

BPA: Behavior Pattern Analysis Based on the Research of B F Skinner

Mr. Sreenidhi S K¹, Ms.Tay Chinyi Helena²

¹The Managing Director of Oscar Murphy Life Strategists, Bangalore, India

²The Executive Director of Oscar Murphy Life Strategists, Bangalore, India

Email - taychinyi@oscarmurphy.com , sree@oscarmurphy.com

Abstract: Human beings have a huge repertoire of behaviours. It is the specifics of a situation that governs the way an individual presents him/ herself in the situation per se.

Behavioural pattern analysis (BPA) is a scientific psychometric tool that captures behaviour which varies with external conditions. It brings to light the operational range of behaviour across situations based on B F Skinner's research.

This article talks in details about the BPA psychometric system and how it assesses the individual's approach to communication, interpersonal relations, sense of urgency, information processing under varying conditions. This helps in self-awareness of one's behaviour patterns that facilitates a process of self-exploration and an analysis of various factors present in the differing environment which induce similar/dissimilar behaviour. BPA also helps demonstrate the ability to flex or maintain consistent behaviour in various situations by identifying various patterns and styles that one assumes both at the work and on the personal front.

BPA assessment relies on the fundamental thought that people's behaviour is influenced by the environment they are in and that their behavioral aspects originate from the environmental factors of one's upbringing and experience. Thus, different set of environment condition bring out varied behaviours from different people. This thought comes from years of objective analysis by the determinists as well as environmental psychologists.

Key Words: : Behaviour, Human behaviour, Behavioural pattern, Behavioural style, Behavioural Pattern Analysis, Environmental Determinism, At work and off work behaviour.

1. INTRODUCTION:

Behaviour Pattern Analysis (BPA) – At Work and Off Work

Human behaviour is the collection of behaviors exhibited by human beings and influenced by culture, attitudes, emotions, values, ethics, authority, rapport, hypnosis, persuasion, coercion and/or genetics.

The use of the terms "nature" and "nurture" is a convenient catch-phrase for the roles of heredity and environment in human development and can be traced back to 13th century France. Some scientists think that people behave as they do according to genetic predispositions or even "animal instincts." This is known as the "nature" theory of human behavior. Other scientists believe that people think and behave in certain ways because they are taught to do so. This is known as the "nurture" theory of human behavior.

Fast-growing understanding of the human genome has recently made it clear that both sides are partly right. Nature endows us with inborn abilities and traits; nurture takes these genetic tendencies and molds them as we learn and mature.

BPA assessment is based on the essential belief that our behaviour is influenced by the environment we are in and that our behavioral aspects originate from the environmental factors of our upbringing and experience. Thus, different set of environment condition bring out varied behaviours from individuals. This view stems from years of research by the determinists and environmental psychologists.

2. THEORETICAL BACKGROUND:

Determinism is the view that every event, including human cognition, behavior, decision, and action, is causally determined by an unbroken chain of prior occurrences. In its central part, determinism is the theory that **our choices and decisions and what gives rise to them are effects**. What the theory comes to therefore depends on what effects are taken to be. It is effects that seem fundamental to the subject of determinism and how it affects our lives.

The psychologist with the greatest influence in this area, however, was **Burrhus Frederic Skinner** who was an American psychologist and author. Skinner was a determinist, believing that **all human behavior is profoundly determined and influenced by the environment**. Skinner believed that the environment alone conditions individual behavior and influences personality and development. Skinner's entire system is based on **operant conditioning**. Operant conditioning: **"the behavior is followed by a consequence, and the nature of the consequence modifies the organism's tendency to repeat the behavior in the future."**

Determinism gave rise to many schools of thought of which **Environmental Determinism/Psychology** is the key focus.

Environmental determinism/psychology is an interdisciplinary field focused on the interplay between humans and their surroundings. Environment influences behavior at different levels. Immediate behavior is a function of the setting in which it occurs.

