

Extracción Actividades Emociones

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Implicit Activities and emotions in PRIF-EM

From the review of the works related to the measurement of physical and psychological aspects in work and academic settings, a potential opportunity is found, for the use of artificial intelligence as a support component in the psycho-social assessment. The questionnaires currently used for quantitative and qualitative assessment implicitly contain activities, emotions, moods, and situations that the person providing the test answers may experience. In this project, we will limit ourselves to extracting the functional activities that are to support the physical, social, and psychological well-being of a person and allows that person to function in society [1]. Additionally, they will extract the Instrumental Activity of Daily Living (IADL), which is defined as those activities that allow an individual to live independently in a community. according [2]. On the other hand, the emotions within the items of the questionnaires will be extracted, taking as reference the study of emotions by Paul Ekman [3].

Methodology of extraction

analysis of the mechanisms used in the publications. There are different motivations for the use of the mechanisms. It was found validation in specific population segments [4], methodological quantification support for experimental validation [5], and adaptation of some of its items in a defined context [6]. The motivation, in this case, will be to identify the questionnaires mentioned in articles that establish their focus on aspects related to psychosocial risks in the work and academic contexts. After this, there was an extraction of application domains that group different items or questions made to the evaluated people. Each item was decomposed in order to identify implicit the activities, emotions. Also, activities frequencies considerations were extracted as a complement in activity characterization. This whole process was conducted by taking Melzer's work [7] as references, which deals with the recognition of emotions from body movements. This approach not only represents a methodological reference but also fits with the scope of the work for the identification and characterization of scenarios in which actions carried out by people are involved and can be captured by video cameras.

Within the selected references, we could establish a separation between our two contexts of interest. Although the workplace context contains a wide variety of contributions evidenced in new assessment mechanisms development and possible improvements could be identified over other publications [8], there is a considerable number of situations that have brought the attention of experts in medicine and psychology in the academic environment [9]. The aspects evaluated in the academic field do not differ entirely from those studied in the workplace. There are few variations in the place where they take place and the role that people perform in these contexts. For instance, during the execution of the role of the teaching, psychosocial risk factors related to work could be present. Table 3 shows the mechanisms extracted from the selected articles.

Table 1: Articles oriented to academic environments

Author	Assesment mechanism or scale
Alotaibi- 2020[@Alotaibi2020]	Pittsburgh Sleep Quality Index (PSQI) Kessler Psychological Distress Scale (K10)
Calderon- 2019[@Calderon2019]	Ryff Scales of Psychological Well-being

Author	Assesment mechanism or scale
Thomas-2019[@Thomas2019]	Perceived Scale Test (PSS) The Three-Factor Eating Questionnaire
Ben Ami-2018[@Benami2018]	Survey of personal and social development
Moy-2014[@Moy2014]	Smoking-alcohol consumption and physical activities (IPAQ) The job content questionnaire (JCQ) Depression-anxiety and stress scale (DASS)
Conley-2013[@Conley2013]	Psychometric analysis and refinement of the Connor Davidson Resilience Scale (CD-RISC) The Dysfunctional Attitude Scale

Moreover, the selection of articles related to the work environment is made (see table 4). An analysis is performed to each related evaluation mechanism in order to extract the components of the questionnaires. Also, the analysis will permit to identify scales that support qualification.

Table 2: Articles oriented to Work environments

Author	Environment
Golonka-2019[@Golonka2019]	Maslach Burnout Inventory General Survey (MBI-GS)-NEO Five-Factor Inventory-Beck's Depression Inventory
Maeda-2016[@Maeda2016]	International Neuropsychiatric Interview
Najder-2016[@Najder2015]	The Psychosocial Risk Scale (PRS)
Luca-2014[@Luca2014]	Beck Depression Inventory (BDI)
Charria-2012[@Charria2012]	Cuestionario Encuesta de Calidad de Vida en el trabajo Cuestionario para la Evaluación del Estrés-Batería para la evaluación de factores de riesgo psicosocial Utrecht Work Engagement Scale Cuestionario Psicosocial de Copenhagen (CoPsoQ)
Blanch-2010[@Blanch2010]	El cuestionario FPSICO El Cuestionario de Bienestar Laboral General
Rodríguez-2009[@Rodríguez2009]	Hipótesis de la tensión del trabajo Karasek
Boyes-2002[@Boyes2002]	Hospital Anxiety and Depression Scale-Short-form Supportive Care Needs Survey
Mausner-2000[@Mausner2000]	Quality of Employment Surveys

The analysis process includes the understanding of the scope covered by the mechanism. One of the primary references in this work is the battery of psychosocial risk factor evaluation [] which takes up elements from the Karasek, Theorell (1990) and Jonhson models of demand-control-social support, from the imbalance model effort-reward of Siegrist (1996 and 2008) and of the dynamic model of the psychosocial risk factors of Villalobos (2005). The disposition of this evaluation mechanism suggests a construct of intra-labor conditions, which is made up of domains and dimensions. The domain of work demands includes the dimensions of quantitative demands, mental load, emotional, workday, environmental and physical effort. The control domain quantifies the dimensions related to autonomy overwork, clarity of the role, opportunities for development, the use of skills and abilities. The domain of leadership and control includes dimensions of characteristics of social relations at work, performance feedback, and the relationship with subordinates. Finally, the reward domain that includes the dimensions of recognition, compensation, and rewards derived from belonging to the organization, and the work is done.

