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„The Role of Emotional Cues in Photojournalism's
Influence on Sympathy“

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“A photo is a small voice, at best, but sometimes—just sometimes—one photograph or a group of them can lure our senses into awareness. Much depends upon the viewer; in some, photographs can summon enough emotion to be a catalyst to thought.”

—W. Eugene Smith, photojournalist

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1. Introduction

Casually browsing through ‘photos that moved the world’ by Peter Stepan, it becomes quite clear that throughout history photographs have managed to make heavy impressions. Despite extensive search of previous studies, there is no definitive answer as to why certain photos were able to affect social change and how this process can be broken down based on emotional cues and their effects. In order to properly explain the independent variable of this study, ‘emotional cues’ are conceptualized as the visible and recognizable emotions emitted from one or more persons that are depicted in a photograph. Which characteristics of news images contribute to voicing such powerful messages? While this study does not aim to provide a full answer on this question, it aims to analyze whether emotional cues in photojournalism are prone to influence sympathy. In this study, the role of emotional cues in news images on sympathy toward victims of a social issue is explored, making a distinction between the effects of negative and positive emotional cues. Moreover, this study takes into account whether the recognition of emotional cues in news images is related to the relationship between emotional cues and sympathy.

2. Literature review

This section contains definitions of this study's constructs and an overview of the literature regarding the variables within the context of photojournalism. The theoretical knowledge areas explored in this context are the role of photojournalism, social change through news images, influences of photography, emotional hierarchy theory, sympathy, and emotional cues. As an important note for the purpose of this study, the term 'social issue' refers to a problem that influences many people within a society, where a large portion of the society acknowledges that a certain issue is a problem (Mary & Senn, 1995).

2.1 What is it about news images that affects social change?

In order to gain an understanding of the effects of news images, this section starts by taking a look at the literature on public opinion theory. Public opinion theory refers to a consensus among a majority of members within a society consisting of the desires, wants and thinking of the people in that society. Public opinion explains the collective opinion of the people of a society on an issue or problem that affects them (Noelle-Neumann, 1991; Nowak et al., 1990; Glynn & Huges, 2008), while public emotion reflects the collective emotion of a society's majority towards a social issue (Smith & Hyde; 1991; Rahn et al., 1996). Scholars have found the emotional character of public opinion to influence social consequences of public opinion (Brader et al., 2011; González-Bailón et al., 2010). Public emotion functions as a driving force that motivates a transition from public opinion to public action (Barnwell, 2018; Peng et al., 2017; Price, 1992; Moy et al., 2001). The terms public, collective or social action refer to the public's expression of unease (Hughes, 2003; Overholser, 2001) and is proven to be one of the driving forces towards social change (Davison, 1958; Hertel et al., 2009; Hanitzsch et al., 2016; Frazier & Gaziano, 1979).



Figure 1: © “Saigon Execution” by Eddie Adams (1968).

In news image discourse, photojournalism and social change are entwined throughout history. Stepan et al. (2016) explain how the photograph “Saigon Execution” had an impact on the US public, as the public had not been aware of the rawness and brutalities going on in Vietnam. The photograph

depicts how the South Vietnamese police chief Nguyen Ngoc Loan is about to perform an execution in the streets on a North Vietnamese officer that was suspected of collaborating with the Vietcong. Until then, the public had been under the impression that the Vietnamese army was struggling very much to control the Vietcong rebels. The publication of this photograph sparked a nationwide public debate on whether the Vietnamese army really needed the contribution from the US soldiers. Following this, the US public reached the consensus that they should not be sending their sons, brothers and fathers to contribute to this war, since the South Vietnamese police seemed to be taking matters into their own hands – even without a proper trial preceding an execution. The publication of this photograph contributed greatly to raising awareness on the brutal violence taking place in Vietnam and this consequently contributed to affecting the perceptions of the US public, from pro-war changing to anti-war attitudes (Stepan et al., 2016, p. 118). In 1863, the news image “Gordon” showed a slave’s scars from being whipped and it provoked a stir among the public, resulting in the photograph being used as a symbol of advocacy in the abolition of slavery in the U.S (Collins, 1985; Putzi, 2002). In the early 1900’s, circulation of Lewis Hine’s news image series featuring child laborers provoked public action which resulted in legislative changes on working ages in the U.S. (Smith-Shank, 2003). In 2015, Nilufer Demir captured a photograph of Aylan Kurdi’s body

washed ashore in Bodrum. The news image of the toddler went viral and became a symbol for all the horrors of the Syrian refugee crisis. The image brought public attention to the war in Syria, reminding news audiences that refugees are vulnerable human beings. The worldwide circulation sparked public debate and resulted in legislative changes in international policies on refugees and immigration (Slovic et al. 2017; Sohlberg et al., 2019, Smith et al., 2018).

2.2 The influences of photography

In order to first explore the effects of photographs, it is advantageous to take a look at the current literature on photography and perception. As Pink (2007) notes on how photographers (in her words: researchers) capture human right and the lack of it, “It is not solely the subjectivity of the researcher that may shade his or her understanding of reality, but the relationship between the subjectivities of researcher and informant [and audiences] that produces a negotiated version of reality” (Pink, 2007, p. 23). Linfield (2010) rejects the “rigid negativity” of postmodern critics who denounce photography as an empty, deceiving discipline, wholly incapable of providing “a moment of surprise, originality or insight” (Linfield 2010, p. 9). “What photographers can do, is to show how those without such rights look, and what the absence of such rights does to a person. And they can, and have, shown us what people struggling for rights look like, in victory and defeat” (Linfield, 2010, p.37).

Perception is defined as the process that the brain goes through to make sense of outside stimuli which activate the nerve cells of the sense organs through use of prior obtained knowledge and memories (Dember & Warm, 1979). Barthes (1985) adds that interpretation is also a part of perception, originating from memories and signs to attribute meanings to stimuli. Within the context of perception of photographs, he explains that a photograph is an object on its own in addition to transmitting messages through signs (Barthes, 1985). For the purpose of

this study, the term ‘perception’ is defined as a combination of both definitions named above in order to include both the cognitive and the interpretive process as one. Visual perception allows us to see and interpret things around us (Cornsweet, 1970; Haber & Hershenson, 1973; Graham, 1965), by means of sensory cueing, which refers to the sensory cues that the brain receives from external stimuli (Kaufman, 1974; Passingham, 1985). Visual cues are the sensory cues received by the eyes through light (Ittelson, 1960). These are processed by the brain’s visual system for visual perception (Ditchburn, 1973; Attneave, 1954; Gibson, 1950), which is an important source of how information allows us to interpret the world around us (Haber & Hershenson, 1973). Tagg (1988) theorizes that a photograph is composited of an extensive schema of signs that contribute to the meaning attributed to the photograph, emphasizing that the meaning of a photograph is constructed (Tagg, 1988). The meaning that is attributed to something is dependent on cognitive priming, a theory explaining that a person’s interpretation of a stimulus will serve as an interpretive frame to later received stimuli (Bigand et al., 2003). This process of cognitive priming accounts for the processing of information and judgement of it (Storbeck & Clore, 2008). Perception of photographs is therefore dependent on the viewers’ prior experiences and the manner in which they engage with the images (hooks, 1995). Thus, the attribution of meaning to a photograph is dependent on the manner in which viewers understand and use them (Becker, 1982; Dehaene et al., 1998).

2.3 Emotional hierarchy and sympathy

Due to a lack of a general consensus on a definition amongst scholars, this study defines ‘emotion’ from a behavioral point of view referring to a complex condition of feelings resulting in psychological changes that influence an individual’s thoughts. Photojournalism consists of elements such as emotion, action, conflict and graphic appeal (Mortensen & Gade, 2018). This section of the literature review aims to take a closer look at the element of emotion within

photojournalism. Kobré's (2011) emotional hierarchy theory outlines 'emotional images' as a category of news photography in which news images add a dimension to a story, as opposed to repetition of the story's content. In this category, the content of a news image can resemble emotions by recording a photograph of a person that is visibly experiencing an authentic emotion at that time in reality. This theory assumes that the image itself causes the viewer to feel an emotion, due to the images' ability to make the viewer "feel something about the subject" (Kobré, 2011, p.130). One of the main purposes of publishing photographs in the news is to make people care about an issue (Lester, 2006). Photographers aim to capture the audience's attention to not only help them understand an issue, but also to let them feel moved by an issue on an emotional level (Rees, 2004).

