

THE AMERICAN UNIVERSITY STUDIES ON FACE2FACE

STUDY ONE

Over the 2018 / 2019 academic year Dr. Nate Herr Director of the American University (AU) Interpersonal Emotions Lab and Dr. William d’Alelio, CCO of FutureLife completed the first study of a set series using Face2Face to detect facial expressions of emotion that reveal deception. In this pilot study, undergraduate students, who were either phobic of spiders and snakes or didn’t fear them had video tapes of their expressions analyzed by Face2Face as they either showed their real feelings or pretend the feelings were the opposite of what they actually were. The deceitful students lied about their reactions either actively or by omission. The design of the study can be visualized as a two by two array. There were ten students in each group:

Phobic / Showing Natural Fear	Phobic / Trying to Hide Fear
Not Phobic / Showing Natural Lack of Fear	Not Phobic / Pretending to Be Afraid

The students were all shown the same 2-minute video of spiders and snakes. In the first study, we look at the how much of their viewing time (as a percent) subjects show high levels of fear. To make it more likely that the stimulus video would elicit fear, subjects were told that after they finished watching the movie, they would hold a live tarantula (a deception). Subjects facial expressions were captured by a high definition video camera, their recordings were processed with Face2Face and analyzed by Dr. d’Alelio. The results are shown in graphic form below (Fig. 1):

The findings showed significant differences in the amount of Fear shown in facial expressions of members of the different groups. The red error bars in the graph help to visualize the strong differences reflected in that statistic. Where the brackets of any two groups would overlap, the fear shown by those groups is essentially equivalent. Where they don’t overlap, the groups’ fear shown is significantly different.

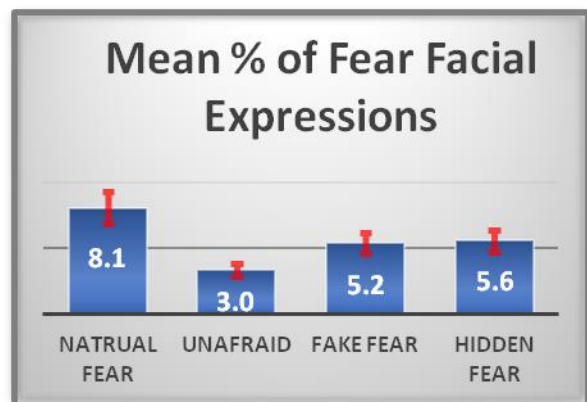


Fig. 1

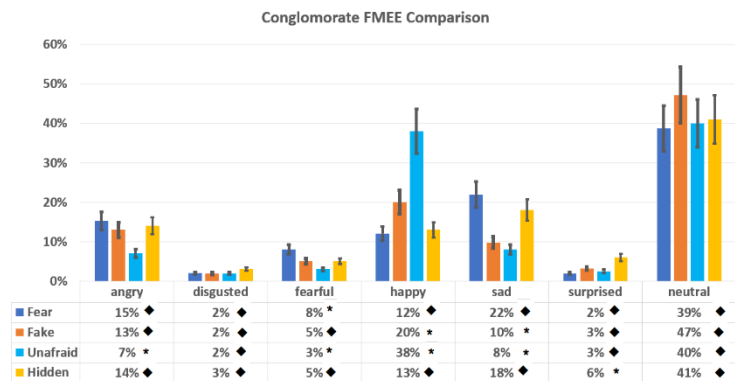
We found that the groups who were showing their true feelings differed from one another and from the two groups who were trying to conceal what they felt. The subjects who were trying to fake being afraid or hide it, didn't succeed in looking like either of the groups whose expressions were authentic. Especially interesting was that the Fake Fear, and the Hidden Fear groups, who were being deceptive in opposite directions, ended up equivalent in observable facial expressions of fear. The only thing the two groups had in common was lying.

Face2Face identified similarity in how these subjects modified their facial expressions to conceal their actual emotions. In 999 times out of 1000 Face2Face accurately identified the lying in both groups.

STUDY TWO

Study Two in our research program extends the first. After they'd been processed for fear, the videos from the pilot study were analyzed for all 7 emotional states and inconsistent patterns of emotional sequencing (e.g. a spike of Joy in the middle of "Fear").

The graph below (Fig. 2) shows that in addition to Fear, Anger, Joy, Sadness, and Surprise differentiate between the different conditions of truthfulness or deceit.



Additionally, when we coded subjects' FMEE results alphabetically (Fig. 3 and 4) to reflect the highest elevations in their profiles, the pattern that showed up in the pilot study appeared again. The deceitful subjects ended up with almost identical coding, while the truthful subjects were different from each other as well as from the liars

Fig. 2

EMOTION and ELEVATION	ALPHA CODES			
	40	30	20	10
Angry	A	B	C	D
Disgusted	E	F	G	H
Fearful	I	J	K	L
Happy	M	N	O	P
Sad	Q	R	S	T
Surprised	U	V	W	X
Neutral	Y	Z	AA	AB

Emotion	Condition	Code
Afraid	Truth	ZSDP
No Fear	Truth	YN
Fake Fear	Lie of Comission	YPDT
Hidden Fear	Lie of Omission	YTDP

Fig. 3

Fig. 4

The results were strong enough, once again proving without a shadow of a doubt that Face2Face accurately predicted Deception Detection 999 times out of 1000, thus warranting the follow up study Future Life will begin this spring.

STUDY THREE

We will be conducting another study Q2 2020 by gathering data from a larger sample of subjects and using the full capability of Face2Face to detect the full range of Facial Expressions and subtle sequences of emotion to identify deception. Study Three will formally extend Face2Face's deception detection beyond the scope of academic studies using undergraduate subjects. We will be replicating a study in which public source footage of televised appeals for the return of a missing spouse or child were analyzed by expert profilers for signs of deceit. In half of the instances, the family member making the appeal had murdered the missing person. The experts' predictions were only slightly better than chance. In house analyses of public source videos where the deceitfulness of the individual being analyzed Face2Face was accurate, again 999 times out of 1000, in differentiating between truth and falsehood.