On the other hand, the battery evaluates extra-labor conditions, which include aspects of the worker's family, social, and economic environment. In turn, they cover the conditions of the place of residence, which can influence the health and well-being of the individual. Time away from work, family relationships, communication, and interpersonal relationships, the financial situation of the family group, among others. The individual's conditions refer to a series of characteristics characteristic of each worker or socio-demographic

characteristics such as sex, age, marital status, educational level, occupation (profession or trade), city or place of residence, scale socio-economic (socio-economic stratum), the type of dwelling and the number of dependents. These socio-demographic characteristics can modulate the perception and effect of intra-occupational and extra-occupational risk factors. They could be used as a complement to the characteristics used in classification or regression models to contribute to the support metrics for psychosocial assessment. Although the interest of this work focuses on the features related to activities and emotions, the mentioned scenarios will be extracted in the ongoing review of the different questionnaires.

Activities and emotions inventory

In addition to identifying the scope, we proceed to identify the items or questions that may implicitly contain any activity or emotion experienced by the person evaluated. Table ?? describes the evaluation mechanisms and a total of seventy-nine potential items. For each item, we identify what type of emotion or activity it could belong to as well as the related context. As can be seen, the Perceived Scale Test (PSS) questionnaire contains questions related to emotions as well as the frequency in which the evaluated person experiences these situations. These types of questions suggest a type of periodic control that could be used for the generation of a monthly indicator.

Meanwhile, the Depression, anxiety, and stress scale (DASS21) manifest some activities that are noticeable such as body tremors or breathing difficulties. This representation of physical symptoms may be related to moods or medical conditions that are of interest for monitoring. Other activities that can be captured are those mentioned in The Three-Factor Eating Questionnaire. In this mechanism, activities are not only related to eating habits but also suggests a condition of anxiety in cases of a high frequency of food intake.

Like the PSS test, the Kessler Psychological Distress Scale (K10) includes items that inquire about emotional states over a while, being this a little more diverse in situations that suggest emotions and including drowsiness, which is addressed by The Pittsburgh Sleep Quality Index (PSQI). The Survey of personal and social development is an assessment-oriented questionnaire in academic settings. It mainly concerns the relevant aspects of the daily life of students and their habits. Also, this mechanism relates activities such as aerobic exercise or cigarette or alcohol consumption. For this academic context, an adaptation of the Maslach Burnout Inventory was reviewed as well, as it focuses on the emotions of the teaching staff during their working day as their motivation.

Other types of physical or somatic representations are dealt with on the Occupational burnout scale. In this mechanism, activities are around the actions that a person can have when experiencing physical pain or discomfort. In addition to these activities, actions related to stress can be identified. The Stress Assessment Questionnaire lists sleep disorders, difficulty staying still, and consumption of alcoholic beverages or smoking. As we can see, the Copenhagen psycho-social questionnaire contains a set of activities that include interaction and social isolation. Finally, other mechanisms relate situations and activities to anxiety and depression, such as the Beck Anxiety Inventory [SANZ2012] and the Beck Depression Inventory.

