TIME LAG DISCOVERY OF SHARED CUES USING NONVERBAL COMMUNICATION

Jolly Junia Laboy[1],*

[1] Associate Professor, Department of Business Administration, College of Business Administration, University of Southeastern Philippines, Davao City

*E-mail: jolly_laboy@yahoo.com

Article info

Abstract:

Non-verbal communication augments verbal messages one sends. It can either ease understanding or confuse receivers. If it is a business deal therefore, there will be no closure of transactions. This encounter shall require reading nonverbal messages to discover shared cues leading to closure of deals. This is why this experiment was conducted to determine the time lag (TL) for which an occurrence will result in an understanding or misunderstanding. Two controlled groups were subject-respondents in the study, an odd numbered group, R1 to R7, and an even numbered, R1 to R8. Needed was to enumerate the number of pairs who should be standing, without hesitations, at anyone given time during the experiment. Results revealed several combinations for which participants had to exhaust all non-verbal means to send cues as to who stands next. R1 to R7 needed TL 3-minutes and 40-seconds before shared cues evolved resulting in the fluidity as to whose pair should be standing next at any one time if the experiment continues. On the other hand, the even numbered group R1 to R8 resulted on a speedy discovery of a shared cue taking them only 1-minute and 40-seconds.

1. Introduction

Communicating today dictates whether a transaction or event can be concluded immediately or not, regardless to whose favor it is. There is the written correspondence that is used to ensure that all becomes official, with clarity and binding. However, immediate negotiation cannot be done since the delivery of the communication in writing depend on the medium used to send the message, requires time before the letter is received. The only occurrence of an immediate negotiation or counter-action is through face-to-face nonverbal

Communication which is interpreting the non-verbal actions. In other words, reading the body language of the person with whom you want the transaction closed, that is your receiver, shall make you generate an immediate "negotiated counter-action". The instant closure of any transaction, may it be personal or business deal rest on the fact according to [1] that some nonverbal communication share similar meaning across cultures.

Several studies prove that nonverbal communication generates an immediate action or reaction: [2] concluded the relevant use of non-verbal communication to students in order to immediately address the mood of the students to

produce a positive learning environment; [3] revealed in their investigation that the use of nonverbal behavior such as arm actions and postures by salespeople have significant effect on their charismatic appearance thereby producing favorable consumer responses towards them; on one hand customers' needs can also be feasibly known immediately through their nonverbal behaviors as postulated by [4].

In business, the urgency to close a deal by a salesperson cannot be done without knowing understanding nonverbal actions reflecting the need of customer according to [5]. Reading a client's body language dictates if prospective customers will buy or not. It is therefore a must that shared cues between sellers and buyers be discovered early so that the needs are provided without much words said by clients.

1.1 Reading Nonverbal Messages

Knowing that nonverbal messages are being sent is a skill one has to possess. Not all people capture that moment when a signal is actually being sent by the sender. Therefore recognizing that such actions carry a message means according to [6] on quoting [7] in an interview that understanding the expressions in one's face for only tenths of a second could be seized by a receiver if he knows what message to look for. The completeness of the communication therefore cannot be achieved unless there is no correct interpretations of the message sent. The intention of the sender is one but the meaning the receiver gets matters most.

1.1.1 Body Languages. According to [7] everybody around the world share the same facial muscle expressions irregardless of race, culture, sex, nationality, gender, and all other demographic variable. Ignoring therefore these expressions whether it be in the face or not is irresponsible as reminded by [8] quoting [9]. This is where misunderstanding occurs and in business negotiations and transactions, this is a cause for the delay or fail. Otherwise as revealed by [10] quoting [11], [12], [13], [14], and [15] that employees who are able to decipher the meaning of customers' and their co-workers' emotions faster and quicker and correctly are expected to be in a better position to manage service failures [16] quoted [17] and [18] that possibly risks are reduced due to the expectations people get upon face-to-face interactions as revealed by body language, facial expressions, and eye gaze. This proves that nonverbal communication are more beneficial for smaller groups since according to [16] quoting [19] and [20] the transfer of nonverbal signals is a back-and-forth interplay between two people. Coding of nonverbal gestures are not done however which is the limit of this experiment.

