MASI
Methodology for the Analysis of Social Interaction

BOOK OF ABSTRACTS

THE NINTH MEETING OF MASI RESEARCH NETWORK ON METHODOLOGY FOR THE ANALYSIS OF SOCIAL INTERACTION UNIVERSITY OF WÜRZBURG, GERMANY AUGUST 26-27th 2016

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PROGRAMME

August 25th

Location: Zentrum für Mediendidaktik, room 005

15.00-17:00	Theme Workshop – M.S. Magnusson & G.K. Jonsson
19:00	***Get together:*** Restaurant "Alte Mainmühle", Mainkai 1, 97070 Würzburg

August 26th

Location: Zentrum für Mediendidaktik, room 005

Chair: Michael Brill

GMT +2	
09.00-09:15	Welcome address – F. Schwab
09:15-09:30	An overview of recent research involving the t-pattern model and Theme and other milestones from MASI members – G.K. Jonsson
09:30-10:30	Demonstration of Theme / From stardust and protein cities to swarm intelligence and structured societies: t-patterns in a self-similar fractal world – M.S. Magnusson
10:30-10:45	***Coffee / Tea***
10:45-11:25	T-pattern methodology for human behaviour observation and analysis: Some research applications – I. Terrenghi, B. Diana, M. Elia, V. Zurloni, A. Elia, M.S. & P.C. Rivoltella
11:25-12:05	Detection of T-Patterns as an important tool for studying changes in physiological interventions from qualitative inputs – M.T. Anguera, M. Portell, S. Chacón-Moscoso & S. Sanduvete-Chaves
12:05-12:45	Patterns of topic organisation in turn management. A case study of interactions in dialogues – L. Hunyadi
12:45-14:00	***Lunch***

Chair: Mariona Portell

14:00-14:40	Complementarity between T-Patterns and polar coordinates analysis in social interaction: How to integrate the results? – M.T. Anguera, G.K. Jonsson & P. Sánchez-Algarra
14:40-15:20	LMX and Leadership Behaviour with T-Pattern Analysis – M. Tarim & M.S. Magnusson
15:20-16:00	Detection of Ludic Patterns in Two Motor Triadic Games – M.P. Aguilar, V.N. Adelantado & G.K. Jonsson
16:00-16:20	KINEMO software: towards automated gesture annotation with MS Kinect – K. Juszczyk & K. Ciecierski
16:20-16:50	***Coffee / Tea***
16:50-17:00	Expanding the Study of Internet Gambling Behaviour – G. Jonsson, H. Milkman, H.M. Gray, D.A. LaPlante, H.J. Shaffer
17:00-17:20	Financial transactions: Comparing T-Pattern analysis with conventional methods – G.K. Jonsson, M.T. Anguera & P. Sánchez-Algarra
17:20-18:00	Theme analysis of data collected with the ThemeWatch and ThemeSense apps – M.S. Magnusson & G.K. Jonsson
20:00	***Dinner:*** Restaurant "Backöfele", Ursulinergasse 2, 97070 Würzburg

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August 27th Location: Zentrum für Mediendidaktik, room 005 Chair: Barbara Diana	
GMT +2	
09:00-09:40	The Influence of Libero Position in A Volleyball Game – B. Tenreiro, S. Fonseca & A. Lopes
09:40-10:20	Integration of categorical and continuous data in varied workout programs of physical activity for women – M. Castañer, S. Puigarnau, O. Camerino & R. Benítez
10:20-11:00	T-Patterns of social interaction during Taekwondo combats – F.J.P. Cabrera & A.R.C, Herrera
11:00-11:15	***Coffee / Tea***
11:00-11:40	T-pattern detection of motor skills used in goal scoring in soccer by Lionel Messi – M. Castañer, D. Barreira, O. Camerino, M.T. Anguera, G.K. Jonsson, R. Hileno & A. Canton
11:40-12:40	Methodology for the analysis of social interaction: What's next? *(interactive session)* – M.S. Magnusson
12:40-13:00	Future of MASI: Renewal of Convention
13:00	***Farewell lunch***

Scientific Committee: M. Teresa Anguera, Alain Blanchet, Harvey Milkman, Frank Schwab and Magnus S. Magnusson.

