*

*“I usually do more than one thing simultaneously in my daily life.”*

- 2.3** Besides the previous causes, teachers of all educational levels face different emotional situations that increase their stress and put more pressure on them, leading to more fatigue and less energy to communicate. These emotional encounters may include situations with their colleagues, students, or even at home with their families such as difficulty asking others to do things for them, asking others to stop disturbing them (like smoking), difficulty understanding how others feel or communicating their feelings, and the difficulty of thinking fast enough to answer properly. Below are some of the relevant comments in their own words:

*“I usually do things for the benefit of others.”*

*“As teachers, we always help each other.”*

*“It depends on the extent of the relationship between us.”*

*“It depends on how much we respect each other’s feelings.”*

*“If there is trust between us, the other will not do anything to bother me.”*

*“It is important that we set the rules for dealing with each other from the beginning.”*

*“Sometimes I struggle to understand other people’s feelings.”*

*“I am trying to talk to them to find out the problem.”*

*“I usually intervene to solve the problem, either among colleagues or among students.”*

*“I find it difficult to think of a convincing answer in such a short time.”*

*“I give students the answer that persuades them.”*

*“If he knew that I was even confused, he would not be convinced of me.”*

3. To answer research question number three (RQ3) on the consequences of communication fatigue, we analyzed the comments of teachers describing what they feel when they are unable to communicate properly but must continue communicating with students and thus face difficulties. These are outlined below and include difficulty expressing exact meanings, structuring sentences, and being creative. The following comments encapsulate the answers of interviewed teachers;

*“I keep saying things and forgetting.”*

*“Inability to process information as I wish, because my mind is blocked.”*

*“I forget the questions, but I try to act normal while explaining to students.”*

*“Of course, communicating information to students differs from if you are in a normal state.”*

*“I am unable to discuss and argue.”*

*“Unable to accept any kind of humor or fun from students.”*

*“I cannot express it. I cannot find words that express what I want to say.”*

*“No, of course, it is impossible to be creative.”*

*“How can I get creative when I am unable to communicate?”*

*“Creativity needs a good mood.”*

*“The curriculum is routine; it is difficult to be creative.”*

*“Creativity is cluttered, random, and without focus, and this sometimes astonishes students.”*

*“Creativity depends on how much students love the course.”*

- 3.1** Most of the teachers at all educational levels find difficulty understanding what others mean when fatigued. They cannot concentrate on what is being said or written, and they get easily distracted. Moreover, they could neither remember what has been said by the students nor remember other relevant facts.

*“I ask [students] to explain more.”*

*“I try to focus more on the question.”*

*“I say; I will respond to you tomorrow.”*

*“It depends on the way the student speaks, whether they speak calmly or nervously.”*

*“Yes, I forget most of the conversation when I lose focus.”*



*“I try to forget everything outside of the classroom.”*

*“It’s hard to get distracted, given my years of experience.”*

*“I get distracted for only a few minutes.”*

*“I suffer from that, and it is a weakness for me.”*

*“I communicate with students, even though I am unable to continue.”*

*“Education in the current era is different from previous years. The student now depends on the Internet to learn.”*

- 3.2 The focus groups showed that the behavior of teachers differs from one teacher to another when they decide to shut down all communication. This means a complete shutdown where they can no longer listen to nor read anything, and cannot talk or write anymore. The following are the teachers’ relevant comments:

*“I cannot shut down communication with everyone.”*

*“I go on and communicate with anyone.”*

*“According to the timing and the person speaking.”*

*“I try to respond but not the same as normal.”*

*“It is difficult to do anything else at this time.”*

*“When I am fatigued, I talk to my friends to change my state of mind.”*

*“I can’t do anything, as I’m so tired.”*

*“I like to listen to music, rejuvenate myself.”*

*“I prefer to sleep and do nothing. A teacher’s profession is important; therefore, you cannot take a vacation easily.”*

### **The Proposed Model of Communication Fatigue:**

Based on the results of the focus groups with teachers, the researcher has developed a model of communication fatigue. The researcher re-analyzed the results and comments based on selective depth review to glean the themes that represent the most common elements of the communication process that lead to fatigue between teachers and students inside the classroom. The four main antecedents that were identified based on the focus groups are as follows.