1.1.2 Sign Languages. [21] Has emphasised that nonverbal signs initiates the fluidity of interaction between the sender and the receiver of the message. [22] revealed that it was in 1950s when nonverbal communication researches started as part of the works of psychiatrists, linguists, and anthropologists moving on to the 1960s and 1970s where empirical approaches were done up until 1980s when psychology regularly had this incorporated in their studies. The psychology of human's centres on how one is understood by others especially with the use of nonverbal messages, production of his mind leading to a display of one's behavior, especially its application to a service-customer situation. [23] Studied the impact on service delivery the interpretation of nonverbal cues where the authors provided suggestions for the management of encounters, selection and training of employees.

1.2 Theoretical Underpinnings

Two theories were referred to in this study, Proxemics Theory and Sign Theory. Proxemics Theory as introduced by [24] specifically is centered in addressing nonverbal communication. This theory postulates that a proxemics behavior is learned by observing other people from a distance people chooses. This means that understanding other gestures will require one to be at his comfortable distance for which the receiver of a message maintains also such distance as a sign of his willingness to establish a specific type of relationship.

On the other hand, [25] Sign Theory, or Semiotic, captures the importance of this study where it is rooted on interpretation to generating significance. Signals therefore according to this theory radiates a kind of appreciation to specific movements since each creates different meanings to the receiver. Peirce's work emphasized a theory not of language in particular, but more on the production of meanings.

The concept of the experiment centers on the usage of time on how long to generate shared cues between the participants of the study such that order is achieved in the form of a sequential pairing as to who stands next after the other. The application of this concept is the prevalence of a vendor-vendee transaction, specifically, taking a cue as to when can sales people interpret nonverbal signs of clients or beneficiaries..

2. Method

2.1 Participants and Procedure

The study involved experimenting a controlled group of different personalities from various business industries. This ensured that not one of the participants share the same culture or values prior to said experimentation. Two groups were considered, one with an odd number, with seven (7) participants and the other, an even number, with eight (8) participants. Instructions were given such that two (2) persons should always be standing once a tap sounded. Every time the drum sounded, another 2 person shall replace the ones currently standing. The activity shall continue until a pattern is established by the participants. The objective therefore was to discover how long will the odd-membered group be able to establish a repeated sequence without confusion as to who stands and who shall replace them. In other words, the quest is to determine when will a shared cue or cues be achieved given the circumstances that not one is in the same industry, whether it be the odd-numbered or the even-numbered group.

2.2 Data Log and Analyses

The movements were then logged while time was running until a noticeable repeated sequence or pattern has been achieved. The gap between one tap to the other involved a 5-second lag before the next tap sounded. In the course of the experiment, no one was allowed to utter any word including the prohibition to use the hands and lips to point the next person and pair as a cue. Therefore, other nonverbal means of communication were allowed to be used involving the eyes, shoulders, waist to head, and knee.

The experiments were performed with two groups analyzed, one with a 7-participant group (R1 to R7) and another with an 8-person group (R1 to R8). The group distinction was done in order to know the time duration to reach an understanding -

two persons standing at a given time producing a repeated patten as to who stands first and who shall replace them - in an odd-numbered member group as against the even-numbered member group.

For instance, if the sequence of pairs are those below, the same sequence will happen after R1 pairs R7, hence, R1:R2.

1st Sequence:	Time Lag
R1 : R2	=5 seconds
R3 : R4	=5 seconds
R5 : R6	=5 seconds
R1 : R7	=5 seconds

The 1st sequence needed 20-seconds to conclude the pairing. Assuming that the 2nd sequence repeats exactly similar to the 1st sequence, an added 20-seconds therefore is consumed.

Such repeated sequence means that a shared cue has been discovered at the end of the 2nd sequence, then at 40-seconds we can say, that shared cues were already achieved.

The study therefore is a permutation problem without duplicates or no repetition that reveals the ordered arrangement (P) of participants (n) taking a pair (r) at a time from the group of 7 participants, is given by:

$$^{n}P_r = n \, (n - 1)(n - 2)\ldots(n - r + 1)$$

$$^{n}P_r = \frac{n!}{r!(n-r)!}$$

The number of permutations of participants is presented below for the odd-numbered group resulting to 21 ways they can be arranged as computed above.