Environmental Determinism deals with **behavior in relation to the environment**. The field defines the term environment broadly encompassing natural environments, social settings, built environments, learning environments, and informational environments. When solving problems involving human-environment interactions, whether global or local, one must have a model of human nature that predicts the environmental conditions under which humans will behave in a decent and creative manner. **With such a model one can design, manage, protect and/or restore environments that enhance reasonable behavior**. Concepts regarding the environment and aesthetic preferences are studied and represented in **behavioral maps**.

3. CURRENT STATUS OF ENVIRONMENTAL DETERMINISM/PSYCHOLOGY:

There has also been widespread incorporation of environmental psychology into other areas of psychology. The handbooks of both social and health psychology have chapters devoted to environmental topics; health psychology, the largest growing sector of psychology in North America, routinely incorporates measures of social and physical environmental characteristics.

Much of what environmental psychology brought to psychology has been fully adopted into mainstream psychology. There are many reflections of this. Submission rates for manuscripts to the three major journals in the field, *Environment and Behavior*, the *Journal of Environmental Psychology*, and the *Journal of Architectural and Planning Research* are all very high. Environmental psychology course offerings are at an all time high in North America with new editions of the two best selling textbooks (Bell Fisher Baum and Greene; Gifford) either just out or impending; two new texts have been published in the past year in the U.S. (Mc Andrew; Veitch & Arkelin), and Bonnes and Secchiaroli's text has been published in Italy; and several additional texts are nearing completion.

North and South American (EDRA), European (IAPS), Japanese (MERA) and Australian/New Zealand (PAPER) organizations are devoted to the study of human behavior and the physical environment. Each manages a regular conference, publishes proceedings, either annually or bi-annually, and sponsors a newsletter. Both Sweden and Spain have national task forces that regularly meet. Estonia has recently sponsored an international conference and publication.

4. THE BPA ASSESSMENT:

The **Behaviour Pattern Analysis** illustrates environmental influences on an individual by identifying and comparing behaviour patterns in variable situations. This tool brings to light the **manner of behaviour** across situations. It compares the behaviour of an individual, at work and off work, on the parameters of:

1. Communication Style
2. Interpersonal Relationships
3. Sense of Urgency and
4. Information Processing

5. CHARACTERISTIC PATTERNS OF THE FOUR BEHAVIOUR PATTERNS:

Behaviour patterns may change based on the environment the individual is in. These descriptions of the four characteristics patterns are within the continuum from being at work and being off work.

6. COMMUNICATION STYLE:

- **Diplomatic** – They are very careful in the way they express their views. This might help maintain healthy relations with his colleagues and clients. They influence others through a supportive and tactful approach. They are a very calm and composed people, who prefer to negotiate than get into arguments. They are particular about not offending others while presenting their ideas and opinions and are very modest. They are good at official meetings and maintaining excellent relationships with clients.

Their strengths include:

- ✓ Being a good mediator and facilitator by keeping your own issues in the background
- ✓ Phrasing comments carefully so you don't offend others or push your agenda

- **Outspoken** – They express their ideas by being assertive and thus being influential. They tend to 'tell' rather than 'ask'. They take charge especially in situations that need control and clear directions and are perceived as being forceful and self-assured. They prefer to confront conflicts and openly debate differences. They are confident in presenting his ideas which may result in overstating them at times. They state their position on issues candidly and frankly. They openly argue or debate your points of view or opinions. They come across as forceful and self-assured and tend to influence others with an assertive, outspoken approach.