The Organizing Committee: Mariona Portell, Barbara Diana, Michael Brill and Gudberg K. Jonsson.

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WELCOME ADDRESS

F. Schwab

University of Würzburg

No abstract

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AN OVERVIEW OF RECENT RESEARCH INVOLVING THE T-PATTERN MODEL AND THEME AND OTHER MILESTONES FROM MASI MEMBERS

G.K. Jonsson

University of Iceland

No abstract

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DEMONSTRATION OF THEME / FROM STARDUST AND PROTEIN CITIES TO SWARM INTELLIGENCE AND STRUCTURED SOCIETIES: T-PATTERNS IN A SELF-SIMILAR FRACTAL WORLD

M.S. Magnusson

University of Iceland

Abstract

Mostly a 20th century mathematical phenomenon, Fractals, self-similar patterns of patterns, are pervasive in nature as exemplified by the recently discovered fractal distribution of matter in the universe out to the largest know structures, that is, clusters of clusters of galaxies. From atoms to large structures of molecules such as amino acids to RNA and DNA, most structure in the living world can be described as repetitions of hierarchical self-similar structured clusters as witnessed, for example, by lung arteries, brains, writing and cities. Also this general kind of structure is again seen in the real-time behavior and interactions of organisms from tiny brain neurons to animals and humans.

Culminating in the structured societies of humans and social insects simpler social phenomena are found in swarms composed by a number of animals that operate in a coordinated fashion without the specialization of individuals characteristic of structured societies.

Human and animal bodies are composed of specialized cells – also called Cell Cities or better, protein cities - making up specialized body parts much as the specialized individuals themselves make up the different functional parts of cities or hives. Thus social structures can be seen as self-similar from the atoms making up the bodies to their cities.

T-patterns are self-similar structured repeated hierarchical clusters that can be considered as a particular kind of statistical pseudo fractals, that is, natural fractals and seem relevant for the discovery, analysis and description of the structure and functioning of numerous natural phenomena in time and, when generalized two or three dimensions, also in space.

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T-PATTERN METHODOLOGY FOR HUMAN BEHAVIOUR OBSERVATION AND ANALYSIS: SOME RESEARCH APPLICATIONS

I. Terrenghi, B. Diana, M. Elia, V. Zurloni, A. Elia, M.S. & P.C. Rivoltella

University of Milano-Bicocca – Department of Human Sciences for Education, University of Salerno – Department of Political, Social and Communication Sciences, University of Salerno – Department of Human, Philosophical and Formation Sciences & Catholic University of Milan – Department of Education

Abstract

A basic belief in the field of modern behavioral sciences is that behavior consists of patterns in time. The T-pattern methodology is based on the assumption that complex streams of human behavior have a hidden temporal sequential structure that cannot be fully detected through unaided observation (or with the help of standard statistical and behavior analysis methods). Recurring sequences of behavioral events, usually hard to detect, can be thereby unveiled and carefully described. This kind of analysis has been used in a wide variety of observational studies, including microanalysis of Drosophila courtship behavior, cooperative behavior between humans and dogs when constructing an object, complex patterns of neuronal networks' activation. Human behavior patterns include a multitude of every day events, routines, and processes of work and play (for example, greeting rituals, a lunch, a religious ceremony or a sports match are all patterns).

In this work, we present research results from the application of T-pattern methodology on two different areas: deception detection and soccer performance. We will discuss the suitability of this methodology in observing and analyzing both micro (as facial movements in deceptive interactions) and macro (as ball passages in a soccer match) components of human behavior.

We will then present an ongoing research application area for T-pattern methodology that is education and teaching. We will specifically focus on the observation and analysis of teachers' nonverbal behavior during their lessons, aiming to explore if and how this relate to communicative efficacy in terms of different outcomes of students' learning and engagement.