Outcomes/Pairings:	Sample Space
R1 : R2, R3 R4, R5, R6 & R7	=6
R2 : R3 R4, R5, R6, R7	=5
R3 : R4, R5, R6, R7	=4
R4 : R5, R6, R7	=3
R5 : R6, R7	=2
R6 : R7	=1
R7 :	=0 (see R1:R7 above)
Total	=21 ways/permutations

On the other hand, as for the even-numbered group, the result would be 28 combinations seen below.

Outcomes/Pairings: Sample Space

R1 : R2, R3 R4, R5, R6, R7 & R8   =7

R2 : R3 R4, R5, R6, R7, R8   =6

R3 : R4, R5, R6, R7, R8   =5

R4 : R5, R6, R7, R8   =4

R5 : R6, R7, R8   =3

R6 : R7, R8   =2

R7 : R8   =1

R8 :   =0

(R1:R8)

                        Total   =28

ways/permutations

While the ordered arrangement may have been identified using permutation with 21 ways and 28 ways for odd-numbered and even-numbered respectively, the question will be what is the experimental probability of an event P(M) on the number of times the occurrence of repeated frequent ordered pairings to occur in sequence at least once in a number of attempts.

3. Results

3.1 Odd-numbered Group

The results showed that several sequences were made for which the participants had to exhaust all non-verbal means to send a message ensuring that the next two persons standing will generate a repeated pattern immediately, a perfected permutation, as the activity continues.

More specifically, it was found out that persons R1 to R7 needed a total lag (TL) time of 3-minutes and 20-seconds before shared cues evolved, resulting in the fluid understanding as to who should be the pair standing at any one time and who goes next and so on.

Given that the time lag was 5-seconds before a new partner has to stand, then there will only be 12 pairings that can be possibly made in one minute or 60-seconds. This means that only about half of the sample space (21) shall be paired.

Table 1 exhibits the sequence (S) achieved by the 7-person participants with paired combinations inside it, of which consuming 5-seconds per pair before a new pair is required to stand.

Table 1. Distribution of Sequenced Permutation, R7

Time	S1	S2	S3	S4	S5	S6	S7	S8	S9
5-sec	**R1:R4**	**R3:R4**	**R5:R4**						
5-sec	**R7:R2**	**R1:R5**	**R3:R7**						
5-sec	**R:5:R3**	**R2:R4**	**R2:R6**						
5-sec	**R6:R2**	**R7:R6**	**R1:R7**						
1min=	**20-sec**	**20-sec**	**20-sec**						
5-sec				**R2:R4**	**R5:R6**	**R1:R5**			
5-sec				**R5:R7**	**R1:R4**	**R3:R4**			
5-sec				**R1:R6**	**R2:R7**	**R2:R6**			
5-sec				**R3:R2**	**R3:R1**	**R7:R1**			
2min=				**20-sec**	**20-sec**	**20-sec**			
5-sec							**R6:R2**	**R3:R4**	**R1:R2**
5-sec							**R3:R4**	**R5:R6**	**R3:R4**
5-sec							**R5:R1**	**R7:R1**	**R5:R6**
5-sec							**R7:R1**	**R3:R4**	**R7:R1**

Time	S1	S2	S3	S4	S5	S6	S7	S8	S9
3min=							20-sec	20-sec	20-sec
Time	S10	S11	S12	S13	S14	S15	S16	S17	S18
5-sec	R1:R2	R1:R2	R1:R2						
5-sec	R3:R4	R3:R4	R3:R4						
5-sec	R5:R6	R5:R6	R5:R6						
5-sec	R7:R2	R7:R1	R7:R2						
4min=	20-sec	20-sec	20-sec						

It has been expected beforehand that it would take a minimum of 40-seconds to be able to achieve a repetition of pairs at an ideal state where and if all respondents were allowed to talk.