- The first antecedent is absence of emotional intelligence, which is crucial for effective communication especially among teachers, where communication is a major part of their job. As previously mentioned, EI is composed of five domains: knowing your emotions, managing your emotions, motivating yourself, recognizing and understanding other people's emotions (empathy), and managing relationships. Previous studies have shown that teachers with high emotional intelligence demonstrate higher levels of performance than those who do not (Hayashi & Ewert, 2006 as cited in Mohamad & Jais, 2016).
- The second antecedent is excessive communication, which is too much communication in all its contexts and types.
- The third antecedent is stressful communication such as too much noise, speaking in a loud voice, the need to control the conversation, fast-paced communication or time pressure, and emotional communication with the students.
- The fourth and last antecedent is non-communication energy drainage, either physical or psychological due to work-related or family-related issues and multitasking. This can occur from the accumulation of multiple

off-the-job tasks that a teacher is asked to do inside and outside the class, including administrative work and being held accountable for the students' safety, wellbeing and assessments.

The antecedents above lead to communication fatigue, which is defined by the teachers as:

*"A feeling of tension, fatigue, helplessness, and inability to continue."*

*"Feeling a little nervous and tense, a negative feeling haunts me."*

*"I need to restore my energy."*

*"lack of focus."*

*"The dispersion of thoughts."*

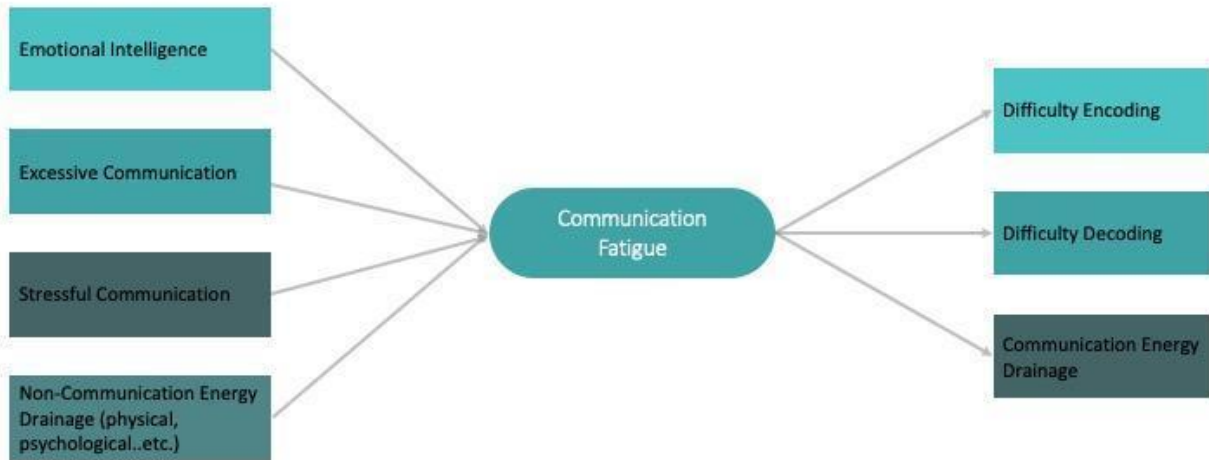
*"I lose contact with the students; I cannot deliver or receive."*

*"I feel a lack of information in my mind."*

The focus groups also showed that there are three main consequences of communication fatigue, they are:

- Difficulty encoding; which is difficulty in expressing exact meaning, structuring sentences, and being creative.
- Difficulty decoding; which is finding difficulty understanding what others mean when they are fatigued.
- Communication energy drainage; which may sometimes lead to a complete shutdown and an inability to think, express, or listen.

The chart below depicts the model used throughout the study explaining antecedents and consequences of communication fatigue.



**Figure 4: Antecedents and Consequences of Communication Fatigue**

### **Antecedents:**

1. Emotional intelligence, which is explained by the following sentences, in the teachers' own words:

*“Only a few would take into account other people’s feelings.”*

*“The emotional state and intelligence to manage it is very important and is what gives the ability to communicate.”*

2. Excessive communication due to the nature of their jobs, which usually requires too much communication with multiple people.