We will finally discuss some future research directions, which transversally involve the possibility to combine t-pattern methodology with automatic feature extraction tools, motion-capture systems and biofeedback equipment.

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DETECTION OF T-PATTERNS AS AN IMPORTANT TOOL FOR STUDYING CHANGES IN PHYSIOLOGICAL INTERVENTIONS FROM QUALITATIVE INPUTS

M. Teresa Anguera[1], Mariona Portell[2],
Salvador Chacón-Moscoso[3], & Susana Sanduvete-Chaves[3]

[1]University of Barcelona, Spain
[2]Autonomous University of Barcelona, Spain
[3]University of Seville, Spain

Abstract

The aim of any psychological intervention program is to produce an improvement in the issues, difficulties, or diseases faced by the users/participants. Here we are referring to interventions in which the users/participants remain in their usual context (home, school, work, hobbies, day center, nursing home, etc.) and follow their regular routines with hardly any changes to their everyday lives.

Because of its flexibility, observational methodology can be used in a diverse range of natural contexts in which it is not always possible to apply other methodologies. With direct observation, records of behaviors (which can be more or less systematized) are obtained from video recordings. These records can take various formats that, by itself, are insufficient to evaluate the efficacy of a treatment.

Therefore, researchers need a system that allows them to objectively analyze the changes brought about by a low-intensity intervention. If record data are processed appropriately, it is possible to carry out a rigorous quantitative analysis in order to evaluate the efficacy of an intervention. Nevertheless, previously it is necessary to decide how to organize the heterogeneous information available.
The first part of the process is to correctly record and code the data, through some decisions. As a consequence, we obtain a matrix of codes. The columns correspond to the dimensions of observation instrument, while the rows correspond to the successive units observed over time. The matrix is thus created by assigning each of the observations or textual units to the corresponding category within the corresponding dimension to ensure correct coding. Each row shows the string of codes for categories that occur simultaneously. In this methodological paper we have worked with simulated data that corresponds to a program intervention in clinical psychology, considering the specific scientific literature.
The second part of the process consists of the adaptation of data matrix for each period of intervention, in order to get the THEME vs. Edu software requirements. Previously, it is very important to establish the criteria to differentiate groups of treatment sessions, and periods, in order to aggregate and/or disaggregate data matrixes.
And The third and last part of the process consists on of the analysis, in order to detect T-Patterns for each period, and considering several aggregations of sessions, with the aim of distinguishing between them.

We expect that the changes of T-Patterns structures could be an important evidence for the evaluation of low intervention programs.

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PATTERNS OF TOPIC ORGANISATION IN TURN MANAGEMENT. A CASE STUDY OF INTERACTIONS IN DIALOGUES

L. Hunyadi

University of Debrecen, Hungary

Abstract

The HuComTech corpus has been under development since 2009 with the aim to better understand the multimodal nature of human-human interactions based on dialogues in Hungarian. The total duration of recordings is more than 50 hours of dialogues between an agent and 110 speakers both in formal and informal conditions.

The task to arrive at reasonable generalizations about such interactions appears to be rather complex due to several factors, including the following: (a) a given communicative function can be expressed by more than one modality, (b) the simultaneous participation of these modalities in such expressions can be optional, (c) the sequences of multimodal events leading to the interpretation of the given function need not be contiguous, (d) behavioral patterns vary according to contexts, and (e) there is a considerable variation in behavioral patterns among individuals across all these conditions.

In order to capture multimodality in a possibly wide range of events, both audio and video were annotated for several features, some of them more than once for different combinations of audio and video. Accordingly, unimodal video (video only) was annotated for gaze, handshape, head shift, posture, perceived emotions, turn management and pragmatic functions. Unimodal audio (audio only) was annotated for transcription, prosody (pitch, intensity, pause, tempo), perceived emotions, turn management and pragmatic functions. Multimodal video+ and audio was annotated for turn management and pragmatic functions. The total number of annotated items exceeded 1.5 million.