Visual framing studies have found emotions to be a mediator in situations where news photographs emphasized a specific section of the news narrative and influenced behaviour of the viewer (Geise & Baden, 2015). Moreover, photographs can cause emotions that influence the viewer to develop intended behavior to aid those depicted in the photograph (Powell et al., 2015). Documentary photography's natural way of representing emotions influences the audience to connect to the portrayed issue on an intimate level that stimulates sympathetic responses from the audience's perspective (Starret, 2003). Scheler (2008) describes sympathy as fellow-feelings in his book and concluded that these are the origins of people's knowledge of other people due to feelings being relatable, which then causes people to gain an understanding of people through fellow-feelings (Scheler, 2008). Sympathy is also found to be related to various negative aspects such as altruism, moral disengagement and sad images. When people think deliberately while deciding about their donations to victims they disregard sympathy to identifiable victims (as seen in a photograph), however, towards statistical victims they fail to generate sympathy all together (Small et al., 2007). Moreover, sympathy has

increased people's willingness to donate to victims portrayed. The emotion 'sadness', drawn from an image depicting a child with a sad face expression, corresponded with the emotions that participants of a study indicated after exposure to this image (Baberini et al., 2015).

2.4 Negative and positive emotional cues on sympathy

Lishner et al. (2011) concluded that when a current need is obvious in someone's situation, sympathy of the observer is higher than in a victim's situation when there is no evidence of a current need (Lishner et al., 2011). Baberini et al. (2015) found that negative emotional cues were associated with negative affect, while positive emotional cues were not indicative of generating feelings in an observer (Baberini et al., 2015). This is in accordance with previous studies that found that witnessing other people's suffering affects emotional reactions by observers (Dickert & Slovic, 2009). While distinguishing the effects of negative and positive emotions, various literature has found that negative emotional cues – such as sadness – have an effect on generating and/or increasing an observers' level of sympathy with regards to concern, compassion and tenderness (Balconi & Bortolotti, 2013; Zaki et al., 2009). Opposed to that, positive emotional cues have failed to generate sympathy of an observer altogether (Baberini et al., 2015).

3. Research gap

Though several studies within the particular field of photojournalism have previously explored photojournalism's audience effects on perception and opinion-shaping (Dobering & Lobinger, 2010) as well as public opinion (Stepan et al., 2016), no one has previously shed light on such effects with the research context of the audiences' stance towards pressing social issues that may affect them or those around them. Furthermore, though there is extensive literature on emotions in photography (Linfield, 2010; Hansen & Machin, 2008; Roberts, 2017), and emotions influencing sympathy (Petty et al, 2001), there is a clear research gap with little to no research studying the relationship between these two topics specifically within the context of photojournalism, in which the main role of a photograph is to be a news message. Moreover, while there is research on how emotions can raise awareness (Petty et al, 2001), there was little to be found on how visual emotional cues influence sympathy towards victims of a social issue. In addition to this, there is little to no research on whether such a process has a relationship with the loss or gain of sympathy. Additionally, previous research has not adequately distinguished between the influence of negative versus positive emotional cues within photojournalism on the sympathy of the observer. Therefore, this study aims to contribute to filling this gap and providing the field with in-depth knowledge on the relationship between emotional cues in news images and sympathy.

4. Research objective

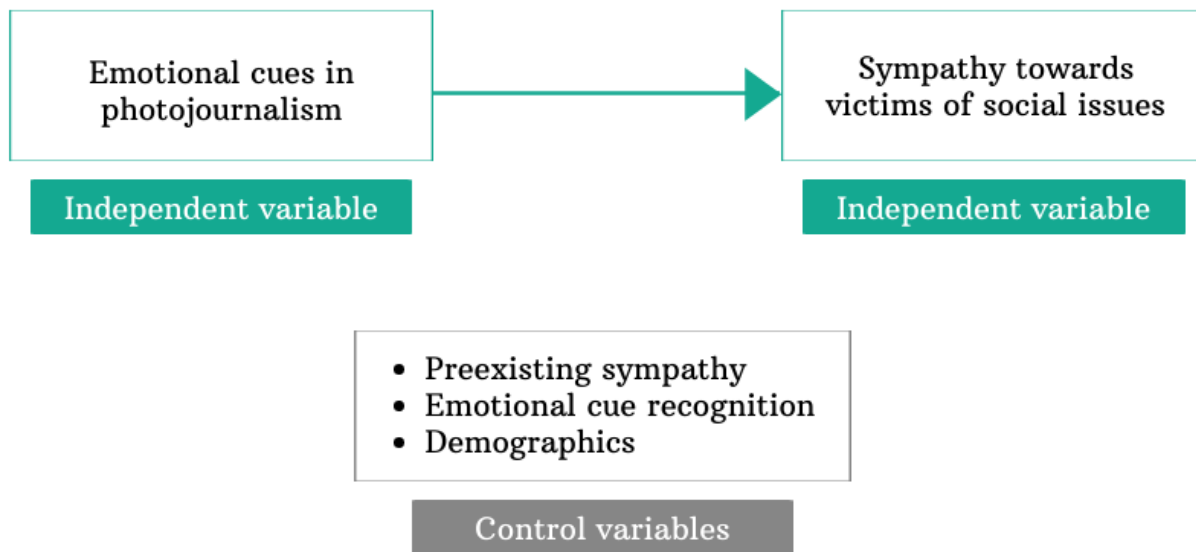


Figure 2: Conceptual model

The research objective is to (a) explore the role of emotional cues in photojournalism about social issues on sympathy towards victims of social issues (b) by conducting a survey-experiment, in which news images of a social issue are used to identify how positive and negative emotional cues in news images influence sympathy. Additionally, preexisting sympathy, emotional cue recognition, and basic demographics will be controlled for.

5. Hypotheses

H1a: Negative emotional cues in news images of a social issue increase sympathy towards victims of that issue.

H1b: Positive emotional cues in news images about a social issue do not influence sympathy towards victims of that issue.

H2: Emotional cues in news images are recognized by the viewer when emotional cues in news images influence sympathy.

6. Empirical study

6.1 Method

Due to the fact that this research aims to test hypotheses pertaining to the influence of emotional cues in photojournalism on sympathy, a quantitative explanatory research design is chosen in order to facilitate the reliable gathering of data among the participants. An explanatory research method was carefully considered due to this method's ability to seek explanations for certain observed phenomena, problems and behaviors. Previous studies using this method have shown to be successful in facilitating the researcher with connecting the dots in research data by identifying causal factors and outcomes of the target phenomenon (Bhattacharjee, 2012). While a qualitative study design had previously been considered for this study mainly due to its focus on the depth of knowledge obtained from a relatively small number of research objects (Gerring, 2011), this method was deemed unable to provide sufficient data in order to analyze this study's hypotheses. Therefore, a quantitative method has been chosen for the purpose of testing the proposed hypotheses, as this method focusses on the comparison of data obtained from a relatively large sample of research objects (Gerring, 2011). More specifically, this study's quantitative design was favored as this will serve this study's purpose for research aims that revolve around comparing data in order to form conclusions regarding specific relationships between variables (Gerring, 2011). According to Bhattacharjee (2012), in order to generate a valid quantitative approach that is in line with the scientific method, it is necessary to ensure replicability, precision, falsifiability and parsimony (Bhattacharjee, 2012), which are therefore incorporated in this study's survey-experiment design, on which this paragraph elaborates further. For the purpose of testing this study's hypotheses, the advantages of a survey method were carefully considered, and resulted in the selection of this method. This method was chosen in accordance with Verschuren and Doorewaard's (2007) evaluation of a survey's effectiveness in such cases where a researcher wishes to obtain clear-cut knowledge of the research objects

concerning the relationship between the variables in the research. The benefits of this method include its scope, generation of wide overviews and valid statements, the possibility of conclusions of statistical relationships, the availability of data processing and analysis software, and the possibility of effortless verification of data collection and results. However, disadvantages of this method were also taken into account and are acknowledged as a limitation to this study's methodology. These disadvantages include the limitation of depth and the concise literature review that is necessary to successfully design a survey method that measures the relationships and correlations among the variables within the scope of the research (Verschuren & Doorewaard, 2007) . To further evaluate the qualities of this study's method, the experimental aspect of survey-experiments is therefore evaluated. According to the Center for Innovation in Research and Teaching (CIRT, retrieved 28th of June, 2019), experiments are a beneficial method to obtain conclusions on manipulations and whether they cause certain changes in outcomes. In addition to this, CIRT stresses that due to tightly controlled manipulations, the outcomes of the experiment has a high reliability regarding observed changes among the independent variable within a research (CIRT, retrieved 28th of June, 2019). In another section of their website, CIRT (retrieved 28th of June, 2019) explains that within the experiment type called 'pretest-post-test only design' the participants of the experiment are randomly assigned to one of two experiment groups, being the experimental one or the control group. While the experimental group is exposed to manipulated conditions and the control group is not, both groups are pretested on the independent variable and post-tested on the same variable following the experimental treatment of being exposed to the experimental conditions. The results from both groups are then compared to evaluate the effects that the independent variable has on the dependent (CIRT, retrieved 28th of June, 2019). Fricker and Schonlau (2002) evaluated the advantages and disadvantages of conducting surveys online, and found that when implemented properly the research data can be collected in an effective and cost-friendly manner. The authors

suggest that the possibilities for conducting researches online will evolve considerably. This gives opportunities for researchers that bring advantages of data quality, response rates and timeliness (Fricker & Schonlau, 2002). Proven by the aforementioned advantages and the fact that it is possible to aggregate a relatively large amount of data, this survey method is fitting to the purpose of this study and helps facilitate an understanding and interpretation of the relationship between the study's variables. Taking into consideration the literature regarding survey research methods and survey-experiments, the advantages and disadvantages of these methods have been weighed against each other. The methodological conclusion is that for this study a survey-experiment is most beneficial to measure the causal effects of the manipulated independent variable onto the dependent variable (CIRT, retrieved 28th of June, 2019).