Table 3: Items from questionnaires

ID	ITEM	TYPE	AFFAIR
Perceived Scale Test (PSS)			
1	In the last month, how often have you been upset because of something that happened unexpectedly?	Emotion	Anger
2	In the last month, how often have you felt nervous and "stressed"?	Emotion	Fear
3	In the last month, how often have you been able to control irritations in your life?	Emotion	Anger
4	In the last month, how often have you been angered because of things that were outside of your control?	Emotion	Anger
Depression, anxiety and stress scale (DASS21)			
5	I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion).	Activity	Physical symptoms
6	I experienced trembling (e.g. in the hands)	Activity	Physical symptoms
7	I found myself getting agitated.	Activity	Physical symptoms
8	I found it difficult to relax.	Activity	Physical symptoms
9	I felt down-hearted and blue.	Emotion	Sadness
10	I was unable to become enthusiastic about anything.	Emotion	Sadness, disgust
11	I felt scared without any good reason	Emotion	Fear
The Three-Factor Eating Questionnaire			
12	When I feel anxious, I find myself eating.	Activity	Eat - anxiety
13	Sometimes when I start eating, I just can't seem to stop	Activity	Eat
14	When I feel blue, I often overeat.	Activity	Eat - sadness
15	How often do you feel hungry?	Activity	Physical symptoms
The Kessler Psychological Distress Scale (K10)			
16	During the last 30 days, about how often did you feel tired out for no good reason?	Activity	Physical symptoms - drowsiness
17	During the last 30 days, about how often did you feel nervous?	Emotion	Fear - anxiety
18	During the last 30 days, about how often did you feel so nervous that nothing could calm you Down?	Emotion	Fear - anxiety or stress
19	During the last 30 days, about how often did you feel so restless you could not sit still?	Activity	Restless - drowsiness
20	During the last 30 days, about how often did you feel depressed?	Emotion	Sadness - depression
21	During the last 30 days, about how often did you feel so sad that nothing could cheer you up?	Emotion	Sadness, disgust
The Pittsburgh Sleep Quality Index (PSQI)			
22	During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity?	Activity	Drowsiness
Survey of personal a social development			
23	In the past month, how often did you engage in aerobic exercise?	Activity	Aerobic Exercise
24	In the past month, what is the average number of days per week that you engaged in aerobic exercise?	Activity	Aerobic Exercise
25	In the past week, how many days did you engage in aerobic exercise?	Activity	Aerobic Exercise
26	How would you describe your smoking during your last year in high school?	Activity	Smoking habits
27	During the past month, how many cigarettes have you smoked on an average day?	Activity	Smoking habits
28	In the past month, were there times when you tried to cut back or quit smoking?	Activity	Smoking habits
29	In the past month, have you felt sad almost all the time?	Emotion	Sadness
30	In the past month, about how many times did you actually get drunk?	Activity	Alcoholism
31	Do you usually snack instead of eating regular meals?	Activity	Eating habits
Maslach Burnout Inventory			
32	Working directly with students causes me stress.	Emotion	Disgust, Anger - stress
33	I feel motivated after working in contact with students.	Emotion	Happiness
Occupational burnout scale			
34	I have a hard time being courteous to the users of my work.	Emotion	Disgust, Anger - stress
35	A long time ago I stopped doing my job with passion.	Emotion	Disgust, Anger - stress
36	The situations that I face in my work do not cause any tension.	Emotion	Neutral
37	In my work they all seem strange to me, so I am not interested in interacting with them.	Activity	Social interaction
38	Although a user of my work is rude to me, I treat him well.	Activity	Social interaction
39	You feel depressed (very sad).	Emotion	Sadness
40	You have headaches.	Activity	Physical symptoms
41	Your arm and leg joints hurt.	Activity	Physical symptoms
42	You have pain in the abdomen.	Activity	Physical symptoms
43	Your back and neck hurts	Activity	Physical symptoms
44	Your chest hurts.	Activity	Physical symptoms
Stress Assessment Questionnaire			
45	Neck and back pain or muscle tension.	Activity	Physical symptoms
46	Respiratory problems.	Activity	Physical symptoms
47	Headache.	Activity	Physical symptoms
48	Sleep disorders such as drowsiness during the day or sleeplessness at night.	Activity	Drowsiness
49	Difficulty staying still or difficulty starting activities.	Activity	Drowsiness
50	Difficulty in relationships with other people.	Activity	Social interaction
51	Feeling of isolation and disinterest.	Emotion	Disgust, fear
52	Tiredness, tedium or reluctance.	Activity	Drowsiness, burnout
53	Feeling of anguish, worry, or sadness.	Emotion	Sadness, fear
54	Consumption of alcoholic beverages or coffee or cigarette.	Activity	Alcohol, coffee, tobacco consumption
Cuestionario psicosocial de Copenhague			
55	Do you have to work very fast?	Activity	Quantitative psychological demands
56	Do you have to stay after the established departure time?	Activity	Quantitative psychological demands
57	Does your job require you to hide your emotions?	Emotion	Requirements to hide emotions
58	Is your job isolated from that of your colleagues?	Activity	Possibilities of social relationship
59	Can you talk to your colleagues while you are working?	Activity	Possibilities of social relationship
Inventario de depresión de Beck			
60	I feel sad much of the time.	Emotion	Sadness
61	I am sad all the time.	Emotion	Sadness
62	I am so sad or unhappy that I can't stand it.	Emotion	Sadness
63	I don't cry anymore than I used to.	Activity	Crying
64	I cry more than I used to.	Activity	Crying
65	I cry over every little thing.	Activity	Crying
66	I feel more restless or wound up than usual	Activity	Agitation
67	I am so restless or agitated, it's hard to stay still	Activity	Agitation
68	I am so restless or agitated that I have to keep moving or doing something	Activity	Agitation
69	I am not more irritable than usual	Emotion	Anger/Irritability
70	I am more irritable than usual	Emotion	Anger/Irritability
71	I am much more irritable than usual	Emotion	Anger/Irritability
72	I am irritable all the time	Emotion	Anger/Irritability
73	I have not experienced any change in my appetite	Activity	Changes in Appetite
74	My appetite is somewhat less than usual	Activity	Changes in Appetite
75	My appetite is somewhat greater than usual	Activity	Changes in Appetite
76	My appetite is much less than before	Activity	Changes in Appetite
77	My appetite is much greater than usual	Activity	Changes in Appetite
78	I have no appetite at all	Activity	Changes in Appetite
79	I crave food all the time	Activity	Changes in Appetite