Their strengths include:

- ✓ Taking charge, especially in situations that need control and clear direction
- ✓ Getting vague or hidden issues out on the table and restated in a frank, 'outspoken' way

7. INTERPERSONAL RELATIONS:

- **Introverts** – They prefer working alone and keeping emotions and feelings to themselves at the work place. They would not be an active member in groups and gatherings. They interact very less with their friends, associates and colleagues. Thus, they enjoy spending time in solitary activities. Being a person who interacts and participates less in group activities, they would prefer solving their problems all alone. Seen as a trustworthy person for the organization, they maintain confidentiality by not giving in. They are most at ease interacting with others one on one and tend to keep your emotions rather private and self-contained. They get energized when alone and away from activity. They prefer to think problems through alone to clarify feelings. They use few gestures and facial expressions when you talk.

Their strengths include:

- ✓ Being a good listener and feeling comfortable with letting others talk more than you do
- ✓ Holding information confidentially and not giving it away by expressing your emotions

- **Extroverts** - They are at ease interacting with people and group. As an extrovert, he/she shares emotions openly and freely with others. They keep in contact with his/her friends and well-wishers regularly as he/she feels charged with people contact. They are most at ease interacting with many people and groups and tend to share emotions openly and freely. They get energized by people contact and lots of activity. They prefer to talk problems out with others to clarify feelings rather than holding it back. They use lots of facial expressions and gestures when you talk.

Their strengths include:

- ✓ Being good at meeting and greeting others, putting them at ease and making them feel important
- ✓ Staying connected and up to date on personal issues that friends and business associates may be going through

8. SENSE OF URGENCY:

- **High** – They consider a few important options before deciding and get things done by taking action quickly and making changes. They prefer short-term projects requiring quick responses. They work with a fast-paced urgent style they would not delay in completing his work by the predetermined deadline. They react quickly when frustrated and angered. You make most decisions quickly "Opportunity knocks once". They prefer to act

fast and make his choices quickly. They would be able to act effectively at the spur of the moment. Since they would value only required points, they would eliminate unnecessary options while work or problem solving.

Their strengths include:

- ✓ Taking fast action when opportunity arises that require an immediate decision
- ✓ Getting clear quickly on what you believe are key priorities and eliminating options that seem to confuse the issue or delay action
- **Low** – They consider many options and alternatives before deciding and get things done by “sticking with them” and persisting. They prefer long-term projects requiring calculated responses. They work with an even-paced, consistent style. They react slowly when frustrated and angered. They make decisions cautiously – “Timing is everything”. Their style of working is smooth and slow moving, which may frustrate the person’s coworkers.

Their strengths include:

- ✓ Holding back on decisions until better opportunities and deals have time to surface
- ✓ Patiently staying open to alternatives and possibilities that show promise and that others may have closed their minds to

9. INFORMATION PROCESSING:

- **Innovative** – They tend to postpone organizing and attending to details and use unconventional procedures to accomplish tasks. They like plans open and somewhat unpredictable and proceed on projects before reading all the directions. They take pride in doing things in different ways. They get frustrated by too many guidelines and rules. They can generate extremely novel ideas with respect to work. However, being very innovative, they may postpone organizing and attending to details while attending to any task. They tend to proceed on projects before reading all the directions owing to being highly innovative. They can find innovative ways to improve systems and policies in the organization.

Their strengths include:

- ✓ Discovering innovative ways to search goals that may be outside of the traditional guidelines
- ✓ An ability to overlook considerable disorganization and get work done in situations that would bother most people
- **Systematic** – They tend to organize details in a timely and thorough fashions and use established procedures to accomplish tasks. They like plans clearly set and somewhat predictable and proceed on projects only after reading all the direction. They take pride in doing things in proven ways. They get frustrated by ambiguity and lack of specific guidelines. Adopting a highly systematic approach, they tend to get frustrated by ambiguity and lack of specific guidelines to carry out any task.

Their strengths include:

- ✓ The ability to bring to order and structure to unorganized situations
- ✓ Seeing ways to improve systems and policies that help make work flow more even and smooth

10. RESEARCH METHODOLOGY:

Purpose of the Assessment

The aim of the assessment is to identify an individual’s behaviour pattern at work and off work. It helps the assessed individual identify environmental factors which govern his/her behaviour.