*“I feel nervous as a result of the continuous and overlapping conversations.,”*

*“I can’t keep on communicating.”*

*“It is something that bothers me most of the time.”*

*“I feel exhausted when it is for a long time, I lose focus I encroached on that over time.”*

*“I feel exhausted and unable to continue if I overcommunicate.”*

*“The noise distracts me as I lose the ability to communicate.”*

*“The bad behavior from students makes you nervous.”*

3. Stressful communication, which according to them, is due to:

*“Conversations with students must be controlled with discipline.”*

*“I have to set rules from the start for dealing with students in the classroom.”*

*“It causes me to continue but not efficiently, and the information is not well-explained.”*

4. Non-communication energy drainage which could be either physical or psychological due to a personal or family-related issue:

*“I usually do more than one task in the classroom, explaining and observing at the same time.”*

*“I usually do more than one thing at the same time in my daily life.”*

**Consequences:**

1. Difficulty Encoding, according to the teachers, is the difficulty to explain concepts to their students due to fatigue. Hence, they become unable to function well. The following comments exemplify the answers of interviewed teachers:

*“No, of course, it is impossible to be creative.”*

*“How to get creative when I am unable to communicate.”*

2. Difficulty Decoding: Teachers can no longer understand or listen to what is being told to them inside and outside of the classroom due to communication fatigue.

*“I ask [students] to explain more.”*

*“I try to focus more on the question.”*

*“I say; I will respond to you tomorrow.”*

3. Communication Energy Drainage: It is a level where fatigue might lead the teachers to a state of a complete shutdown where they can no longer resume the class or even a conversation with a student. They explained it as:

*“A feeling of tension and fatigue, as well as helplessness and the inability to continue.”*

*“A feeling a little nervous and tense, a negative feeling haunts me.”*

*“I need to restore my energy.”*

*“The dispersion of thoughts.”*

*“I keep saying things and forgetting.”*

### **The Special Case of Female Teachers:**

In this exploratory study, we did not set out to analyze the data according to gender and demographic markers, however, during the focus groups, some notable differences between male and female participants emerged that should be noted. Female teachers tended to be more affected by stressful working conditions like oversized classes, where they feel out of control. Female participants expressed that misbehaving students and needing to communicate under pressure, as well as having to meet certain deadlines usually stresses them and leads to communication fatigue.

In addition to this, female participants stressed the fact that they get overly fatigued as a result of physical effort inside and outside of the classroom, be it in their personal lives or inside the classroom during an activity with students. They also expressed that besides their work as teachers, they are also prioritizing their jobs as mothers and wives, which is greatly affecting their energy levels and their ability to communicate effectively at all times inside the classroom. Below are some of the teachers' answers:

*“For women in Egyptian society, their homes are their main responsibility even if they are working, which makes it cumbersome.”*

*“Most of the teachers in Egypt are not only free to teach, but sometimes they work another job, in addition to their family burdens.”*



## Chapter Five: Discussion and Conclusion

In this study 50 Egyptian school teachers working in public schools were interviewed to provide an in-depth understanding of the antecedents and consequences of communication fatigue among teachers or people working in similar contexts.

Given the large and growing population of public-school teachers in Egypt, teachers play a fundamental part in the education sector in Egypt and are significant in the students' learning process. The population of teachers reached 1.038 million for the 2018/2019 fiscal year, compared to 1.023 million teachers in 2017/2018, showing an increase rate of 1.4 % (CAPMAS, 2020). Public school students also represent a large portion of the Egyptian population. According to Statista (2020), the total number of students in public schools is 21 million. According to CAPMAS (2020), the 2018/2019 academic year, the number of pre-primary teachers was 61.3 thousand and the number of students was 1.480 million. For primary education (K1-K6), the number of teachers is 521.7 thousand and the number of students is 13.106 million students. For middle school (K7-K9), the number of teachers is 306.3 thousand teachers and a total of 5.397 million students. For high school (K10-K12), there are 149.3 thousand teachers and 2.108 million students (CAPMAS, 2020).

Most interviewed teachers stressed the importance of communication, especially in teaching, which is all about human interaction with students and being part of their lives and learning process. *“Communication is important to all of us, especially that a teacher’s job is mainly based on communication, explanation, understanding others, and helping them greatly. In addition, communication is limited to speaking and listening, but it is related to reading, writing, watching and playing roles.”*

However, in Egypt, teachers do suffer from a tough working environment, from oversized classrooms to insufficient resources to low pay schemes, which leads to overwork in the form of private lessons to secure their families' needs. This is what leads to them being demotivated, fatigued and unable to transfer the knowledge efficiently and communicate well with their students, which negatively affects their learning process and their mental and psychological wellbeing.