In order to adequately measure sympathy, various measurement constructs of sympathy were evaluated. Previous studies have found success in the use of several existing empathy scale measures (Boyle et al., 2015). The majority of these scales use several combinations of constructs to measure empathy, of which certain (sub)scales can be classified as measuring a person's sympathy towards something or someone (Baldner & McGinley, 2014). For the purpose of constructing a valid measurement of sympathy, the Empathy Quotient (Baron-Cohen & Wheelwright, 2004) and the Interpersonal Reactivity Index (Davis, 1983) are reviewed below. Additionally, the Basic Empathy Scale (Jolliffe & Farrington, 2006), and situational empathy adjectives theory (Batson et al., 1981) are evaluated for measures of sympathy specifically pertaining to positive and negative emotions.

The Empathy Quotient scale by Baron-Cohen and Wheelwright (2004) is a 60 item questionnaire measuring empathy (Baron-Cohen & Wheelwright, 2004), through the measurement of cognitive empathy, social skills and emotional reactivity. The latter is recognized as a valid measurement of sympathy (Lawrence et al, 2004). Examples of this scale's

questions measuring emotional reactivity include ‘I get upset if I see people suffering on news programmes’, ‘I tend to get emotionally involved with a friend’s problems’, and, ‘I usually stay emotionally detached when watching a film’ (Baron-Cohen & Wheelwright, 2004, Lawrence et al., 2004). The Interpersonal Reactivity Index by Davis (1983) measures empathy through the measurement of perspective taking, empathetic concern, fantasy and personal distress. Empathetic concern is defined as an assessment of "other-oriented" feelings of sympathy and concern for unfortunate others” (Davis, 1983, p.114). Various researches have advocated that Davis’ measurement of empathetic concern is a valid measurement of sympathy (Jolliffe & Farrington, 2006; Batson, 2011; Baldner & McGinley, 2014). Examples of items measuring empathetic concern include ‘Sometimes I don’t feel very sorry for other people when they are having problems’, ‘Other people’s misfortunes do not usually disturb me a great deal’ and ‘I am often quite touched by things that I see happen’ (Davis, 1980; Davis, 1983). The Basic Empathy Scale is a 20 item questionnaire measuring cognitive empathy and affective empathy, in addition to reactions to positive and negative emotions (Jolliffe & Farrington, 2006). The latter is recognized as a valid measure of sympathy (Baldner & McGinley, 2014). Example items for this scale include ‘My friends’ emotions don’t affect me very much’, ‘Other people’s feelings don’t bother me at all’ and ‘Seeing a person who has been angered has no effect on my feelings’ (Jolliffe & Farrington, 2006; Sánchez-Pérez et al., 2014). Another existing method to measure sympathy from negative or positive emotions is the situational empathy adjectives construct (Batson et al., 1981). Though it is named as a measure of empathy induced by an emotional situation, it has been evaluated by other scholars that this measurement construct is consistent with the measurement of sympathy (Eisenberg & Miller, 1987; Baldner & McGinley, 2014). The measurement is used after exposure to a situation, asking participants to rate their experience of the adjectives; warm, sympathetic, compassionate, tender, moved and warmhearted (Batson et al., 1981). The items for this study’s survey-experiment questions were

assembled from a combination of the validated scales mentioned above that specifically measure sympathy of someone towards another someone, and have been slightly adapted to fit the context of this study's survey-experiment.

6.2 Procedure

The survey consisted of two phases. The first phase measured pre-existing sympathy (PS) towards the Kayan tribe. This tribe was featured in the news images which served as stimuli for the experiment and regarding which the respondents were asked to answer a short set of questions. For the second phase, respondents were exposed to one out of three stimuli conditions, for which randomization was used to divide them among the conditions. The randomization method ensures minimization of differences among groups and prevents selection bias (Chaudhuri, 2006; Warner, 1965). The respondents with stimuli condition 1 functioned as the control group, and reviewed three film posters from movies about travelling. Respondents with stimuli condition 2 functioned as experiment group 1, and reviewed three news images of the Kayan tribe with negative emotional cues. Respondents with stimuli condition 3 functioned as experiment group 2, and reviewed three news images of the Kayan tribe with positive emotional cues. After reviewing the stimuli, all three groups answered a second set of questions with measures of positive and negative emotional cue recognition (PEC and NEC), empathetic concern (EC) and sympathy (SYM) towards the subjects of the news images. All items were measured on 5-point Likert scales, a commonly accepted measurement to measure attitude's that ensures more nuanced indications (Likert, 1932; Jamieson, 2004; Nemoto & Beglar, 2014). Finally, the respondents answered a standard set of demographic control questions. The complete survey-experiment design can be found in **Appendix A**.

6.3 Pilot-test

The survey-experiment questioning route was pilot-tested by five second year master students studying Communication Science at the University of Vienna. These students assessed the survey based on the simplicity, understandability, feasibility and reasonability of the questions. Therefore, this study adheres to survey requirement thresholds accepted in the academic field (Verschuren & Doorewaard, 2007) in order to generate a valid qualitative approach that is in line with the scientific method ensuring replicability, precision, falsifiability and parsimony (Battacherjee, 2012; CIRT, retrieved 28th of June, 2019). The testers reported approximately six minutes to complete the survey, without any reported problems regarding stimuli visibility and mobile participation.

6.4 Sampling

Data was collected among 631 respondents (71.8% completion rate = 453 completed, of which 437 valid cases used for analysis; average completion time = 8 minutes). The survey-experiment was designed with online survey platform Typeform, and was distributed online between 21.03.2020 and 01.04.2020 through personal networks and online forums that facilitate survey swaps. The distribution of the sample was relatively skewed in terms of gender (76% female) and slightly skewed in terms of nationality (17% The Netherlands, 10% Austria, 10% UK, 9% US, 7% Germany, and 47% of the respondents from 71 nationalities, ranging between 2% and less than 1% from these countries). However, the sample showed distribution within acceptable ranges for age (95% of the sample was evenly divided between 19 and 54 years old), income (81% had a household income ranging from less than €10.000 to €49.999), and education (82% of respondents with a college degree or higher), as is in line with guidelines on sample distribution (Folks et al., 1965; Wilks, 1938; Verril & Johnson, 1988; Taylor, 1983;) and widely accepted sample survey theory (Basu, 2011; Warwick & Lininger, 1975).

Table 1. Goodness of Fit Indices of Structural Model

Fit Indices	Estimate	Threshold
x2 (chi-square)	331.126	
df (degrees of freedom)	125	
Chi-square/df (x2/df)	2.649	<3
RMSEA (Root Mean Square Error of Approximation)	.061	<0.08
NFI (Normed Fit Index)	.945	>0.90
CFI (Comparative Fit Index)	.965	>0.90
IFI (Incremental Fit Index)	.965	>0.90
PCFI (Parsimony Comparative of Fit Index)	.788	>0.50
PNFI (Parsimony Normed Fit Index)	.772	>0.50

Note: Cell entries are two-tailed zero-order correlation coefficients among variables of interest in the study (N=437). *p<.05. **p<.01. ***p<.001.

6.5 Measurement model assessment

The data was cleaned and screened in SPSS. As a confirmatory factor analysis (CFA) allows to determine whether the hypothesized factor structure supports and fits the data (Kline, 2011), CFA was conducted in AMOS to verify the factor structure and loadings. The outcome of the CFA shows a good model fit of the measurement model ($\chi^2 = 331.126$, $df = 125$, $RMSEA = .061$, $CFI = .965$, $SRMR = .0496$). Model fitness was measured by using the goodness of fit indices given by Hair et. al (2010). The structural model is an excellent fit as all the values fall within their accepted ranges. Additionally, validity and reliability were determined through Cronbach's alpha's (from .864 to .914), item-to-construct loadings (ranging from .71 to .93), composite reliabilities (ranging from .858 to .915) and average variance extracted values (ranging from .621 to .759), all ranging within the accepted threshold criteria (Hair et al, 2010). The goodness of fit indices (GFI) can be found in table 1 and the construct measurements are shown in table 2. Additionally, the relevant means, standard deviations and inter-construct correlations are shown in table 3. The CFA model and output from AMOS are found in **Appendix B**.