Although descriptive statistics reveals a lot about the frequency of the occurrences of various items, and it is possible to quantify the alignment and sequences of such items, these traditional methods are less suitable for making generalizations about behavior beyond surface observations in order to possibly meet the challenges mentioned above. Our goal is to understand the hidden patterns of multimodal behavior in dialogues as represented in our data using Theme's framework in the hope that the findings will be useful for further research in several fields including linguistics, psychology, cognitive science and robotics.

As a case study, we are presenting multimodal behavioral patterns of topic organization in turn management involving the functions of topic initiation, topic elaboration and topic change. All 110 available recordings of both formal and informal dialogues will be considered offering and demonstrating both generalizations across speakers and individual variations between them.

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COMPLEMENTARITY BETWEEN T-PATTERNS AND POLAR COORDINATES ANALYSIS IN SOCIAL INTERACTION: HOW TO INTEGRATE THE RESULTS?

M. Teresa Anguera[1], Gudberg K. Jonsson[2], & Pedro Sánchez-Algarra[1]

[1]University of Barcelona, Barcelona, Spain
[2]University of Iceland, Reykjavík, Iceland

Abstract

In the study of social interaction, we consider that observational methodology is the best approach to study the hidden structures underlying an interactive situation, and from a previous observation an instrument was build ad hoc. This implies some dimensions and a category system for each dimension, and later a systematic record of episodes in the same situation. Two techniques of data analysis, detection of T-Patterns and polar coordinates analysis imply a possible convergence in the results of the study on social behavior, independent of subject or field of study.

Detection of T-Patterns implies discovering the hidden relations that should reveal those aspects of social interaction that are not immediately observable. The recorded episodes of behavior are governed by structures of varying stability, and can be visualized by obtaining T-Patterns, that have proven to be an exceptional analytical tool. These temporal patterns can be detected with THEME 6.0. Polar coordinates analysis searches for a vectorial image of the complex network of interrelations between categories that make up the different dimensions of the observation instrument. The values of length and angle of vectors, and their graphical representation is achieved with HOISAN, a free software.

The aim of this paper is to propose some guides to integrate the results from both data analyses.

Method: We worked with two databases of anonymized data from interactive behavior (clinical psychology and sport behavior), in order to analyze comparatively two techniques of data analysis, the T-Patterns detection and polar coordinates analysis. Both techniques of data analysis have the common aim, that is goal to discover some hidden relations between observed behaviors, but each one has a different algorithm and goal.

Results: We compared the degree of similarity between the results of codes relations obtained from both techniques. Also, we propose a guide to facilitate researchers the integration of results.

Keywords: T-Patterns, polar coordinates, parameters, variability of relations

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LMX AND LEADERSHIP BEHAVIOR WITH T-PATTERN ANALYSIS

Merve Tarim[1], & Magnus S. Magnusson[2]

[1]Department of Management, Istanbul Commerce University, Turkey
[2]Human Behavior Laboratory, University of Iceland, Reykjavik, Iceland

Abstract

In a changing world, organizations need to establish strong ties between the managers and the employees to survive because only these kinds of organizations can live. To establish strong ties, both sides have to give labor because these ties can exist in an exchange process. If the manager is a leader at the same time, he/she is the person who can start this process. In the literature, this exchange process called LMX (leader-member exchange theory). According to LMX, leader and the member have a dyadic relationship. To build it, both of them should give emotional labor.

This is my doctoral thesis research and it still continues. In this research, interviews were conducted with 27 people which were recorded with camera. Six of them are managers and 21 of them are employees. The data were collected from three different universities' academic and administrative staff. The employees evaluated the relationship with their managers, their managers' behaviors and also the managers' personalities. The managers evaluated the employees' behaviors and the relationship with them.

Data were coded with the behavior coder according to the specified categories (non-verbal). Then the codes were then transferred to Theme to determine the relationship. The main aim is to understand the relationships between the managers and the employees determine the strength of their ties. We hypothesize that the leaders with strong ties have different behaviors from the leaders with weak or no ties. We also want to determine if there are common behaviors in leaders. Is it possible to say that the leaders' personalities effect the ties between the leaders and their employees? There are many questions and the research has not finished yet. Data were coded only with non-verbal categories so the categories will increase like verbal ones. Patterns were found but not enough to answer ~~for~~ these questions. However, the research will be different to see leadership behavior in patterns and try to discover the other things with Theme.

