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Table of contents

1. Theoretical Background	1
1.1. The definition of culture	1
1.1.1. <i>Cultural themes</i>	1
1.1.2. <i>Cultural groups</i>	2
1.2. The relationship of culture and psychological processes	3
1.3. Cultural differences in attention in adult samples	4
1.3.1. <i>Behavioural cognitive tasks</i>	5
1.3.2. <i>Neurological findings</i>	7
1.4. Cultural differences in attention development	8
1.5. Cultural transmission	10
1.6. Characteristics of early interactions	11
1.7. Learning in triadic interactions.....	12
1.9. The influence of culture on early social interactions	15
1.10. Underlying distal cultural factors.....	16
1.10.1. <i>Two basic modes of parental strategies</i>	17
1.10.2. <i>Socialization goals and parenting styles.</i>	18
2. Research questions and hypotheses	20
2.1. Hypotheses	21
3. Methods	22
3.1. Research design	22
3.2. Participants	22
3.2.1. <i>Recruitment</i>	22
3.2.2. <i>Demographic data</i>	23
3.3. Study procedure and stimuli.....	24
3.4. Measures	25

3.4.1. <i>Behavioural data and coding</i>	25
3.4.2. <i>Socialization goals questionnaire</i>	27
3.5. Statistical analyses	28
3.5.1. <i>Maternal pointing to object/background</i>	28
3.5.2. <i>Looking behaviour in pre-and post-phases</i>	28
3.5.3. <i>Looking behaviour during the joint attention phase</i>	29
3.5.4. <i>Socialization goals</i>	29
4. Results	29
4.1. Culture specific guidance: pointing behaviour	29
4.1.1. <i>Proportion of pointing to object in comparison to background</i> .	29
4.1.2. <i>Proportion of pointing: first/second pointing comparisons</i>	30
4.2. Infants' looking behaviour	31
4.2.1. <i>Baseline comparison (Pre-phase)</i>	31
4.2.2. <i>Change of attention over time (Pre- to post-phase)</i>	32
4.2.3. <i>Attention during joint attention</i>	32
4.3. Socialization goals.....	33
5. Discussion	34
5.1. Limitations and implications for future studies	36
5.2. Conclusion	38
References.....	39
Figure Captions.....	49
Table Captions	49
Abstract (english).....	50
Abstract (german)	51
Appendix.....	52

1. Theoretical Background

Most psychological phenomena are finely attuned to the context within which they occur (Csibra & Gergely, 2009; Mundy & Newell, 2007). Cross-cultural research reveals a specific influence of culture on the development of various psychological domains, including motivation, emotional experience or cognition and perception (Heine & Ruby, 2010).

1.1. The definition of culture

To describe the term *culture*, many different aspects must be taken into consideration. Miyamoto and Eggen (2013) speak of culture as “explicit and implicit patterns of historically derived and transmitted values and ideas that manifest in institutions, practices, and artifacts” (p. 595).

Given this definition, different levels of culture become obvious (Markus & Hamedani, 2018). On a basic level, individuals with their respective thoughts, attitudes, emotions, and behaviours are interacting with other people, while being guided by shared norms and ideas. At the same time, they are getting in touch with culture driven products, such as media, art, or architecture. These kinds of interactions are embedded within a specific institutional context, which includes religious, legal, economic, and educational areas and are associated with different roles, structures, and policies. Collectively this results in the so called *ideas level*, which comprises of shared ideologies, values and beliefs (Markus & Hamedani, 2018). The authors emphasize the reciprocity of all levels, by describing that “sociocultural patterns condition people’s actions, and people’s actions, in turn, reinforce and change cultures” (p. 14). Accordingly, they refer to cultural contexts “as a label for any significant social category associated with shared ideas and practices that organize people’s experiences and behaviour” (p. 11-12).

1.1.1. Cultural themes

Values and ideas that are shared within specific cultural groups are reflected in common cultural themes (Miyamoto & Eggen, 2013). In the context of discussion of relevant themes, the social orientation hypothesis has received particular attention. It got initially proposed by Markus and Kitayama (1991) and assumes that people from different cultures differ in their way of seeing themselves and others. People with an independent view are identifying as outstanding, autonomous individuals that are

distinct from their surrounding relations. Self-defining attributes such as preference, traits, abilities and other individual qualities are emphasized (Heine, 2016). In comparison, people with an interdependent view themselves as part of their social relationships by being dependent on others' perceptions and opinions (Heine, 2016). The ability to adjust and to keep in harmony with the social context are regarded as important features of the self. Rather than focusing on internal attributes, the public self with its inherent roles and statutes is given special notice (Markus & Kitayama, 1991).