Calculating the experimental probability [P(M)] for consecutive pairings refers to that favourable situation where person A (R1) and person B (R2) are paired, next of which to pair were person C (R3) and person D (R4), then person E (R5) pairing with person F (R6). Since person G (R7) does not have a pair, in the next cycle favoured was person A (R1) pairing with person G (R7). The rest of the pairings remained as they are except that in the 3rd cycle round, person G (R7) is paired instead with person B (R2). In exhibiting the result of the experimental probability, Table 1 shows in cycle 9 (S9) the start for which R1:R2, R3:R4, R5:R6 then R7:R1 are paired and in sequence. Shared cues became evident at cycle 10 (S10), cycle 11 (S11), and cycle 12 (S12). Computing the experimental probability [P(M)] therefore is given by:

$$P(M) = \frac{n \ (no. \ of \ times \ of \ occurrence)}{N \ (number \ of \ trials)}$$

$$P(M) = \frac{44}{48} = 44:48$$

Therefore, the experimental probability of getting the pairs R1:R2, R3:R4, R5:R6 and R7:R1 then R1:R2, R3:R4, R5:R6 and R7:R2, then R1:R2,

R3:R4, R5:R6 and R7:R1 where only R1 and R2 changes as partner with R7 is 92%. The experiment has shown a high percentage of occurrence since the efforts of the participants to reach a shared cue was evident. However even if the experimental probability provides a high percentage, the time for which this was achieved was 3-minutes and 40-seconds.

It is to be noted that the participants / controlled group are only to rely on nonverbal messages, more so, the participants have no prior acquaintance. The repetition and frequency of sequenced appearance of the pairs or such occurrence of the ordered combinations is a manifestation that shared cues were achieved and have been understood by the participants. However, Table 1 will show that there no evolved any shared cues during the first minute of the experiment within the odd-numbered group.

Further, results showed that repetition of participant (R7) allowed all to establish a common cue that (R7) partners with (R1) first and the next cycle round will be with (R2). The rest of the participants have evolved to be fixed partners, thus (R3) and (R4) & (R5) and (R6). Permutation or repeated pattern or ordered combination was therefore achieved at approximately 3-minutes and 40-seconds.

3.2 Even-numbered Group

On the other hand, the new group with an even number of R1 to R8 resulted on a speedy discovery of a shared cue taking them only 1-minute and 40-seconds.

Table 2. Distribution of Sequenced Permutation, R8

Time	S1	S2	S3	S4	S5	S6	S7	S8	S9
5-sec	R5:R7	R1:R2	R1:R2						
5-sec	R1:R2	R5:R6	R3:R4						
5-sec	R8:R4	R3:R7	R7:R5						
5-sec	R6:R3	R8:R4	R8:R6						
1min=	20-sec	20-sec	20-sec						
5-sec				R1:R2	R1:R2	R1:R2			
5-sec				R3:R4	R3:R4	R3:R4			
5-sec				R5:R6	R5:R6	R5:R6			
5-sec				R7:R8	R7:R8	R7:R8			
2min=				20-sec	20-sec	20-sec			

This even-numbered group eventually needed less effort due to the existence of natural pairing from within the R8 participants. There evolved R1:R2, R3:R4, R5:R6 and R7:R8 as natural pairs.

The group revealed that prior to the start of the experiment, they had the notion that their pairings can be those sitting next to them. However, since they were not allowed to talk or send signals before the start of the experiment, there was hesitations then. As the experiment started the natural pairing came out naturally.

Table 2 shows the resulting movement of the participants for which it is evident that after the one-minute mark, the evolution of shared cues was immediately clear.

3.3 Conclusion

This experiment was able to establish that shared cues can be much faster as expected even if the participants come from dissimilar industries, backgrounds, and nationalities. The ease to reach the shared cues could be attributed on the baseline knowledge and common understanding of the nonverbal gestures done by the participants as confirmed by the works of [1] on the commonness of nonverbal gestures across cultures and [7] on the similarities of facial muscle expressions regardless of race, culture, sex, nationality, gender, and all other demographic variable. Further, results have proven correct the postulates of [2], [3], [4], [10], quoting [11], [12], [13], [14], and [15], all of which addresses the immediate and significant effect on agreements produced due to the augmentation of nonverbal gestures.

The results of this study have implications for real-life interactions especially in business, suggesting that positive nonverbal communication will benefit future behavior of people transacting with people face-to-face and not online. This could speed up closures of transactions and all form of deals.