Test Audience

The BPA assessment is **applicable** and used by **individuals who are working**. It can be applied to a variety of backgrounds.

Applicability of the Assessment

The BPA has a vast range of applicability widely used across various fields to gain a better understanding of self and others including **individual development, enhancing interpersonal relations, improving communication skills, team building, leadership training, negotiation skills**, etc.

Quality of the test items and the test manual

The quality of the test is enhanced as it's an **easy to use** personality test with the items catering to a wide range of audiences. The items do not include any **racial or gender stereotyped comments**, while the **interpretation and scoring** of the test is simple and **easily comprehensible**. The derived test score is reliable, as the test is administered under standardized settings and **extraneous variables** such as test instructions and the test administrator have a **minimal influence** on the variation in test scores as these are standardized across situations.

The test also meets **requisite practical aspects** as it includes the following considerations:

1. The items are formulated in simple layman English
2. The test is legible (can be easily understood)
3. The test material is durable (does not change across time)

Nature of the items

All the items in the questionnaire **belong to the content domain** which facilitate in assessing an individual's behaviour pattern. The 32 items in the first section is characteristic of *work place behaviour* and the 32 items in the second section is characteristic of one's *behaviour in non-work environments*. These items present situations in which an individual is most likely to respond in a way that his/her behaviour characteristics are displayed. The items are standardized as they are the same for every respondent with respect to the **content, form and order**.

Assessment Administrator qualifications

The user needs to an average of 2 years work experience in managing people, or a PG in Psychology/Sociology or an MBA.

Differences with other assessments

The Myer-Briggs Type Indicator provides type codes (ENFP, INTJ, INFJ, etc.). Its emphasis is on understanding the characteristics of the 16 different types and the types are stable and non-changing. It is a self-rating scale only.

Whereas, BPA is a **trait measure**. It provides relative strength of behaviour tendencies on four traits. The interpretation emphasises the **strength** of each individual trait and what **environments** a behaviour is displayed in. The traits are viewed as relatively **enduring yet flexible and changeable** based on environmental influences. It is both self-rating and 360-degree feedback from others.

Instructions for the test administrator (for paper pencil format):

- Make sure the subject is seated comfortably in a well-lit and ventilated room
- Build rapport with the subject, make him feel at ease
- Educate the subject on the confidentiality element of the test
- Give instructions of the test (as specified below)
- Clear doubts if any
- After test completion give instructions on the scoring methodology
- Interpret the scores and clear doubts that may arise

Instructions for test takers (for paper pencil format):

- There are 32 items based on "At Work" and 32 items based on "Off Work"; each of which has four options
- There is no right, ideal or wrong response for any of the items
- Please choose which alternative is most applicable to you

- a. SA is for Strongly Agree
- b. A is for Agree

- c. D is for Disagree
d. SD is for Strongly Disagree

- Place a tick (☐) in the appropriate box, that is either SA, A, D or SD

Sample item:

“At Work” – When it comes to work, I am not an authoritative individual.

SA✓	A	D	SD
-----	---	---	----

“Off Work” – I find myself lethargic when dealing with family and friends

✓ SA	A	D	SD
------	---	---	----

- Kindly be as honest as possible and do not guess or look for a response that may seem right as there is no right or wrong response
- Do not leave any items unanswered
- Do not take too much time or ponder over an item, answer as quickly as you can
- There are no time limits observed but the tests take 15-20 minutes for completion
- The results of the test will be kept confidential and may be used for research/ career development purposes only

Scoring of the test: (for paper - pencil formats only, as the *online scoring is auto generated*)

The **scoring system of the test is objective** as any qualified person involved in scoring the test items will give **same scores** for **same answers** (depending on the responses marked by the individual)

Step 1: Add up total number of SA (Strongly Agree), A (Agree), D (Disagree) and SD (Strongly Disagree) respectively, for the numbers indicated.