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DETECTION OF LUDIC PATTERNS IN TWO MOTOR TRIADIC GAMES

Miguel Pic Aguilar[1], Vicente Navarro Adelantado[1] & Gudberg K. Jonsson[2]

[1]University of La Laguna (Spain)
[2]University of Iceland

Abstract

The triad is a particular structure in which an ambivalent social relationship takes place. A chasing games model was followed, with rules, and in two different structures (A↔B↔C↔A, y and? A→B→C→A) on four class groups (two for each structure), for a total of 84, 12 and 13 year olds secondary school students, 37 girls (44%) and 47 boys (66%). The aim was to examine if the players' behavior, in relation to the triad structure, matches with any ludic behavior patterns.

An observational methodology was applied, with a nomothetic, punctual and multidimensional design (Anguera, Blanco & Losada, 2001; Anguera, 2003). The intra (0,973) and inter-evaluative (0,964) correlation coefficients and the generalizability theory ensured the quality of the data. A mixed behavioral role system was used (4 criteria and 17 categories), and the pattern detection tool Theme (Magnusson, 2000) was applied.

The results show that time location of motor responses in triad games was not random. The 'labyrinth' game got a dendrogram with more ludic patterns than the 'three fields' game, which might be explained by means of structural determinants such as circulation. This research warns about the decisional complexity in motor games, and it confirms the differences among triads from the point of view of motor communication.

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KINEMO SOFTWARE: TOWARDS AUTOMATED GESTURE ANNOTATION WITH MS KINECT

Konrad Juszczyk and Kamil Ciecierski

Adam Mickiewicz University, Poznań, Poland

Abstract

The aim of the presentation is to introduce the architecture of the initial version of the software application for automated gesture annotation called KINEMO and discuss possibilities of its development. Research on gestures relies mainly on manual annotation. Reliability of manual annotation depends on researchers, trained raters and on the adequate coding systems. However, manual annotation of spontaneous gestures used in conversation is known to be very time-consuming and laborious, reaching times 100 longer than the length of the annotated media [1]. In order to achieve intersubjectivity of studies on gesture, high level of consistency in coding system and annotation process is needed. Disadvantages of manual annotation lead gesture studies to limited amount of data annotated with low or not even reported interrater agreement [2]. This directly threatens transparency and replicability of many studies. However, measurements used in research on gestures, such as gesture rate (per minute or per word) and amounts of certain gesture types or gestures with certain features, such as gesture space, hand-shape and orientation or gesture phase can be supported with automatic gesture recognition software.

The input data comes from MS Kinect v2 motion sensor. During recognition phase the program relies on LASG [3] and NEUROGES [4] coding systems as the theoretical frameworks. The output data consists of labelled hand movements and can be exported to the MS EXCEL, MPI ELAN or THEME software. Evaluation of the software performance was conducted on dialogues and monologues (20 participants and 400 minutes in total) recorded with MS Kinect and KINEMO software. Selected dialogues and monologues were annotated manually by three trained raters using NEUROGES coding system [4]. Following suggestion given in NEUROGES coding system [5], to avoid circularity in gesture classification, mute videos and kinesic criteria were used for annotation; to establish reliability one-fourth of the material was coded by all three raters and to avoid habituation samples were given in pseudo-randomized fashion. Average interrater agreement calculated using modified Cohen's KAPPA [6] was substantial (0.6). Results of manual annotation were compared with results of automatic annotation and F-score values were obtained for movement (0,80), phasic (0,62), in space (0,70). Other types of hand movements based on NEUROGES, such as on body or in space from focus step or left/right hand dominance from Formal Relation step and baton or palm-out from type step are also possible to be recognised and this recognition in is the process of development.