Table 2: Construct Measurements

	Standardized loading (λ)
Preexisting sympathy (PS) – (Jolliffe & Farrington, 2006; Batson et al., 1981)	
$\alpha = .867$, $CR = 0.858$, $AVE = 0.669$	
I personally feel a level of emotional involvement with the people in the images and their problems.	0.710***
The emotions of these women affect me very much.	0.831***
I personally feel ‘tenderness’ towards the people in the images.	0.864***
I personally feel ‘moved’ by the people in the images.	0.755***
Positive emotional cue recognition (PEC) – (Kobré, 2011)	
$\alpha = .897$, $CR = 0.904$, $AVE = 0.759$	
The people in the images looked happy.	0.934***
The people in the images looked confident.	0.750***
The people in the images looked joyful.	0.918***
Empathetic Concern (EC) – (Baron-Cohen and Wheelwright, 2004; Davis, 1983)	
$\alpha = .887$, $CR = .885$, $AVE = .720$	
I get upset from seeing the people in the images suffering.	0.774***
I feel very sorry for the people in the images and the problems they have.	0.933***
The misfortunes of the people in the images disturb me a great deal.	0.831***
Sympathy (SYM) – (Batson et al., 1981)	
$\alpha = .864$, $CR = .867$, $AVE = .621$	
I personally feel ‘compassionate’ towards the people in the images.	0.729***
I personally feel ‘tenderness’ towards the people in the images.	0.814***
I personally feel ‘moved’ by the people in the images.	0.757***
I personally feel ‘warmhearted’ towards the people in the images.	0.846***

Notes: All items were measured on 5-point scales, anchored at 1 = “strongly disagree” and 7 = “strongly agree”. α : Cronbach's alpha, CR: Composite reliability, AVE: Average variance extracted. *** $p < 0.001$.

For hypothesis testing the constructs NEC and PEC were combined to create new variable ‘Emotional Cue Recognition’ (ECR). For the same purpose, EC and SYM were merged to create new variable ‘Sympathy’ (SYM).

Table 3. Descriptive statistics and correlation matrix.

	Mean	SD	PS	NEC	PEC	EC	SYM
PS	2.78	.922	.811				
NEC	2.77	1.17	.067				
PEC	3.23	1.17	.015***	.926			
EC	2.87	1.21	.128***	.779	.691		
SYM	3.17	.846	.471***	.237***	.069***	.390***	.788

Note: *** $p < 0.001$. ** $p < 0.01$

6.6 Hypothesis testing

The statistical procedure of a paired sample t-test was conducted in order to determine whether the mean difference between paired observations is statistically different from zero (Mee & Chua, 1991; Mara & Cribbie, 2012). The test was conducted in order to test differences in the respondents' sympathy towards the subjects in the images before and after the experimentation condition of visual cues in news images. The paired samples statistics (table 4) and the paired samples test (table 5) indicate that sympathy was significantly increased among both experiment group 1 (exposed to news images with negative emotional cues) and experiment group 2 (exposed to news images with positive emotional cues), compared to the control group. Though an increase in sympathy was observed for both experiment groups, the increase in sympathy among experiment group 1 was significantly larger than experiment group 2. Additionally the paired sample t-test showed that emotional cue recognition was significantly high for all groups. The basic demographic control variables showed no significance in the

AMOS model. This model and output can be found in **Appendix C**. Table 4 and 5 can be found in **Appendices D and E**.

Furthermore, independent sample t-tests were applied to test the differences among the two experiment groups in their sympathy, compared with the control group. Mean values in the group statistics (table 6) propose that the preexisting sympathy measured before the experimental conditions resulted in similar means for all three groups. The measurement of sympathy following the experimental condition, showed a very slight and insignificant decrease in sympathy of the control group, and a large and significant increase of sympathy of both experiment group 1 and 2, with a larger increase observed for experiment group 1. Table 6 can be found in **Appendix F**.

The mean differences in the independent samples test of the control group and experiment group 1 (table 7) showed a large and significant difference of sympathy among the groups. Moreover, mean differences in the independent samples test of the control group and experiment group 2 (table 8) showed a similar significance, however, a slightly smaller difference of sympathy among the groups, still showing a significant increase of sympathy among experiment group 2 compared to the control group. Mean differences of both independent samples tests (table 7 and 8) show significant differences of the experiment groups compared to the control group, and probability values confirm an insignificant difference between both groups. Moreover, both independent samples tests confirmed that emotional cue recognition was significantly present for all groups. Tables 7 and 8 are in **Appendices G and H**.

7. Discussion

With significant findings on the relationship between emotional cues in news images and their influence on sympathy, this section evaluates the explanations and interpretation of these results. Drawing from relevant literature on this relationship collected before the data analysis, the predominant expectation was that negative cues in news images could influence news consumers to increase their sympathy towards subjects in the images, which are victims of a social issue. Previous studies show that negative factors such as altruism, moral disengagement and sad images (Small et al., 2007) are related to the formation of sympathy towards a subject. While this study's findings support the hypothesis that negative emotional cues in news images influence an increase in sympathy, it does not mean that these aspects do not play a role in this relationship as other studies have pointed out that personality traits (Eisenberg, 1989; Grönn & Mendelsohn, 1986), altruism (Lipkin, 1987; Batson et al., 2009), and personal relevance to a topic (Acevedo & Krueger, 2004) were found to strengthen different types of influences on sympathy. The acceptance of both hypotheses 1a and 2 are in line with previous findings that witnessing other people's suffering affects emotional reactions (Dickert & Slovic, 2009). Moreover, the findings are pursuant to news image discourse research that demonstrates that the role of news images expands beyond merely visualizing information towards combining aspects such as suggestion with evidence, and emotion with reasoning (Zelizer, 2010). Thus, in accordance with the research findings supported by findings of previous studies, this study suggests that negative emotional cues in news images influence an increase of sympathy by the viewers towards subjects in the images.

While this study found a slightly less strong significant increase of sympathy influenced by news images with positive emotional cues, hypothesis 1b is thereby rejected. The expectation for this effect was that sympathy would not be increased following positive emotional cues, as would have been in accordance with findings that images portaying happy and smiling people

in it have previously failed to generate sympathy altogether (Baberini et al., 2015). These results could be explained by evaluating variables that were not included in this research. Namely, other studies have found social competence (Sallquist, 2009), relatability (Scheler, 2008) and personality (Grünn & Mendelsohn, 1986) to be mediators in the generation of sympathy, regardless of the absence or presence of negative or positive emotional cues. Moreover, considering that the experiment group with the condition of positive emotional cues had a less strong increase compared to the experiment group with the condition of negative emotional cues, the difference could be explained by the notion within advertising theories that images of happy people tap less strongly into the emotional appeal of the audience, as opposed to images of sad people (Coulter & Pinto, 1995; Pinto & Priest, 1991). Moreover, it was previously found that while positive emotional cues are likely to appeal to a viewers enjoyment and a higher positive attitude, these aspects are found to be less strong as an influence on sympathy than negative emotional cues (Moore & Harris, 1996). Though these aspects are not sufficiently considered in this research, other influences of positive emotional cues in news images could be explained by the principle of simply liking something (Cialdini, 1984). This study's findings indicate that while unexpected, positive emotional cues in news images do influence an increase of sympathy.

From previous studies of photojournalism we learn that while emotions were found to mediate behavior and intention of a viewer (Geise & Baden, 2015; Powell et al., 2015), the specific manner in which a news image can record a person visibly experiencing an emotion can influence a viewer to feel relatable emotions themselves, generating 'feelings' and sympathy towards the subject (Kobré, 2011). This study's findings resulted in a significantly present emotional cue recognition among both experiment groups and thusly demonstrate how the participants were able to recognize and understand the emotions of the subjects in the news

images. Consequentially, the participants for both groups showed an increased sympathy towards the subjects in the news images, which seems to be in line with the emotional hierarchy theory (Kobré, 2011) that was previously explored in this paper preceding the data collection. These findings are in accordance with Zelizer's (2010) notion that news images stimulate many different directions of interpretation due to their engagement through emotion and imagination. Moreover, the audience engages with news images when they recognize the seriousness of the situation relayed in the message of an image (Zelizer, 2010). Additionally, the acceptance of hypothesis 2 is in consonance with findings that the authentic presence of a current need (Lishner et al., 2011) and feeling moved by an issue (Rees, 2004) influence either generation and/or increase of sympathy. As expected, this study did not find a causal effect between the recognition of emotional cues and sympathy. In conclusion, however, one can say that this study's findings suggest that the recognition of emotional cues is necessary in order to generate feelings towards a subject.