Step 2: Multiply the sum as given below and score it accordingly.

At Work

Column A (No 1 - 8)	Column B (No 9 - 16)	Column C (No 17 - 24)	Column D (No 25 -32)
NO of SA X 6 =	NO of SA X 6 =	NO of SA X 6 =	NO of SA X 6 =
NO of A X 4 =	NO of A X 4 =	NO of A X 4 =	NO of A X 4 =
NO of D X 3 =	NO of D X 3 =	NO of D X 3 =	NO of D X 3 =
NO of SD X 1 =	NO of SD X 1 =	NO of SD X 1 =	NO of SD X 1 =
Total for A =	Total for B =	Total for C =	Total for D =

Table 1

Work Style	Communication Style	Diplomatic			Outspoken		
		(8-22)	(23-28)	(29-30)	(31-32)	(33-39)	(40-48)
	Interpersonal Relations	Introvert			Extrovert		
		(8-19)	(20-26)	(27-28)	(29-30)	(31-37)	(38-48)
Sense of Urgency	High			Low			
	(8-20)	(21-26)	(27-29)	(30-32)	(33-39)	(40-48)	
Information Processing	Innovative			Systematic			
	(8-24)	(25-30)	(31-33)	(34-35)	(36-42)	(43-48)	

Table 1.1

Off Work

Column A (No 1 - 8)	Column B (No 9 - 16)	Column C (No 17 - 24)	Column D (No 25 -32)
NO of SA X 6 =	NO of SA X 6 =	NO of SA X 6 =	NO of SA X 6 =
NO of A X 4 =	NO of A X 4 =	NO of A X 4 =	NO of A X 4 =
NO of D X 3 =	NO of D X 3 =	NO of D X 3 =	NO of D X 3 =
NO of SD X 1 =	NO of SD X 1 =	NO of SD X 1 =	NO of SD X 1 =
Total for A =	Total for B =	Total for C =	Total for D =

Table 2

Style	Communication Style	Diplomatic			Outspoken		
		(8-21)	(22-27)	(28-30)	(31-33)	(34-39)	(40-48)
	Interpersonal Relations	Introvert			Extrovert		
		(8-18)	(19-26)	(27-29)	(30-31)	(32-38)	(39-48)
	Sense of Urgency	High			Low		
		(8-21)	(22-27)	(28-29)	(30-32)	(33-38)	(39-48)
	Information Processing	Innovative			Systematic		
		(8-21)	(22-28)	(29-30)	(31-33)	(34-41)	(42-48)

Table 2.1

Note: The assessment will not be given in the paper-pencil format at any given time. It will only be an online test. The above information is given for knowledge of the instructions and how the scoring is done.

11. ANALYSIS AND FINDINGS:

Sample Report (to help the test user with the interpretation of the test scores)

The score indicates how the individual behaves at work. Number of factors influence the candidate behaviour at work such as deadlines, the nature of job, relationship with co-workers and the manager’s leadership style.

At Work Style	Communication Style	Diplomatic			Outspoken		
				X			
	Interpersonal Relations	Introvert			Extrovert		
					X		
	Sense of Urgency	High			Low		
	Information Processing	Innovative			Systematic		
				X			

Table 3

The score indicates how the individual behave away from work. Number of factors influence the candidate behaviour at work such as responsibilities at home, relationship with family members and social activities with friends.

Off Work Style	Communication Style	Diplomatic			Outspoken		
					X		
	Interpersonal Relations	Introvert			Extrovert		
				X			
	Sense of Urgency	High			Low		
	Information Processing	Innovative			Systematic		
					X		X

Table 4

In area of communication, the person is likely to be diplomatic and forthright depending on the demands of situation that he/she is in. However, off work, s/he likely to be more candid.

The person tends to display extroverted qualities at your work-related associations. Off work, s/he may be more of an ambivert, desiring both people contact and personal space flexibly.