Though results of the experiment provided conclusions as to how long will shared cues be achieved given the type of interactions, may it be business or otherwise, the study did not include the after-experiment revelations the participants shared as to how come the others did not get the meaning of their messages early on. These after-experiment discussions were not recorded, hence, it is recommended therefore that a follow-up study be conducted to extract from each of the participants what barriers were present in understanding the nonverbal messages sent to the group as well as what contributed to the ease of understanding. Further study could be done on recording and coding the type of nonverbal messages used in order to fully conclude the type of gesture known to be as their shared cue that has ultimately produced the understanding.

Acknowledgements

University of Southeastern Philippines, Davao City, Philippines. The participants in the study came from various industries who did not know each other during the start of the university semester. This was their first interactive activity.

REFERENCES

[1] P. Andersen. Nonverbal Communication: Forms and Functions. A Primer on Communication Studies (v.1.0). Chapter 4; 17: Mountain View, CA: Mayfield, 1999. Retrieved from https://2012books.lardbucket.org/books

[2] F. Bambaeeroo and C. Shokrpour. The impact of the teachers' non-verbal communication on success in teaching." Journal of Advances in Medical Education and Professionalism, 5(2), (2017) 51–59. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles

[3] S. Pauser, U. Wagner & C. Erster. An investigation of salespeople's nonverbal behaviours and their effect on charismatic appearance and favourable consumer responses. Journal of Personal Selling & Sales Management, 38:3 (2018) 344-369, DOI:10.1080/08853134.2018.1480383

[4] S. Alavi, J. Wieseke, and J.H. Cuba. Savings on Discounts Through Accurate Sensing - Salespeople's Estimations of Customer Price Importance and Their Effects on Negotiation Success. Journal of Retailing 92 (2016) (1):40-55. DOI:10.1016/j.jretai.2015.08.002

[5] Puccinelli, N.M., Andrzejewski, S.A., Markos, E., Noga, T. & Motyka, S. The value of knowing what customers really want: The impact of salesperson ability to read non-verbal cues of affect on service quality, Journal of Marketing Management, 29:3-4, (2013) 356-373, DOI: 10.1080/0267257X.2013.766631

[6] American Psychological Association. Speaking of Psychology: Nonverbal communication speaks volumes. APA Online, 2020. Retrieved from https://www.apa.org/research

[7] D. Matsumoto. Interview manuscripts conducted by American Psychological Association by Aubrey Hamilton, 2005.

[8] R.W. Kaps,& J.K. Voges. Nonverbal Communications: A Commentary on Body Language in the Aviation Teaching Environment. Journal of Aviation/Aerospace Education &

Research, 17(1) (2007). https://doi.org/10.15394/jaaer.2007.1439

[9] M. Bates, C. Johnson, & K.E. Blake. A manual for aou~ counseling leaders. Denver. Love, , 1982. Retrieved from https://commons.erau.edu/cgi

[10] E. Koc and H. Boz. Emotions and developing emotional intelligence in tourism and hospitality business. ReaserchGate Online. In Book: Emotional Intelligence in tourism and hospitality, 2019, 15-35. DOI:10.1079/9781786398314.0015

[11] H.S. Jung, H.S. Jung, H.H. Yoon, & H.H. Yoon. Why is employees' emotional intelligence important? The effects of EI on stress-coping styles and job satisfaction in the hospitality industry. International Journal of Contemporary Hospitality Management, 28(8) (2016), 1649–1675. doi:10.1108/IJCHM-10-2014-0509

[12] A. Kralj & D. Solnet. Service climate and customer satisfaction in a casino hotel: An exploratory case study. International Journal of Hospitality Management, 29(4) (2010), 711–719. doi:10.1016/j.ijhm.2010.01.005

[13] D. Solne & N. Paulsen. Service climate, employee identification, and customer outcomes in hotel property rebrandings. Journal of Hospitality & Leisure Marketing, 13(3–4)

[14] Y.C. Wang, C.C. Luo & Y.F. Tai. Implementation of delightful services: From the perspective of frontline service employees. Journal of Hospitality and Tourism Management, 31 (2017), 90–104. doi:10.1016/j.jhtm.2016.10.006

[15] K. Wolfe & H.J. Kim. Emotional intelligence, job satisfaction, and job tenure among hotel managers. Journal of Human Resources in Hospitality & Tourism, 12(2) (2013), 175–191. doi:10.1080/15332845.2013.752710

[16] F. Behrens & M.E. Kret. The Interplay Between Face-to-Face Contact and Feedback on Cooperation During Real-Life Interactions. Journal of Nonverbal Behav (2019) 43: 513. https://doi.org/10.1007/s10919-019-00314-1

[17] D. Balliet, D. Communication and cooperation in social dilemmas: A meta-analytic review. Journal of Conflict Resolution, 54 (1) (2010), 39–57. https://doi.org/10.1177/0022002709352443.