8. Limitations and recommendations

Naturally, this study has suffered some limitations. This section serves to acknowledge them and address relevant recommendations where applicable.

As this study concentrated its focus on negative and positive emotional cues within the context of news images, though fitting to the scope of this research, the lack of depth into specific emotions is considered a limitation. Future research in this niche could benefit from an in-depth study on a specific set of emotions in order to identify those most prone to influence sympathy. Furthermore, this study evaluated sympathy as a whole, not concerning itself with widely recognized subscales of sympathy. Though not necessarily a limitation to this study, it could be a viable idea for future research to look into the effects of emotional cues in news images on specific feelings of sympathy such as compassion, concern and tenderness. A comprehensive study on such specific feelings of sympathy and their effects could provide the field with an expansion of knowledge regarding the formation of sympathy after news exposure.

Moreover, the findings on the relationship between emotional cues in news images and sympathy could possibly be a foundation for future research on the effects of sympathy in this similar research contexts. Further studies could explore the idea that when emotional cues in news images are moderated by sympathy, this could influence intentions and behaviors of the audience. Thus, future research could consider treating sympathy as a moderating variable to widen the scope of knowledge on the intentions or possibly even the behavior of news consumers.

One limitation that was previously mentioned in the method section of this paper relates to the survey method of this study. This quantitative method provided a wide scope of data, however, lacked in depth and detail. A deeper level of knowledge is required to truly understand

and explain the true nature of the relationship between news images and sympathy. As this study has obtained quite some knowledge to help fill the research gap, follow-up studies in this area could benefit from the in-depth insights that a qualitative research method provides.

In addition to this, the online distribution of the survey presents the limitation of social desirability bias as participants self-reported their measures of sympathy online. Moreover, while the relevance and timeliness of this study do not pose direct limitations, this study has learned from its mistakes and proposes recommendations to improve these matters. Though the initial story was published and available worldwide, the social issue presented in the stimuli material of the survey-experiment might not have been relevant to all participants. Therefore, the recommendation for replication or follow-up studies is to use either a fictional social issue, or a present one that affects the majority of the participant sample. This could ensure both relevance and timeliness to a higher degree.

Lastly, the scope of this master's thesis was financially limited in terms of sampling, which resulted in a skewed sample distribution in terms of gender and nationality. Because the skewness of participants' nationalities was an unanticipated limitation, it resulted in the lack of both relevant control variables such as cultural differences and questions to make a cross-cultural comparison of the study's findings. Recommendations for replication studies are to control the sample distribution more strongly to be able to provide the field with strong generalizations. Another recommendation for future research is to include a set of questions to the survey that would enable the study to make conclusions on a cross-cultural comparison of how news consumers are influenced across the globe.

9. Conclusion

The aim of this study was to compare the influences of negative and positive emotional cues in news images on sympathy towards victims of social issues. Before all else, this study carefully examined existing literature on the role of photojournalism, public opinion, social change through news images, influences of photography, emotional hierarchy theory, emotional cues and sympathy. This resulted in the formation of hypothesis 1a: negative emotional cues in news images increase sympathy towards victims of a social issue, and hypothesis 1b: positive emotional cues in news images do not influence sympathy towards victims of a social issue. Moreover, this study's literature review evaluated the existing literature on emotional hierarchy theory and the recognition of emotional cues in the context of generating feelings and sympathy. This examination of the theoretical knowledge areas resulted in the formation of hypothesis 2: emotional cues in news images are recognized by the viewer when emotional cues in news images influence sympathy. The comparison of the influences of negative and positive emotional cues in news images was done through a 'before and after' survey-experiment design among 437 participants. The statistical analysis concluded that participants presented with news images consisting of either negative or positive emotional cues, both exposures to the stimuli resulted in an increase of sympathy. Thus, the findings resulted in the acceptance of hypothesis 1a and the rejection of hypothesis 1b. During the experiment, the participants were asked a set of questions to evaluate whether they properly recognized the established emotional cues in the news images presented to them. The statistical analysis concluded that all participants scored high on emotional cue recognition. Therefore, with the findings that emotional cue recognition was present in the relationship between emotional cues in news images and sympathy, hypothesis 2 was accepted. This study's conclusion suggests that both negative and positive emotional cues in news images influence an increase of sympathy towards victims of social issues, in addition to emotional cue recognition being present in this process.

10. References

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Appendices

Appendix A: Full survey experiment design

Section 1: Introduction

Please take at this picture closely and answer some questions on the emotions you draw from this photo.



(n.d) Thailand – Long Neck Karen (Kayan) People, Chiang Mai. Derived on 19.02.2020 from <https://www.mypostcardmanager.ch/carddetails.cfm?cid=2&sel=11&card=5995&&user=suaithai&uid=1&sc=CF7E19B8>

Please indicate your level of agreement with the following statements on a scale of 1-5, where 1 is definitely disagree and 5 is definitely agree.

Questions measuring preexisting sympathy towards the Kayan women:

1. I personally feel a level of emotional involvement with the people in the images and their problems.
2. The emotions of these women affect me very much.
 - I personally feel ‘tenderness’ towards the people in the images.
 - I personally feel ‘moved’ by the people in the images.

Question options to facilitate randomization of the respondents into experiment or control groups:

In which of these combinations of months does your birthday fall?

- January, February, March, April (redirected to control group stimuli)
- May, June, July, August (redirected to experiment group 1 stimuli)
- September, October, November, December (redirected to experiment group 1 stimuli)

Section 2: Exposure

Please disregard the photo you reviewed in the previous section, and take a look at the following images carefully before continuing to answer some follow-up questions.

Experiment group 1: Negative emotional cues		
 Ways, D. (2015). Kayan Long-Necks and Tiger Kingdoms: Tourist Entertainment Thailand Style. <i>The Longest Way Home</i>. Derived on 19.02.2020 from thelongestwayhome.com/blog/travel-thailand/kayan-long-neck-tribes-tiger-kingdoms-tourist-entertainment-thailand/	 (n.d). Kayan Women in Myanmar (Burma). <i>Kayan Dream</i>. Derived on 19.02.2020 from kayandream.weebly.com/photos.html	 Foote, K. (2018). Ethical Travel: Should You Visit Thailand's Long Neck Women Villages? <i>Epicure & Culture</i>. Derived on 19.02 from epicureandculture.com/thailand-long-neck-women/
Experiment group 2: Positive emotional cues		
 Manning, W. (n.d) "Travel". Photo 11 out of 53. Derived on 19.02.20 from williammanning.com/portfolio/travel	 Wotton, C. (2019). "The History of Thailand's Kayan People". <i>Culture Trip</i>. Derived on 19.02.2020 from theculturetrip.com/asia/thailand/article/the-history-of-thailands-kayan-people/	 Hellier, G. (n.d) Portrait of a 'Long Necked' Padaung Tribe Woman. <i>Stocksy</i>. Derived on 19.02.2020 from stocksy.com/GHProductions/shoots

Caption of the images in the experiment groups:

Here you see news images of the Kayan tribe living in Myanmar. The women of this tribe are famous for the brass coils around their necks, which are a symbol of status and attractiveness. Contrary to popular belief, the rings do not actually make their necks longer. The women are happy to follow their tribe's tradition, as they feel proud to wear the brass coils.

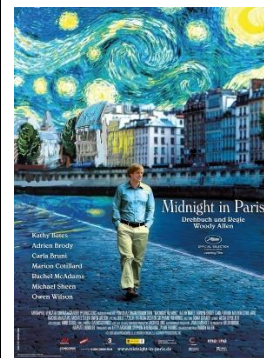
Control group: Unrelated visual materials



Expedition Happiness. (2017). IMDb. Derived on 19.02.2020 from [imdb.com/title/tt6688136/](https://www.imdb.com/title/tt6688136/)



Into the Wild. (2007). IMDb. Derived on 19.02.2020 from [imdb.com/title/tt0758758/](https://www.imdb.com/title/tt0758758/)



Midnight in Paris. (2011). IMDb. Derived on 19.02.2020 from [imdb.com/title/tt1605783/](https://www.imdb.com/title/tt1605783/)

Caption of the images in the control group:

Here is a selection of film posters from movies that cover the topics of travelling, self-development and adventure.

Section 3: Measures

Manipulation checks:

To help us understand which material you just reviewed, please tell us which statement is correct about the images you just saw:

- The Kayan women live in a refugee camp.
- The Kayan women are happy to share their culture with tourists in their village.
- I reviewed three posters from movies about travelling, adventure and self-development.
- I reviewed images of unconventional holiday destinations in South America.

Please indicate your level of agreement with the following statements on a scale of 1-5, where 1 is definitely disagree and 5 is definitely agree.

- I have learned a lot of new information from these images.
- Since reviewing the images in this survey, I have learned nothing new about the Kayan tribe.