The person is almost on par at work and off work with regards to your sense of urgency. Off work however, s/he may sometimes be able to flex your work pace slightly. The person may often be unhurried.

The person troubleshoots problems at work environment in an original creative way as well as by tried and tested methodologies. At personal front, s/he like to be more systematic, not requiring innovation or change or change all the time.

FAQ's

1. What is the ideal Behaviour Pattern?
2. What if the person with whom I regularly interact with has a different score than mine?
3. While taking the test, what do I do when I have two responses that I cannot decide between?
4. Can I develop my low sense of urgency?
5. If I'm systematic, does it mean that I'm not innovative?
6. Does my behaviour pattern change depending on the situation and people I'm around with?
7. Do introverts have lesser interpersonal associations in comparison to extroverts?
8. Can I develop on my personal life through flexing my communication?
9. What if my response is disagree on most of the items?
10. If my score falls in the center, in what situations will I portray introvert characteristics and in what situations will I portray extrovert characteristics?

Norms

Norms are **standard models** or **patterns** regarded as being typical. A norm of one type or the other is a basic requirement of all tests. A **norm-referenced test / NRT** is a type of test, assessment, or evaluation which yields an estimate of the position of the tested individual in a predefined population, with respect to the trait being measured. This estimate is derived from the analysis of test scores and possibly other relevant data from a sample drawn from the population. In the case of BPA, a sample of 10,769 was taken and the test was administered. The sample ranged from entry level managers to senior level management from various sectors such as IT, Manufacturing, Retail, Engineering, Research & Development, Apparel, Textile & Fashion and Travel & Tourism.

Reliability

Reliability refers to the **consistency of a test**, or the degree to which the test produces approximately the **same results over time** under similar conditions. Ultimately, reliability is a measure of a test's precision. Number of different methods for estimating reliability can be used, depending on the types of items on the test, the characteristics a test is intended to measure, and the test user's needs. The most commonly used methods to assess reliability are the **Test-retest** and **Split half methods**.

Test- Retest Reliability – This method looks at the **stability of the test scores over time** by **administering the same test** to the **same people** after a reasonable time interval. The BPA assessment is purely based on environmental factors that influence a person. Therefore, if an individual takes a test after a period there is bound to be a minimal amount of change in the scores based on the environments the individual is exposed to.

In a controlled environment where there is no environmental input, a 91% accuracy ratio was recorded when a comparison of the test scores on both the tests was drawn.

Internal Consistency Reliability - indicates the **homogeneity of the test**. If all the items of the test measure the **same function** or trait, the test is said to be homogenous. The most common method of estimating internal consistency reliability is by the **Split half method**. In this method, a **test is divided into two forms** and scores on the two forms are correlated with each other to assess the degree to which all the items are assessing the same characteristic. The BPA assessment which consists of 64 items was split into two forms (even numbered pairing of 32 items each) and administered to verify if the pair contributes in assessing an individual's behaviour pattern. It was observed that BPA is high on split half reliability as both the forms are symbolic of an individual's behaviour type.

Validity

Validity refers to the **degree to which a test measures what it claims to measure**. A test is valid to the extent that inferences made from it are **appropriate, meaningful and useful**. The different ways of obtaining validity are grouped into three categories namely **Content, Criterion-related and Construct validity**

Content Validity: refers to how well a test covers the characteristics it is intended to measure. Thus, items are assessed to see if they are: **tapping into the characteristic** being measured, **comprehensive in covering all relevant aspects** and **balanced** in their **coverage** of the characteristics being measured. Content validity is usually assessed by careful examination of individual test items and their relation to the whole test. The BPA assessment is high on content validity as all the 64 items in the questionnaire display an individual's response in various interpersonal situations through which his/her behaviour is displayed.

Criterion – Related Validity: deals with the extent to which test scores can **predict a certain behaviour** referred to as the criterion. Criterion is defined as an **external and independent measure** of essentially the same variable that the **test claims to measure**. Concurrent and Predictive validity are two types of criterion related validity.