In line with this approach, Varnum et al. (2010) referred to independently oriented cultures as "emphasizing self-direction, autonomy, and self-expression" (p.9) and interdependently oriented ones as "emphasizing harmony, relatedness, and connection" (p.9).

Varying social orientations have been described as characteristics of individualist and collectivist cultures, which Triandis (2001) defined as favouring an independent (individualist) or an interdependent (collectivist) self-construal, as prioritising personal goals (individualist) or common goals (collectivist) and as aligning one's behaviour with personal attitudes (individualist) or with existing standards and norms (collectivist).

Hofstede (2011) further constructed a model of cultural dimensions based on a large survey from the 1980s, conducted within organizations of more than 40 countries. He suggested four relevant themes of cultures: power distance, masculinity, uncertainty avoidance and individualism versus collectivism, with the latter having become the most studied dimension in the field of cultural psychology. According to his theory, collectivism differs from individualism in the "degree to which people in a society are integrated into groups" (p.7), with those from collective cultures showing high cohesiveness within groups, including extended family networks.

1.1.2. Cultural groups

Cultural themes can vary across a wide range of cultural groups. Concerning the themes of individualism/collectivism and interdependence/independence, cultural groups are mostly operationalized in terms of geographical locations (Cohen, 2009; Miyamoto & Eggen, 2013), namely by comparing groups of individuals from different countries or regions. As initially proposed by Markus and Kitayama (1991), an independent orientation would be most clearly exemplified in North American and many Western European cultures. The interdependent orientation would be most

exemplified in Non-Western urban contexts of Japanese and other East Asian cultures, but would be also prevalent in African, Latin-American and many southern European cultures. Cohen (2009) stressed the role of other understudied cultures, for example those related to religion, socioeconomic status or region within a country. For regions within a country, he referred to variables such as the percentage of single households, the percentage of people with religious affiliations or population density, which may account for differences in social orientations as well.

The focus of the current work will be in line with approach of Markus and Kitayama (1991) and will be based on comparisons on geographical level.

1.2. The relationship of culture and psychological processes

Cultural variation in social orientations are argued to have important implications for cognition, such as they shape the way individuals think and perceive the world (Heine, 2016). More specifically, a major research branch focuses on how different social orientations manifest in cognitive processes via specific thinking styles (Nisbett et al., 2001; Varnum et al., 2010; Witkin & Berry, 1975). The research tradition of Nisbett et al. (2001) distinguishes holistic thinking from analytic thinking. An *analytic style* is described as an object-oriented focus, namely

“the tendency to focus on a single dimension or aspect - whether in categorizing objects or evaluating arguments - and a tendency to disentangle phenomena from the contexts in which they are embedded - for example, focusing on the individual as a causal agent or attending to focal objects in visual scenes” (Varnum et al., 2010, p. 9).

A *holistic style*, in contrast, relates to a context-oriented focus, including “a broad attention to context and relationships in visual attention, categorizing objects, and explaining social behaviour” (Varnum et al., 2010, p. 9). Both definitions reflect the assumption that thinking styles affect a wide range of cognitive processes, including the areas of categorization, reasoning, attribution of events or attention (Varnum et al., 2010).

The model is based on the comparison of urban Western (North American and Western European), and urban East Asian (East and South Asia) cultural contexts, that are suggested to differ in their social orientations and respective thinking styles (Markus & Kitayama, 1991). The West is referred to as a prototypical independently

oriented context, where an analytic focus is mostly prevalent, while East Asia is pictured as typically interdependently oriented with a holistic focus.

Nisbett et al. (2001) argued that differences in holistic and analytic thinking would be rooted in different ecological environments of Ancient Greece and China. Ancient Greece has been associated with ecologies based on solitary activities of herding and fishing, which would mostly foster an independent social orientation. In contrast, the ecology of Ancient China has been connected to large-scale agriculture of labour-intensive farming, which would mostly require social cooperation and foster an interdependent social orientation.

A similar line of research on differences in thinking styles was followed by Witkin and Berry (1975), based on the comparison of urban industrialized and interdependently oriented, subsistence-based rural contexts (Čeněk & Čeněk, 2015). Characteristics of respective cultural contexts are going to be discussed in a later chapter.