To wrap up, this exploratory study found that there are four main antecedents that cause communication fatigue among school teachers. First, a lack of emotional intelligence. As previously mentioned, EI helps people tune into their emotions with intelligence, which helps avoid reaching a state of emotional exhaustion resulting from ineffective communication. The second antecedent is excessive communication. This occurs when there is excessive interaction with one stakeholder for a prolonged period of time or multiple stakeholders simultaneously, which can cause burnout and fatigue, whether physically, psychologically, or mentally for most teachers. The third is stressful communication, which is due to potential stressors inside and outside of the classroom including fast-paced communication, misbehaving or demotivated students, dysfunctional educational systems, which makes teachers work more with minimal pay and emotional communication that sometimes leads to stress. Last but not least, non-communication energy drainage that is either physical due to a physically-draining job or psychological due to a personal or family-related issue that affects their capacity to communicate.

Despite not analyzing data based on gender, there are some major differences between male and female participants, as female teachers declared that their personal life greatly affects their mood and status.

It is worth mentioning that the antecedents identified in this particular study may trigger communication fatigue through other types of fatigue. For instance, cases of stressful communication can also lead to mental fatigue, as combinations of two or more types of fatigue usually exist among people in different contexts.

## **5.0 Future Direction**

This is an exploratory study, where we did not analyze the data according to demographic markers, years of experience and educational levels. Further research may be done that would include a larger sample size to further consider educational level, gender and experience level of participants. First, although the proposed model with antecedents and consequences of communication fatigue might apply to a large segment of people, it may still differ in other countries and cultures that need further investigation. Second, this study particularly explores antecedents and consequences of communication fatigue among school teachers. However, different professions need further investigation and understanding. Lastly, this study is mainly based on one context of communication: one-to-many verbal communication, thus, further investigation is needed for other communication contexts. Further interviews could also be done with school managers/principals on how they handle communication fatigue among teachers and how to prevent it. Future research could also be done to identify communication fatigue in relation to different fields as well as identifying communication fatigue in relation to different subjects.

## **5.1 Limitations**

This study relied on qualitative research to provide a vertical in-depth understanding of communication fatigue through focus groups. However, it lacks external validity

derived from quantitative analysis. In addition, the antecedents and consequences identified here are not exhaustive but rather indicative, as there could be more factors affecting teachers' communication and leading to fatigue. Data is also not analyzed according to demographic markers, years of experience and educational levels.

## **5.2 Managerial Implications**

First, this study sheds light on the daily problems of school teachers in Egypt and how they react to them. Findings suggest that there is a problem in the teaching sector in Egypt that needs further research and investigation, as the absence of the system is an integral cause of these problems in addition to the low pay scale, which may sometimes lead the teachers to multitask or overwork themselves through private classes hence poorly performing in class. Thus, findings suggest that the teaching sector in Egypt needs a better system that controls their working hours, administrative work, etc. Findings also show that teachers should be granted better benefits and pay scales so that they wouldn't have to overwork themselves to afford basic life needs. Last but not least, a strict punishment system should be applied to misbehaving students who are causing abnormal turbulence in the teaching process and hindering teachers' performance and leading to their fatigue, and hence, affecting other students who would like to receive a better education.

## References:

Aaronson, L. S., Teel, C. S., Cassmeyer, V., Neuberger, G. B., Pallikkathayil, L., Pierce, J., Press, A. N., Williams, P. D., & Wingate, A. (1999). Defining and measuring fatigue. *Image: The Journal of Nursing Scholarship*, 31(1), 45–50. <https://doi.org/10.1111/j.1547-5069.1999.tb00420.x>

Ace, J. (2020, November 2). 6 Types of Fatigue and How They Might Affect Us. *Multiple Sclerosis News Today*. Retrieved December 28, 2021, from <https://multiplesclerosisnewstoday.com/disabled-to-enabled-a-column-by-jessie-ace/2020/10/16/fatigue-types-effects/>

Are your employees at risk for communication fatigue? (2020, August 26). Tango Health. <https://www.tangohealth.com/blog/employees-risk-communication-fatigue/>

Beukelman, D. R., Mirenda, P., & Beukelman, D. R. (2013). *Augmentative and alternative communication: Supporting children and adults with complex communication needs* (4th ed). Paul H. Brookes Pub.