- a) Predictive validity refers to how well the scores on a test predict certain behaviours. In predictive validity, a test is correlated against the criterion to be made available some time in the **future**.
- b) Concurrent Validity is very similar to predictive validity except that there is **no time gap in obtaining test scores**. The correlation between test scores and the criterion variable indicate the degree of criterion- related validity.

BPA is a behaviour assessment that categorizes behaviour into four functional types, which are Communication Skills, Interpersonal Relations, Sense of Urgency and Information Processing. The scores on the four types helps predicts a wide range of behaviours which include **behaviour patterns, communication styles, interpersonal relations**, etc (concurrent validity). BPA helps identify behaviour patterns which can be used to develop personal effectiveness of the individual.

Construct Validity: is defined as the extent to which the **test measures a construct**. A construct is a **non-observable trait** such as personality, intelligence etc which **explains our behaviour**. Construct validity deals with how well a test assesses the characteristics it is intended to assess (in this case personal effectiveness). There is no single method for assessing a test's construct validity. Drawing close parallels with content validity, BPA is also high on construct validity as it classifies personal effectiveness into the four types namely Communication Skills, Interpersonal Relations, Sense of Urgency and Information Processing which explicitly explain **behaviour patterns, communication styles, interpersonal relations**, etc of the four behaviour types.

Face Validity: A test has face validity if it **looks valid to the users, examiners and examinees**. It is a **matter of social acceptability and not a technical form of validity**. Though not a technical form it is needed in all types of tests. The BPA is high on face validity as the 64 items in the questionnaire are symbolic of the various behaviours and the environmental stimuli an individual is encountered with, that help serve as a valid base for a personality assessment.

12. CONCLUSION

- BPA provides a balanced view of behaviour of an individual.
- Self-scored within 15-20 minutes, BPA moves quickly from developing a profile to applying the learning.
- Develop important behaviour skills, including how to flex their style to manage conflict and facilitate team work.
- The instrument's clarity and its uncomplicated format allow you to integrate it into existing training, or make it the centrepiece of a programme.
- It allows the Corporate to assess employees on their:
 - preferred behavioural style at work
 - ability to modify their behaviour to suit the needs of current job situation
 - expected behaviour under work pressure.
- Brings to light the method of communication typically used by the employees
- Gives us a deeper understanding about factors leading to interpersonal challenges at work.
- Helps us identify each employees' working styles and their pros and cons.

REFERENCES:

1. Kenrick, D. T., Li, N. P., & Butner, J. (2003). Dynamical evolutionary psychology: Individual decision rules and emergent social norms. *Psychological Review*, 110, 3–28
2. *Environmental Psychology: a psycho social introduction* by Mirilia Bonnes, Gianfranco Secchiaroli
3. Nowak A., Vallacher R.R., Tesser A., Borkowski W., (2000) *Society of Self: The emergence of collective properties in self-structure*. *Psychological Review* 107
4. Baum A., Singer J E and Valins S (Eds) 1978 *Advances in Environmental Psychology: Vol I - The Urban Environment*: John Wiley & Sons, Inc.;New York
5. Berry J W 1976 *Ecological and cultural factors in spatial perceptual development*; In: *Environmental psychology* (Eds) Proshansky H M, Ittelson W H and Rivlin L G. Holt, Rinehart and Winston, New York

WEB REFERENCES:

<http://en.wikipedia.org/wiki/Determinism>
http://findarticles.com/p/articles/mi_g2699/is_0000/ai_2699000094/
<http://www.psychology4all.com/environmentalpsychology.htm>
http://en.wikipedia.org/wiki/Environmental_psychology
<http://www.ucm.es/info/Psyap/iaap/evans.htm>
http://en.wikipedia.org/wiki/Human_behavior
http://genealogy.about.com/cs/geneticgenealogy/a/nature_nurture.htm