Following these research traditions, an array of studies has reported cross-cultural differences in cognition across several domains, among which attention focus is one of the most widely studied fields (Imada et al., 2013). Based on the approach of Witkin and Berry (1975) and Nisbett et al. (2001), the comparison of two attentional styles got established. *Field dependence* has been described as a perception mode “that is dominated by the organization of the field in which it is contained, so that an item cannot easily be disembedded from its context” (Witkin & Berry, 1975, p.4), while *field independence* has been referred to as a perception mode, where the “organization of the prevailing field is less influential in determining the way which part of the field is experienced, so that an item can easily be disembedded from its surrounding field” (Witkin & Berry, 1975, p. 4-5). Accordingly, Nisbett et al. (2001) referred to the same concepts under the umbrella term of context-sensitivity. Regarding the above-mentioned thinking styles, an analytic thinker has been described as less context sensitive (field independent) and a holistic thinker as more context-sensitive (field dependent) (Heine, 2016).

1.3. Cultural differences in attention in adult samples

Cross-cultural differences in attentional styles could be found across a variety of measures, including behavioural and neural tasks and are covering different age

groups (Miyamoto & Eggen, 2013). An overview is given, starting with results from adult samples and continuing with findings across the lifespan. With respect to the focus of this thesis, an emphasis is going to be put on the classical comparison of Western and East Asian, urban industrialized contexts, while comparisons within rural contexts will not be discussed in detail.

1.3.1. Behavioural cognitive tasks

One of the first studies, conducted by Masuda and Nisbett (2001), consisted of a visual description task. Japanese (East Asian) and American (Western) adults had to recall previously presented underwater scenes of focal fish (object) in front of complex surroundings. While Japanese participants made more references to the background or relations between background and object, thus being more context-sensitive, American participants rather focused on the fish (object) itself, therefore being less context-sensitive. In a subsequent task, participants had to recognize previously shown objects among new ones, which were embedded within original or altered backgrounds or had no backgrounds. Overall, Japanese participants, in contrast to American, participants made more errors on object recognition when presented with novel backgrounds. This was explained by a higher context-sensitivity, thus a difficulty to detach an object from its original background. At the same time, their judgements were significantly faster in the original background condition, which was assumed to be due to their advantageous scene encoding strategy of binding object and background.

Doherty et al. (2008) extended this finding to low level visual processes in an optical illusion task, where the impact of a context on size perception was observed. Participants from Japan and the United States (U.S.) were asked to discriminate the sizes of centred circles surrounded by circles of either bigger or smaller sizes. While both cultures adjusted the estimated size of the circles according to the surrounding circles, Japanese participants were more deceived by the surrounding ones than American participants and therefore more context-sensitive in their judgements.

In addition to findings of higher context sensitivity, participants from both cultural contexts also differed in attentional breadth. Boduroglu et al. (2009) compared a multicultural East Asian sample (with the majority of participants living on average for 1,91 years in the United States) with a sample of American citizens. In a colour change detection task, consisting of neutral, culture-free stimuli, participants had to detect the colour change of squares between two visual displays. East Asians were significantly

faster at detecting colour changes in conditions where the location of squares was displaced to a broader region between the first and second display. At the same time, they were relatively slower in conditions that required the allocation of attention to be more centred. The authors attributed these findings to a tendency in the East Asian sample to have an attentional focus to a wider region and therefore performing better in conditions that included changes in the periphery of the visual display.

Participants' responses in previous studies used measures that mainly consisted of verbal accounts or required a computer-assisted reaction to a stimulus. However, culture-specific attentional patterns were also reflected in measures of gaze behaviour.

In an eye-tracking study of Senzaki et al. (2014) eye movements of Canadian and Japanese participants were analysed. Specifically, attention was measured as total duration of gaze fixation to areas of interests. Participants had to watch underwater scenes of focal, salient objects in front of backgrounds. In a first passive observation condition, the two groups did not significantly differ, with salient objects receiving the most attention by both groups. In a second condition, participants were asked to observe the scenes while providing a description of what they see. While the focal objects still received the most attention by both cultures, Japanese participants fixated longer and referred more often to the background than Canadians. According to the authors, attention in the first condition might have been bottom-up driven, suggesting that attention has been captured to a similar degree across cultures due to the saliency of objects. In the second condition, the cultural effects were thought to be top-down driven, meaning that cultural dominant modes of attention have been elicited by the active construction of narratives. This latter finding aligns with the assumption that cultural differences of attention are most pronounced when participants are engaged in goal-oriented tasks (Senzaki et al., 2014).

To date, studies focused on the classical East-West comparison. However, as previously mentioned, cultural differences were also found when contrasting rural and urban contexts (Mavridis et al., 2020). Participants from urban and rural environments in Brazil were compared in their context-sensitivity across several visual attention tasks. Participants from urban Brazil showed higher context-sensitivity, by being more easily misled by context elements in an optical illusion task and remembering more background elements in a picture recognition task. Differences in context-sensitivity were attributed to differences in the complexity of the respective visual environments.