Byron, Kristin. (2008). Carrying too heavy a load? The communication and miscommunication of emotion by e-mail. *Academy of Management Review*, 33(2), 309–327. <https://doi.org/10.5465/amr.2008.31193163>

Caldwell, J. A., & Caldwell, J. L. (2003). *Fatigue in aviation: A guide to staying awake at the stick*. Ashgate.

*Can you have too much communication?* (n.d.). TechWell. Retrieved November 15, 2021, from <https://www.techwell.com/techwell-insights/2014/04/can-you-have-too-much-communication>

Capmas. (2020, October 4). الجهاز المركزي للتعبئة العامة والإحصاء. Retrieved January 2, 2022, from [https://www.capmas.gov.eg/Pages/ShowHmeNewsPDF.aspx?page\\_id=%2FAdmin%2FNews%2FPressRelease%2F2021815114515\\_888.pdf&Type=News](https://www.capmas.gov.eg/Pages/ShowHmeNewsPDF.aspx?page_id=%2FAdmin%2FNews%2FPressRelease%2F2021815114515_888.pdf&Type=News)

*Chapter 1: Stress – methods for stress management.* (n.d.). Retrieved November 15, 2021, from <https://psu.pb.unizin.org/kines082/part/chapter-1-understanding-stress/>

*Communication barriers.* (n.d.). Retrieved December 21, 2020, from <http://phicare.com/competencies/communicationbarriers.php>

Crippen, D. (Ed.). (2008). *End-of-life communication in the ICU: A global perspective*. Springer.

*1.3 communication in context – business communication for success.* (n.d.). Retrieved November 15, 2021, from <https://open.lib.umn.edu/businesscommunication/chapter/1-3-communication-in-context/>

Dacre-Pool, L., & Qualter, P. (Eds.). (2018). *An introduction to emotional intelligence*. Wiley.

Drew, C. (2019). *Shannon weaver model of communication—7 key concepts (2021)*. <https://helpfulprofessor.com/shannon-weaver-model/>

Dunn, L. (1993, June). Ratio and group size in day care programs. In *Child and Youth Care Forum* (Vol. 22, No. 3, pp. 193-226). Kluwer Academic Publishers-Human Sciences Press.

Feldthusen, C., Björk, M., Forsblad-d’Elia, H., & Mannerkorpi, K. (2013). Perception, consequences, communication, and strategies for handling fatigue in persons with rheumatoid arthritis of working age— A focus group study. *Clinical Rheumatology*, 32(5), 557–566. <https://doi.org/10.1007/s10067-012-2133-y>

Gagnon, S. G., Huelsman, T. J., Kidder-Ashley, P., & Lewis, A. (2019). Preschool student–teacher relationships and teaching stress. *Early Childhood Education Journal*, 47(2), 217–225. <https://doi.org/10.1007/s10643-018-0920-z>

Goleman, D (2006). *Working with Emotional Intelligence* (Bantam hardcover reissue ed). Bantam Books.

Klassen, R. M., & Chiu, M. M. (2011). The Occupational Commitment and Intention to Quit of Practicing and Pre-Service Teachers: Influence of Self-Efficacy, Job Stress, and Teaching Context. *Contemporary Educational Psychology*, 36(2), 114–129. <https://doi.org/10.1016/j.cedpsych.2011.01.002>

Lee, Y. H. (2019). Emotional labor, teacher burnout, and turnover intention in high-school physical education teaching. *European Physical Education Review*, 25(1), 236–253. <https://doi.org/10.1177/1356336X17719559>

Light, J., & McNaughton, D. (2014). Communicative competence for individuals who require augmentative and alternative communication: A new definition for a new era of communication? *Augmentative and Alternative Communication*, 30(1), 1–18. <https://doi.org/10.3109/07434618.2014.885080>

Liu, X., & Yu, K. (2019). Emotional stability and citizenship fatigue: The role of emotional exhaustion and job stressors. *Personality and Individual Differences*, 139, 254–262. <https://doi.org/10.1016/j.paid.2018.11.033>

Maier, Christian; Laumer, Sven; Eckhardt, Andreas; and Weitzel, Tim, “WHEN SOCIAL NETWORKING TURNS TO SOCIAL OVERLOAD: EXPLAINING THE STRESS, EMOTIONAL EXHAUSTION, AND QUITTING BEHAVIOR FROM SOCIAL NETWORK SITES’ USERS” (2012). ECIS 2012 Proceedings. 71. <http://aisel.aisnet.org/ecis2012/71>

Mayer, J. D., Salovey, P., & Caruso, D. R. (2008). Emotional intelligence: New ability or eclectic traits?. *American psychologist*, 63(6), 503.