Questions measuring emotional cue recognition:

Please indicate your level of agreement with the following statements on a scale of 1-5, where 1 is definitely disagree and 5 is definitely agree

- The people in the images looked sad.
- The people in the images looked vulnerable.
- The people in the images looked depressed.
- The people in the images looked helpless.
- The people in the images looked happy.
- The people in the images looked loving.
- The people in the images looked confident.
- The people in the images looked joyful.

Questions measuring sympathy:

Please indicate your level of agreement with the following statements on a scale of 1-5, where 1 is definitely disagree and 5 is definitely agree.

3. I get upset from seeing the people in the images suffering.
4. I feel a certain level of emotional involvement with the people in the images and their problems.
5. I feel very sorry for the people in the images and the problems they have.

6. The misfortunes of the people in the images disturb me a great deal.
7. I am touched by the emotions of the people in the images.
8. Seeing the people in the images has some effect on my feelings.

Please indicate your level of agreement with the following statements on a scale of 1-5, where 1 is definitely disagree and 5 is definitely agree.

- I personally feel ‘warm’ towards the people in the images.
- I personally feel ‘sympathetic’ towards the people in the images.
- I personally feel ‘compassionate’ towards the people in the images.
- I personally feel ‘tenderness’ towards the people in the images.
- I personally feel ‘moved’ by the people in the images.
- I personally feel ‘warmhearted’ towards the people in the images.

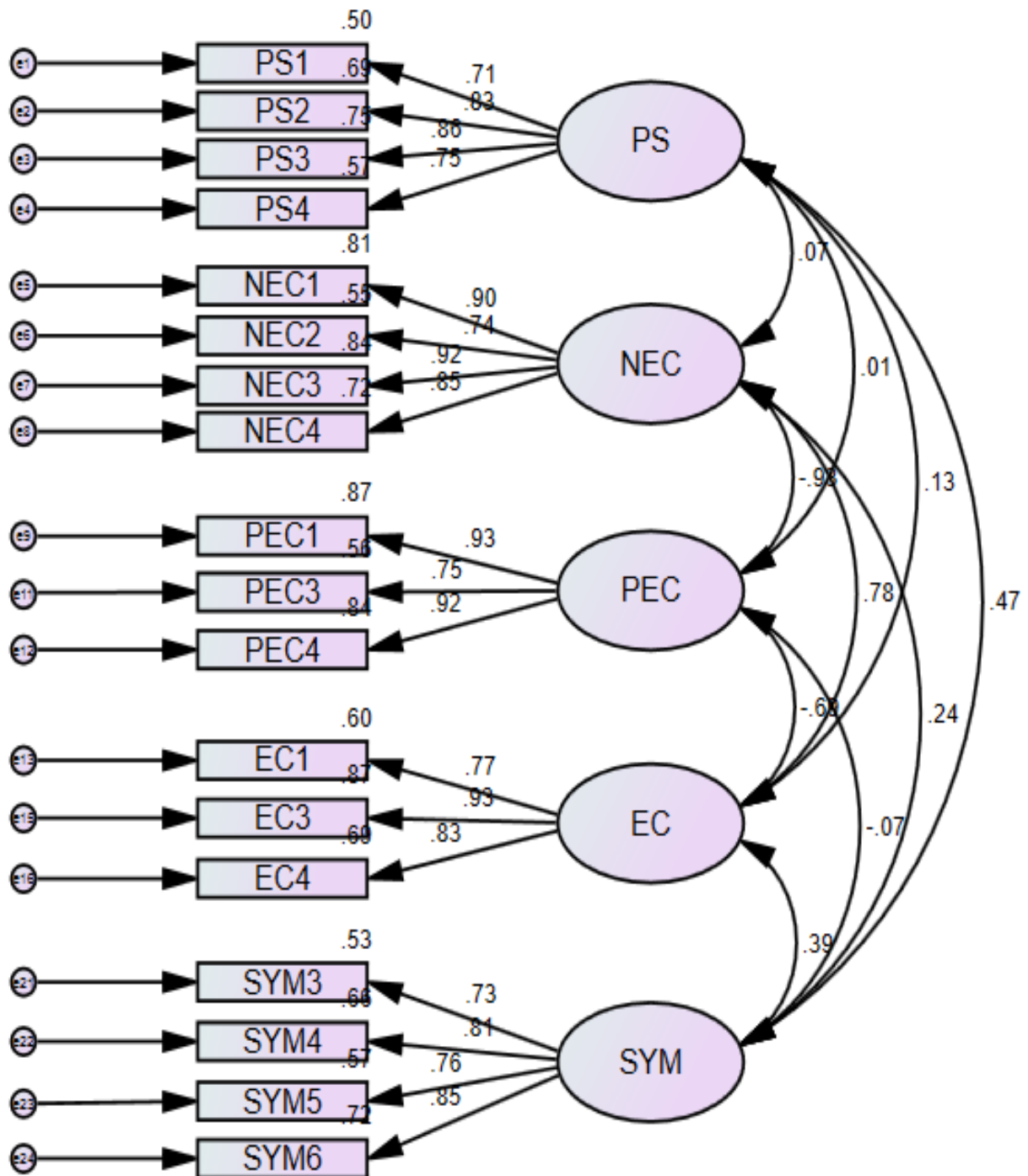
Section 4: Demographics

You are almost finished! Please take a short moment to answer some basic questions about yourself before completing the survey.

Basic demographic questions:

- What is your age?
- What is your gender?
- Where are you from?
- What is your employment status?
- What is your highest level of education?
- What is your yearly income?
- What is your marital status?

Appendix B: CFA Model design and output from AMOS



Finalized confirmatory factor analysis model in AMOS with standardized loadings.

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	64	331.126	125	.000	2.649
Saturated model	189	.000	0		
Independence model	36	5995.194	153	.000	39.184

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.945	.932	.965	.957	.965
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.817	.772	.788
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	206.126	155.997	263.923
Saturated model	.000	.000	.000
Independence model	5842.194	5592.284	6098.436

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.759	.473	.358	.605
Saturated model	.000	.000	.000	.000
Independence model	13.750	13.400	12.826	13.987

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.061	.054	.070	.010
Independence model	.296	.290	.302	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	459.126	464.958		
Saturated model	378.000	395.223		
Independence model	6067.194	6070.475		

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	1.053	.938	1.186	1.066
Saturated model	.867	.867	.867	.906
Independence model	13.916	13.342	14.503	13.923

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	201	217
Independence model	14	15

Scalar Estimates (Group number 1 - Default model)

Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
PS1	<---	PreexistingSympathy	1.000				
PS2	<---	PreexistingSympathy	1.093	.068	16.043	***	par_1
PS3	<---	PreexistingSympathy	1.225	.076	16.027	***	par_2
PS4	<---	PreexistingSympathy	1.093	.076	14.439	***	par_3
NEC1	<---	NegativeEmotionalCueRegocniton	1.000				
NEC2	<---	NegativeEmotionalCueRegocniton	.759	.038	19.719	***	par_4
NEC3	<---	NegativeEmotionalCueRegocniton	.939	.031	30.476	***	par_5
NEC4	<---	NegativeEmotionalCueRegocniton	.861	.034	25.049	***	par_6
PEC5	<---	PositiveEmotionalCueRecognition	1.000				
PEC7	<---	PositiveEmotionalCueRecognition	.673	.033	20.674	***	par_7
PEC8	<---	PositiveEmotionalCueRecognition	.940	.028	33.834	***	par_8
EC1	<---	EmpatheticConcern	1.000				
EC3	<---	EmpatheticConcern	1.228	.060	20.300	***	par_9
EC4	<---	EmpatheticConcern	1.013	.054	18.870	***	par_10
SYM6	<---	Sympathy	1.164	.071	16.325	***	par_11
SYM5	<---	Sympathy	1.078	.072	14.978	***	par_12
SYM4	<---	Sympathy	1.050	.066	15.959	***	par_13
SYM3	<---	Sympathy	1.000				

Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
PS1	<---	PreexistingSympathy	.710
PS2	<---	PreexistingSympathy	.831
PS3	<---	PreexistingSympathy	.864
PS4	<---	PreexistingSympathy	.755
NEC1	<---	NegativeEmotionalCueRegocniton	.903
NEC2	<---	NegativeEmotionalCueRegocniton	.742
NEC3	<---	NegativeEmotionalCueRegocniton	.916
NEC4	<---	NegativeEmotionalCueRegocniton	.847
PEC5	<---	PositiveEmotionalCueRecognition	.934
PEC7	<---	PositiveEmotionalCueRecognition	.750

	Estimate
PEC8 <--- PositiveEmotionalCueRecognition	.918
EC1 <--- EmpatheticConcern	.774
EC3 <--- EmpatheticConcern	.933
EC4 <--- EmpatheticConcern	.831
SYM6 <--- Sympathy	.846
SYM5 <--- Sympathy	.757
SYM4 <--- Sympathy	.814
SYM3 <--- Sympathy	.729