[18] R. Boone & R. Buck. Emotional expressivity and trustworthiness: The role of nonverbal behavior in the evolution of cooperation. Journal of Nonverbal Behavior, 27(3) (2003), 163–182. https://doi.org/10.1023/A:1025341931128.

[19] M.E. Kret. Emotional expressions beyond facial muscle actions. A call for studying autonomic signals and their impact on social perception. Frontiers in Psychology, 6(2) (2015), 1–10. https://doi.org/10.3389/fpsyg.2015.00711.

[20] E. Prochazkova & M.E. Kret. Connecting minds and sharing emotions through mimicry: A neurocognitive model of emotional contagion. Neuroscience and Biobehavioral Reviews, 80 (April) (2017), 99–114. https://doi.org/10.1016/j.neubiorev.2017.05.013.

[21] F.B. Mandal. Nonverbal Communication in Humans, Journal of Human Behavior in the Social Environment, 24:4 (2014), 417-421, DOI:10.1080/10911359.2013.83128.

[22] M.A. Hecht & N. Ambady. Nonverbal communication and psychology: Past and future, New Jersey Journal of Communication, 7:2 (1999), 156-170, DOI: 10.1080/15456879909367364

[23] M. Gabbott & G. Hogg. The Role of Non-verbal Communication in Service Encounters: A Conceptual Framework, Journal of Marketing Management, 17:1-2 (2010), 5-26, DOI: 10.1362/0267257012571401

[24] E. Hall. A System for the Notation of Proxemic Behavior. American Anthropologist, 65(5) (1963), new series, 1003-1026. Retrieved August 14, 2020, from www.jstor.org/stable/668580

[25] Peirce. Prolegomena To an Apology For Pragmaticism, The Monist, v. XVI, 1906, n. 4, pp. 492–546, see pp. 523–4, Google Books Eprint. Reprinted in Collected Papers v. 4, paragraphs 530–72, see 551.

PHÁT HIỆN THỜI GIAN TRỄ CỦA MỐI QUAN TÂM ĐƯỢC CHIA SẺ BẰNG CÁCH SỬ DỤNG GIAO TIẾP PHI NGÔN NGỮ

Jolly Junia Laboy

Thông tin bài viết

Tóm tắt

Giao tiếp phi ngôn ngữ làm tăng thêm thông điệp bằng lời nói, nó có thể dễ hiểu hoặc gây nhầm lẫn. Do đó, nếu đó là một giao dịch kinh doanh, sẽ không có việc đóng cửa các giao dịch. Cuộc gặp gỡ này sẽ yêu cầu đọc các thông điệp phi ngôn ngữ để phát hiện ra các tín hiệu được chia sẻ dẫn đến kết thúc giao dịch. Đây là lý do tại sao thử nghiệm này được thực hiện để xác định độ trễ thời gian (TL) mà một sự kiện xảy ra. Hai nhóm được khảo sát là đối tượng được trả lời trong nghiên cứu, một nhóm được đánh số lẻ, R1 đến R7 và một nhóm được đánh số chẵn, R1 đến R8. Việc cần thiết là liệt kê số lượng các cặp đã hiểu, không do dự, tại bất kỳ thời điểm nào trong quá trình thử nghiệm. Kết quả cho thấy một số sự kết hợp mà những người tham gia phải sử dụng tất cả các phương tiện phi ngôn ngữ để gửi tín hiệu xem ai là người tiếp theo. R1 đến R7 cần TL trong 3 phút 40 giây trước khi các tín hiệu được chia sẻ phát triển, dẫn đến tính linh hoạt khi cặp nào sẽ đứng cạnh nhau bất kỳ lúc nào nếu thử nghiệm tiếp tục. Mặt khác, nhóm được đánh số chẵn từ R1 đến R8 dẫn đến việc nhanh chóng phát hiện ra tín hiệu chung chỉ mất 1 phút 40 giây.