The application software presented here is still in its development phase. Nevertheless, initial results suggest that automatic annotation based on material recorded by MS Kinect v2 is possible. We hope to simplify and speed-up the mundane manual annotation

process and raise the transparency and replicability of research in social interaction. Demo version of the software will be released in Autumn 2016.

The project is co-financed by the grant from the Foundation for Polish Science under the contract nr 126/UD/SKILLS/2013 on making use of the award granted in the popularizing competition within the framework of the SKILLS project co-financed by the European Social Fund.

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EXPANDING THE STUDY OF INTERNET GAMBLING BEHAVIOR

Gudberg K. Jonsson[1], Harvey Milkman[2], Heather M. Gray[3],
Debi A. LaPlante[3], & Howard J. Shaffer[3]

[1]University of Iceland, [2]Metropolitan State University of Denver, [3]Harvard Medical School

Abstract

As rates of Internet gambling participation increase worldwide, so too does the need to understand how people engage in this form of gambling. This study represents the first examination of actual Internet gambling records within Iceland, a Nordic country with an active Internet lottery market that imposes strict regulations on gambling operator licenses.

We summarized electronic betting records of a cohort of subscribers to the Internet betting service provider Íslensk Getspá. In addition, we searched for temporal patterns in individual gambling records. We observed that the typical subscriber bet approximately 3 days per month and made fewer than two bets per gambling day, each worth approximately the equivalent of $4 US. Subscribers lost the bulk (96 %) of the amount they wagered, for a total loss of approximately $40 across the 2-year window of observation. Although these observations do not support the view of Internet gambling as an activity that is inherently risky for the typical subscriber, we did observe discontinuity across the distributions of gambling behavior, with the top 1 % of subscribers making more than three bets per day.

Certain betting patterns were exclusively detected with frequent gamblers and different pattern types between gender and age groups.

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THEME ANALYSIS OF DATA COLLECTED WITH THE THEMEWATCH AND THEMESENSE APPS

Magnusson, M.S. & Jonsson, G.K.

Human Behaviour Laboratory, University of Iceland

Abstract

The tech world is creating a future of wearable devices that promises to entertain consumers and help them live healthier lives. Technology companies' interests in health and wellness have sparked the creation of a myriad of wearable devices, from fitness bands that monitor activity and sleep patterns to flexible patches that can detect body temperature, heart rate, hydration level and more. These devices produce data that, often enabled with analytics, can be used by consumers to manage their health and potentially increase well-being and reduce costs through systems such as remote monitoring. As wearable technology becomes cheaper and more sophisticated, and data quality improves, these devices and their associated apps will become a part of consumers' lives and the health ecosystem.

The current study focuses on pilot data obtained with the apps ThemeWatch and ThemeSense, installed on iOS and android wearable devices. The data was collected over a three 3-month period by 3 three different individuals and analyzed with the Theme 6.0 software. Results for these 3 three pilot projects and future directions will be discussed.

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THE INFLUENCE OF LIBERO POSITION IN A VOLLEYBALL GAME

Tenreiro, B., Fonseca, S., & Lopes, A.

Faculty of Physical Education and Sports, Lusófona University, Portugal

Abstract

Volleyball is a complex and unpredictable game, which due to regulatory constraints does not permit a close relationship between teams, making vital the technical and tactical aspects between elements of the same team for defensive and offensive success. The FIVB introduced in 1998 the libero position, making it later a very important element in defense.

This research project seeks to identify and understand the variables of libero action and influence in a high-performance volleyball team, in the phase of the game complex 1 (reception service) and complex 2 (service itself). Thus, the study aims to use the dynamical systems theory in order to explain the influence of this player in the game, through the study of the combination of technical and tactical variables and spatial measures that can predict the defensive and offensive success, before, during and after his contact with the ball.

The samples used for this study will be in complex 1 and 2, when the libero has direct contact with the ball, in the 2014 Men's Volleyball World League covering six teams with a total of eleven 11 games spanning forty and three 43 sets played.