Intercepts: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
PS1	2.863	.053	54.393	***	par_24
PS2	2.632	.049	53.576	***	par_25
PS3	2.741	.053	51.794	***	par_26
PS4	2.902	.054	53.677	***	par_27
NEC1	2.517	.067	37.662	***	par_28
NEC2	3.016	.062	48.897	***	par_29
NEC3	2.389	.062	38.599	***	par_30
NEC4	2.398	.061	39.101	***	par_31
PEC5	3.206	.066	48.766	***	par_32
PEC7	3.336	.055	60.494	***	par_33
PEC8	3.135	.063	49.867	***	par_34
EC1	3.101	.065	47.745	***	par_35
EC3	2.787	.066	42.148	***	par_36
EC4	2.737	.061	44.685	***	par_37
SYM3	3.501	.050	70.102	***	par_38
SYM4	3.279	.047	69.848	***	par_39
SYM5	3.350	.052	64.662	***	par_40
SYM6	3.444	.050	68.767	***	par_41

Covariances: (Group number 1 - Default model)

		Estimate	S.E.	C.R.	P	Label
PreexistingSympathy	<-- NegativeEmotionalCue > Regocniton	.066	.052	1.256	.209	par_14
PreexistingSympathy	<-- PositiveEmotionalCue > Recognition	.015	.053	.282	.778	par_15
PreexistingSympathy	<-- EmpatheticConcern >	.105	.045	2.348	.019	par_16
Sympathy	<-- PreexistingSympathy >	.279	.040	7.062	***	par_17

			Estimate	S.E.	C.R.	P	Label
NegativeEmotionalCueRegocniton	<-->	PositiveEmotionalCueRecognition	-1.497	.116	-12.897	**	par_18
NegativeEmotionalCueRegocniton	<-->	EmpatheticConcern	1.030	.096	10.773	**	par_19
Sympathy	<-->	NegativeEmotionalCueRegocniton	.227	.054	4.195	**	par_20
PositiveEmotionalCueRecognition	<-->	EmpatheticConcern	-.930	.091	-10.183	**	par_21
Sympathy	<-->	PositiveEmotionalCueRecognition	-.067	.053	-1.278	.201	par_22
Sympathy	<-->	EmpatheticConcern	.311	.050	6.185	**	par_23

Correlations: (Group number 1 - Default model)

		Estimate
PreexistingSympathy	<-->	NegativeEmotionalCueRegocniton .067
PreexistingSympathy	<-->	PositiveEmotionalCueRecognition .015
PreexistingSympathy	<-->	EmpatheticConcern .128
Sympathy	<-->	PreexistingSympathy .471
NegativeEmotionalCueRegocniton	<-->	PositiveEmotionalCueRecognition -.926
NegativeEmotionalCueRegocniton	<-->	EmpatheticConcern .779
Sympathy	<-->	NegativeEmotionalCueRegocniton .237
PositiveEmotionalCueRecognition	<-->	EmpatheticConcern -.691
Sympathy	<-->	PositiveEmotionalCueRecognition -.069
Sympathy	<-->	EmpatheticConcern .390

Variances: (Group number 1 - Default model)

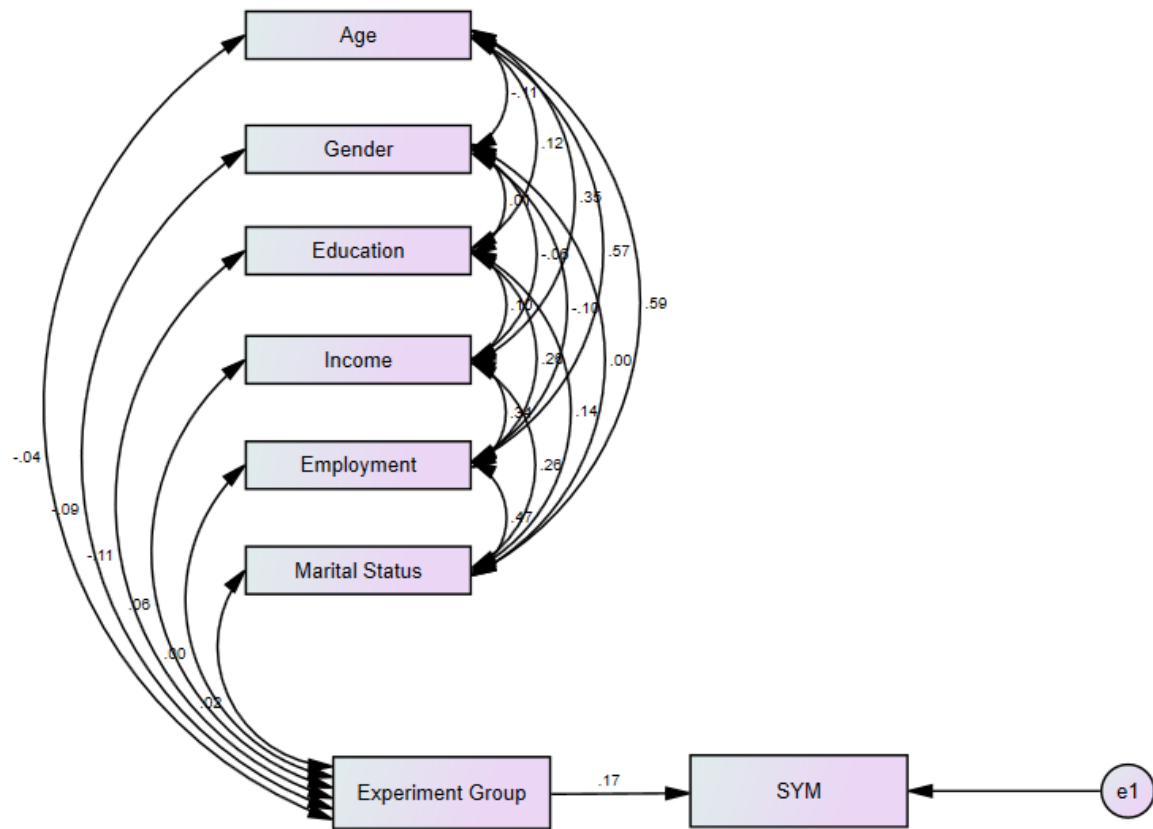
	Estimate	S.E.	C.R.	P	Label
PreexistingSympathy	.608	.075	8.106	***	par_42
NegativeEmotionalCueRegocniton	1.587	.131	12.077	***	par_43
PositiveEmotionalCueRecognition	1.645	.128	12.804	***	par_44
EmpatheticConcern	1.102	.119	9.284	***	par_45
Sympathy	.578	.069	8.398	***	par_46
e1	.600	.047	12.684	***	par_47
e2	.326	.032	10.125	***	par_48
e3	.309	.035	8.768	***	par_49
e4	.548	.045	12.105	***	par_50
e5	.360	.033	11.049	***	par_51
e6	.744	.054	13.762	***	par_52

	Estimate	S.E.	C.R.	P	Label
e7	.270	.026	10.360	***	par_53
e8	.463	.037	12.472	***	par_54
e9	.239	.027	8.762	***	par_55
e11	.580	.043	13.600	***	par_56
e12	.270	.027	10.009	***	par_57
e13	.737	.060	12.364	***	par_58
e15	.245	.042	5.843	***	par_59
e16	.506	.045	11.260	***	par_60
e21	.509	.041	12.378	***	par_61
e22	.324	.030	10.751	***	par_62
e23	.499	.042	11.894	***	par_63
e24	.310	.033	9.458	***	par_64

Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
SYM6	.717
SYM5	.574
SYM4	.663
SYM3	.532
EC4	.691
EC3	.871
EC1	.599
PEC8	.843
PEC7	.563
PEC5	.873
NEC4	.718
NEC3	.838
NEC2	.551
NEC1	.815
PS4	.570
PS3	.747
PS2	.690
PS1	.503

Appendix C: Model design and output from AMOS



Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	30	7.531	6	.275	1.255
Saturated model	36	.000	0		
Independence model	8	521.826	28	.000	18.637

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.018	.996	.974	.166
Saturated model	.000	1.000		
Independence model	.396	.741	.668	.577

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.986	.933	.997	.986	.997

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.214	.211	.214
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	1.531	.000	12.813
Saturated model	.000	.000	.000
Independence model	493.826	423.364	571.715

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.017	.004	.000	.029
Saturated model	.000	.000	.000	.000
Independence model	1.197	1.133	.971	1.311

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.024	.000	.070	.780
Independence model	.201	.186	.216	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	67.531	68.795	189.929	219.929
Saturated model	72.000	73.518	218.878	254.878
Independence model	537.826	538.163	570.465	578.465

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	.155	.151	.181	.158
Saturated model	.165	.165	.165	.169
Independence model	1.234	1.072	1.412	1.234