McLean, S. (2003). *The basics of speech communication*. Boston, MA: Allyn & Bacon.

McLean, S. (2005). *The basics of interpersonal communication* (p. 10). Boston, MA: Allyn & Bacon.

Mohamad, M., & Jais, J. (2016). Emotional intelligence and job performance: A study among Malaysian teachers. *Procedia Economics and Finance*, 35, 674–682. [https://doi.org/10.1016/S2212-5671\(16\)00083-6](https://doi.org/10.1016/S2212-5671(16)00083-6)

National Commission on Teaching and America's Future. (2009). *Learning teams: Creating what's next*. ERIC Clearinghouse.

Oberle, E., Gist, A., Cooray, M. S., & Pinto, J. B. R. (2020). Do students notice stress in teachers? Associations between classroom teacher burnout and students' perceptions of teacher social-emotional competence. *Psychology in the Schools*, 57(11), 1741–1756. <https://doi.org/10.1002/pits.22432>

Persson, P. B. (2013). Good publication practice in physiology 2013: Revised author guidelines for Acta Physiologica. *Acta Physiologica*, 209(4), 250–253. <https://doi.org/10.1111/apha.12180>

Piper, B. F. (1989). Fatigue: current bases for practice. In *Management of Pain, Fatigue and Nausea* (pp. 187-198). Macmillan Education UK.

*Reinvigorating the public to prevent covid-19 - apps.who.int*. WHO. (2020, November). Retrieved December 28, 2021, from [https://apps.who.int/iris/bitstream/handle/10665/337574/WHO-EURO-2020-1573-41324-56242-eng.pdf?sequence=1&isAllowed=y&ml\\_subscriber=1647727207612679554&ml\\_subscriber\\_hash=h516](https://apps.who.int/iris/bitstream/handle/10665/337574/WHO-EURO-2020-1573-41324-56242-eng.pdf?sequence=1&isAllowed=y&ml_subscriber=1647727207612679554&ml_subscriber_hash=h516)

Russell, S., Jenkins, D., Smith, M., Halson, S., & Kelly, V. (2019). The application of mental fatigue research to elite team-sport performance: New perspectives. *Journal of Science and Medicine in Sport*, 22(6), 723–728. <https://doi.org/10.1016/j.jsams.2018.12.008>

Sjödin, F., & Neely, G. (2017). Communication patterns and stress in the preschool: An observational study. *Child Care in Practice*, 23(2), 181–194. <https://doi.org/10.1080/13575279.2016.1259159>

Skaalvik, E. M., & Skaalvik, S. (2017). Dimensions of teacher burnout: Relations with potential stressors at school. *Social Psychology of Education*, 20(4), 775–790. <https://doi.org/10.1007/s11218-017-9391-0>

Urich, A. (2017). *Methods for stress management*. <https://psu.pb.unizin.org/kines082/>

Vocate, D. R. (Ed.). (1994). *Intrapersonal communication: Different voices, different minds*. Erlbaum



*What's the difference between fatigue, burnout and exhaustion?* (2019, October 14). Wellteq  
<https://wellteq.co/insights/mental-health/fatigue-burnout-and-exhaustion-whats-the-difference/>

*Why the who's change in definition of burnout is so important.* (2019, June 5). Healthline.  
<https://www.healthline.com/health/mental-health/burnout-definition-world-health-organization>

Wood, J. T. (1997). *Communication in our lives*. Wadsworth Pub. Co.

World Health Organization. (n.d.). *Burn-out an "Occupational phenomenon": International Classification of Diseases*. World Health Organization. Retrieved January 1, 2022, from <https://www.who.int/news/item/28-05-2019-burn-out-an-occupational-phenomenon-international-classification-of-diseases>