Firstly, With the help of statistical data, the study will begin by examining the libero's actions in its team. Secondly, Data with the libero's in game positioning using nonlinear techniques will then be examined to pinpoint movement patterns related to the success/failure of the team. This will enable a more complete analysis of the libero position in a highly efficient teams.

Keywords: volleyball, libero, dynamic systems theory, spatial measures, performance analysis.

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INTEGRATION OF CATEGORICAL AND CONTINUOUS DATA IN VARIED WORKOUT PROGRAMS OF PHYSICAL ACTIVITY FOR WOMEN

Marta Castañer[1], Sílvia Puigarnau[1], Oleguer Camerino[1], & Raúl Benítez[2]

[1]National Institute of Physical Education, University of Lleida, Spain.
[2]Politecnic University of Barcelona, Spain

Abstract

The aim of this study was to use an embedded mixed methods design to investigate whether a workout program incorporating greater work intensity levels and a wider variety of motor skill patterns led to changes in heart rate, perceived exertion, and subjective experiences among four groups of women (n=73; mean ± SD age of 65.1±11.7 years) taking a different type of exercise class at a public gym.

Data was collected during and after the women's routine class and during and after the newly designed class. Heart rate data was collected by continuously monitoring with Polar Team 2 (version 1.4.5), perceived exertion was analyzed using the Borg Rating of Perceived Exertion Scale, and subjective experiences were evaluated using a modified version of the Intrinsic Motivation Inventory containing several open-ended questions. Exercise patterns were analyzed and coded using an ad hoc observation instrument within an observational methodology design.

The methodological challenge was to employ an analytical method that would allow the integration of categorical and continuous data. To this end, we prepared a MATLAB code to extract the information for automatic analysis by means of a hidden Markov model.

The results show that the more intense, varied workout was more effective than the four more routine, repetitive workouts in terms of achieving the moderate- and vigorous-intensity physical activity levels recommended by the American College of Sports Medicine. The questionnaire and Borg Scale results also showed that following initial resistance to changes to workout routine, the women felt that the varied program was more enriching and suited to their exercise needs. Better designed exercise programs incorporating a greater variety of motor skill patterns and intensity levels can bring about actual and perceived physical and psychological benefits.

Keywords: Adult women, physical activity, exercise patterns, perceived benefits, mixed methods, heart rate.

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T-Patterns of Social Interaction During Taekwondo Combats

Francisco Javier Pedroza Cabrera & Ana del Refugio Cervantes Herrera

Universidad Autónoma de Aguascalientes, México

Abstract

The main role of a psychologist in sport environment is to find the variables involved in the success and failure of sport people, in order to explain and predict the trajectory of athletes. To get reach this goal direct observation seems to be the right way to follow because it provides reliable information about the topography, frequency, durations, and rate about the conduct. Nevertheless, most of the work has been developed with indirect tools like questionnaires or interviews, leaving aside the direct data of the performance in competition.

Taking this information into account, the goal of this work was to find T-patterns in Taekwondo fights that show the differences in the behavior between the athletes that wins and those that lose. Eighty-four (84) black belt Taekwondo athletes between 13 and 19 years old (mean age of 16.33 years old) were contacted, in order to obtain the signed informed consent form required to participate in the research. These athletes belong to categories, sub13, sub15, sub17 y and sub 20.

Afterwards, 54 Taekwondo fights were videotaped during official tournaments in Aguascalientes, México. Those fights were registered by trained observers (with a Kappa=0.84) in the software Observer TX using the Direct Observational System for the Performance of the Athlete During Combat. It consists of 52 behaviors that include offensive moves, defensive behaviors, unsportsmanlike conduct and use of tactical resources. Once finished the register, the information was analyzed in the THEME V.

Taking into account the patterns involving one athlete or between fighters, differences were found in the T-Patterns in all fighting categories in terms of the type and order of behaviors shown by the winners and those that lost the competition. The implications of these findings on the design of training strategies are discussed.