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	730	974
Independence model	35	41

Scalar Estimates (Group number 1 - Default model)

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
SYM <--- Group	.175	.049	3.590	***	

Standardized Regression Weights: (Group number 1 - Default model)

	Estimate
SYM <--- Group	.169

Covariances: (Group number 1 - Default model)

		Estimate	S.E.	C.R.	P	Label
MaritalStatus <--> Group		.015	.040	.367	.714	
Group <--> Income		.097	.082	1.176	.240	
Group <--> Education		-.102	.044	-2.302	.021	
Group <--> Gender		-.030	.017	-1.779	.075	
Group <--> Age		-.051	.056	-.916	.360	
Group <--> Occupation		.001	.059	.021	.983	
Gender <--> Age		-.065	.030	-2.200	.028	
Education <--> Age		.199	.078	2.568	.010	
Income <--> Age		1.044	.152	6.880	***	
Age <--> Occupation		1.223	.119	10.279	***	
MaritalStatus <--> Age		.854	.081	10.609	***	
Education <--> Gender		.003	.023	.119	.905	
Income <--> Gender		-.051	.043	-1.175	.240	
Gender <--> Occupation		-.065	.031	-2.079	.038	
MaritalStatus <--> Gender		.000	.021	.008	.994	
Income <--> Education		.241	.113	2.131	.033	
Education <--> Occupation		.445	.084	5.295	***	
MaritalStatus <--> Education		.163	.055	2.962	.003	
Income <--> Occupation		1.073	.160	6.719	***	
MaritalStatus <--> Income		.540	.105	5.166	***	
MaritalStatus <--> Occupation		.715	.081	8.847	***	

Correlations: (Group number 1 - Default model)

			Estimate
MaritalStatus	<-->	Group	.018
Group	<-->	Income	.056
Group	<-->	Education	-.111
Group	<-->	Gender	-.086
Group	<-->	Age	-.044
Group	<-->	Occupation	.001
Gender	<-->	Age	-.106
Education	<-->	Age	.124
Income	<-->	Age	.349
Age	<-->	Occupation	.566
MaritalStatus	<-->	Age	.590
Education	<-->	Gender	.006
Income	<-->	Gender	-.056
Gender	<-->	Occupation	-.100
MaritalStatus	<-->	Gender	.000
Income	<-->	Education	.103
Education	<-->	Occupation	.262
MaritalStatus	<-->	Education	.143
Income	<-->	Occupation	.340
MaritalStatus	<-->	Income	.255
MaritalStatus	<-->	Occupation	.468

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
MaritalStatus	1.024	.069	14.765	***	
Group	.670	.045	14.765	***	
Income	4.371	.296	14.765	***	
Education	1.261	.085	14.765	***	
Gender	.185	.013	14.765	***	
Age	2.049	.139	14.765	***	
Occupation	2.281	.154	14.765	***	
e1	.694	.047	14.765	***	

Matrices (Group number 1 - Default model)

Total Effects (Group number 1 - Default model)

	Group
SYM	.175

Standardized Total Effects (Group number 1 - Default model)

	Group
SYM	.169

Direct Effects (Group number 1 - Default model)

	Group
SYM	.175

Standardized Direct Effects (Group number 1 - Default model)

	Group
SYM	.169

Indirect Effects (Group number 1 - Default model)

	Group
SYM	.000

Standardized Indirect Effects (Group number 1 - Default model)

	Group
SYM	.000

Appendix D: Table 4 - Paired samples statistics

Table 4. Descriptive stats for the experiment groups before and after manipulation.

Paired Samples Statistics

GROUPS			Mean	N	Std. Deviation	Std. Error Mean
Control group	Pair 1	PS	2.8419	136	.96456	.08271
		SYM	2.6313	136	.68689	.05890
	Pair 2	SYM	2.6313	136	.68689	.05890
		ECR	2.2794	136	.68188	.05847
Experiment group 1	Pair 1	PS	2.7727	143	.91299	.07635
		SYM	3.8402	143	.72477	.06061
	Pair 2	SYM	3.8402	143	.72477	.06061
		ECR	3.9051	143	.65112	.05445
Experiment group 2	Pair 1	PS	2.7453	158	.89828	.07146
		SYM	3.0307	158	.65323	.05197
	Pair 2	SYM	3.0307	158	.65323	.05197
		ECR	1.8698	158	.75840	.06033

Appendix E: Table 5 – Paired samples test

Table 5. Difference in sympathy before and after experimentation and controlling for emotional cue recognition.

Paired Samples Test

GROUPS			Paired Differences					t	Sig.
				Std. Deviation	Std. Error Mean	95% CI			
						Lower	Upper		
Control group	Pair 1	PS - SYM	.21	.940	.080	.051	.370	2.61	.010
	Pair 2	SYM -ECR	.35	.908	.078	.199	.506	4.52	.000
Ex. group 1	Pair 1	PS -SYM	-1.1	.878	.073	-1.21	-.922	-14.5	.000
	Pair 2	SYM - ECR	-.06	.717	.060	-.183	-.054	-1.08	.281
Ex. Group 2	Pair 1	PS – SYM	-.28	.879	.071	-.434	-.147	-4.08	.000
	Pair 2	SYM - ECR	1.16	.882	.070	1.02	1.30	16.6	.000

Appendix F: Table 6 – Group statistics

Table 6. Group Statistics

	GROUPS	N	Mean	Std. Deviation	Std. Error Mean
PS	Control group	136	2.8419	.96456	.08271
	Experiment group 1	143	2.7727	.91299	.07635
	Experiment group 2	158	2.7453	.89828	.07146
SYM	Control group	136	2.6313	.68689	.05890
	Experiment group 1	143	3.8402	.72477	.06061
	Experiment group 2	158	3.0307	.65323	.05197
ECR	Control group	136	2.2794	.68188	.05847
	Experiment group 1	143	3.9051	.65112	.05445
	Experiment group 2	158	1.8698	.75840	.06033

Appendix G: Table 7 – Independent samples test

Table 7. Independent Samples Test: control group & experiment group 1

	t-test for Equality of Means						
	t	df	Sig.	Mean Differen ce	Std. Error Differen ce	95% CI	
						Lower	Upper
PS	.615	277	.539	.070	.112	-.152	.290
SYM	-14.3	277	.000	-1.21	.085	-.1.38	-1.04
ECR	-20.3	277	.000	-1.63	.080	-1.78	-1.47

Appendix H: Table 8 – Independent samples test

Table 8. Independent Samples Test: control group & experiment group 2

	t-test for Equality of Means						
	t	df	Sig.	Mean Differen ce	Std. Error Differen ce	95% CI	
						Lower	Upper
PS	.889	292	.375	.097	.109	-.117	.311
SYM	-5.10	292	.000	-.400	.078	-.553	-.245
ECR	4.84	292	.000	.410	.085	.243	.576

Abstract

This study evaluates the role of emotional cues in photojournalism on sympathy towards victims of social issues. This paper explores relevant theories and literature in order to subsequently tests whether (H1a) negative emotional cues in news images of a social issue increase sympathy towards victims, (H1b) positive emotional cues in news images about a social issue do not influence sympathy towards victims of that issue, and whether (H2) news images of social issues influence sympathy when emotional cues are recognized in the image. These hypotheses were tested by means of an online survey experiment, in which news images of victims of a social issue were applied as stimuli to identify how positive and negative emotional cues in news images influence sympathy among the respondents.

Keywords: photojournalism, news images, sympathy, emotional cues, visual framing, social issues.

Kurzfassung

Diese Studie bewertet die Funktion emotionaler Auslösereize im Bereich des Fotojournalismus, der sich auf die Sympathie gegenüber Opfer sozialer Themen bezieht. In dieser Arbeit werden relevante Theorien und Literatur untersucht, um anschließend zu testen ob (H1a) negative emotionale Reize in Nachrichtenbildern mit Darstellung eines sozialen Problems die Sympathie für dargestellte Opfer erhöhen, (H1b) positive emotionale Reize in Nachrichtenbildern mit Darstellung eines sozialen Problems die Sympathie für dargestellte Opfer nicht beeinflussen und ob (H2) Nachrichtenbilder mit Darstellung von sozialen Problemen die Sympathie beeinflussen, wenn emotionale Reize im Bild erkannt werden. Diese Hypothesen wurden in einem Experiment mit Hilfe einer Online-Umfrage getestet, bei der Nachrichtenbilder von Opfern eines sozialen Problems als Stimuli verwendet wurden, um zu identifizieren wie positive und negative emotionale Reize in Nachrichtenbildern die Sympathie unter den Befragten beeinflussen.

Schlüsselwörter: Fotojournalismus, Nachrichtenbilder, Sympathie, emotionale Reize, visuelle Gestaltung, soziale Probleme.