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T-PATTERN DETECTION OF MOTOR SKILLS USED BY LIONEL MESSI IN SCORING GOALS SCORING IN THE GAME OF SOCCER

Marta Castañer[1], Daniel Barreira[2], Oleguer Camerino[1], M. Teresa Anguera[3], Gudberg K. Jonsson[4], Raul Hileno[1], & Albert Canton[1]

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[2]Faculty of Sport, University of Porto, Portugal
[3] Research Institute IR3C, University of Barcelona, Spain
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Abstract

Soccer research has traditionally focused on technical and tactical aspects of team play, but few studies have analyzed motor skills in individual actions, such as goal scoring. Besides, the study of skills in elite players is still largely based on subjective judgements. Versatility is closely linked to motor skills, as players with a mastery of these skills are able to process information faster and react to changing game situations. Strikers need to be multi-skilled and acquire techniques and physical qualities specific to their positional roles.

We consider that the individual skills of one of the world's top players, Lionel Messi, who holds numerous goal records and individual awards, such as five FIFA Ballons d'Or, three European Golden Shoes, and FIFA World Player of the Year, are worthy of objective, scientific analysis. The objective of this study was to investigate how Lionel Messi uses his motor skills and laterality in individual attacking actions resulting in a goal. We analyzed 103 goals scored by Messi between 2004 and 2014 in three competitions: La Liga (n = 74), Copa del Rey (n = 8), and the UEFA Champions League (n = 21). The goal inclusion criteria were a) clear observability of each sequence and b) availability of at least two recordings of each sequence from a different angle. The exclusion criteria were a) recordings that, while clear, did not allow for coding of the sequences and b) goals scored directly following receipt of the ball.

We chose an observational methodology design for the purpose of our study, as this method has proven effective in the analysis of attacking play in soccer. We used an ad hoc observation instrument (OSMOS-soccer player) from the Motor Skills Observation Instrument OSMOS, comprising 12 criteria and 53 categories and THEME v.6 to obtain t-pattern T-Pattern detection. We obtained several t-patterns T-Patterns that confirms significant associations between different aspects of motor skill used by Messi immediately before scoring, namely use of lower limbs, foot contact zones, turn direction, use of wings, and orientation of body to move towards the goal. As it is expected, he uses his left foot significantly more than his right foot to score goals but this condition aids his postural support that enables stasis and blocks movement concerning of turns and pivot directions.

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T-patterns Detection for a Triad Motor Game: The Maze

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Abstract

In physical education, triad motor games are a clear minority amongst their traditional dual versions. This preference for dual sports, rather than other structures such as the triad (Caplow, 1956), transcends the field of motor games. To investigate this subject and organize the registration of motor behavior, we have been helped by the praxiology (Parlebas, 1981, 1986).

Motor behavior records were compiled using the Lince software (Gabín, Camerino, Anguera and Castañer, 2012). The sample was composed of thirteen boys and eight girls. All twenty-one players, aged between twelve and thirteen, enrolled in the 1º course of ESO (Spanish Secondary Education), practiced a modified version of "the maze" (Navarro, 1995). An ad hoc category system was built. This was based on the original game rules and role-play system: 'chaser', 'runaway', 'prisoner', 'liberating'. Motion behaviors for each of the roles resulted in a combination of seventeen categories following the team A↔B↔C↔A as a capture formula. The procedure to play the game was to first explain it and then practice before being recorded, so we could resolve any doubts. After that, we made the record for three minutes 'from beginning to the end' (Anguera, 1990).

Observational methodology allowed the analysis of the players' motion behavior, that after having reached the expected reliability (Pic, Navarro, 2014) the study figures could be extrapolated to other samples. Through the Theme software, (Magnusson, 1996, 2000, 2006) T-patterns occurring during the game were detected. This showed stronger (game) structures and interactions, helping us to explain the particularities of the team interactions associated to the triad.

Keywords: triad motor game, t-patterns, methodology, praxeology

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METHODOLOGY FOR THE ANALYSIS OF SOCIAL INTERACTION: WHAT'S NEXT?

Interactive session

No abstract