Urban environments were described to be filled with greater visual and social clutter, thus leading to higher levels of context-sensitivity.

The aforementioned studies show that cultural differences in context-sensitivity can be found across a wide array of stimuli and task types. Besides these findings on behavioural level, a branch of research also focuses on neurological measures of culture-specific attention.

1.3.2. Neurological findings

Cross-cultural neuroscience discusses the neuroplasticity of the human brain, namely its adaption to and dependency on the sociocultural environment (Han et al., 2013). Neurological studies examined cultural differences in brain functions involved in cognitive and perceptual processes.

Electroencephalography (EEG) is an electrophysiological method that allows to assess brain activity by detecting the activity of neurons via electrodes placed on the scalp. EEG measures postsynaptic potentials of the pyramidal cells of the cortex (Hoehl & Pauen, 2014). Several measures of EEG were related to attention processes (Saby & Marshall, 2012).

One measure is the event-related potential (ERP). ERPs are elicited as components in response to the presentation of individual stimuli (Saby & Marshall, 2012). In an ERP study, Goto et al. (2010) investigated the processing of semantic relationships between background and object images. East Asian and North American participants watched different background scenes in which pictures of either incongruent or congruent objects (relative to the background) were inserted (e.g. a crab on a parking lot versus on the beach). Their main task was to decide whether the focal object was animate or inanimate. At the same time, the negative ERP component N400 was used to measure the brain's response to semantic incongruity between object and background, with a higher amplitude indicating higher semantic processing for the integration of incongruous information. East Asians showed a higher N400 in incongruent trials than in congruent trials, while North Americans did not differ in trial type. This was interpreted in accordance with Nisbett et al. (2001), namely as a stronger holistic focus of East Asians and therefore a higher sensitivity to incongruous relationships between foreground and background.

Another neurological evidence stems from the comparison of functional magnetic resonance imaging (fMRI) data. fMRI is a non-invasive method that records blood-oxygen-level dependent (BOLD) brain activity, associated with specific stimuli or tasks

(Han et al., 2013). Han and Ma (2014) summarized several fMRI studies that focused on differences in brain activity between East Asian and Western cultures. In their meta-analysis, they concluded that non-social tasks requiring the processing of perceptual features, mostly induce activity in posterior parts of the brain. For instance, in a study of Gutchess et al. (2006), East Asian and American participants were presented three versions of pictures: only object, only background or an object against a background. In an initial task there was no group difference in how pleasant pictures were rated. In a subsequent cognitive task, participants had to recognize previously shown pictures among new ones, while their brain activity was recorded with fMRI. Results showed that Americans, relative to East Asians, exhibited greater activation in posterior cortical regions that were associated with processing of semantic and spatial information of objects, suggesting a stronger analytic, object-oriented processing.

1.4. Cultural differences in attention development

Such intriguing findings from adult samples indicating cross-cultural differences in attentional processes paved the way for further research that aims to investigate when attentional styles start to differ in the course of the lifespan.

As suggested in a review of Masuda (2017), the age at which children show culture specific attention seems to partly depend on cognitive task demand, which ranges from basic cognitive tasks (Kuwabara & Smith, 2012) to tasks requiring higher cognitive abilities such as verbal accounts (Imada et al., 2013).

Based on the assumption of an East Asian holistic and a Western analytic style, cultural differences were observed already at the age of 4 in a study of Kuwabara and Smith (2012). In a basic relational matching task, 4-year-old participants from Japan and the U.S. were asked to identify a relational match between geographical figures of a target display and two other choice displays. Japanese children found more relational matches between the displays than U.S. children. Especially, U.S. children's object focus was assumed to impair their performance in conditions that involved richly detailed objects distracting them from the relational array of the display. On the other hand, U.S. children performed better in a second visual search task, where they were relatively faster at detecting a single target within a relationally coherent scene than Japanese children.

However, whether culture-specific attention styles really already manifest in preschool age is still of debate (Duffy et al., 2009; Imada et al., 2013). Duffy et al. (2009), in contrast to Kuwabara and Smith (2012), did not find any cultural differences in a young age group, testing Northern American and Japanese children aged 4 to 13. In a framed-line-task of Duffy et al. (2009), participants were first presented with a square frame including a vertical line, followed by the presentation of an empty frame of either the same, smaller or bigger size. They were then asked to reproduce the previously shown line in its absolute length (absolute task) or in the same relative proportion to the height of the surrounding frame (relative task). Both Japanese and North American children of 6 to 13 years improved in task performance with age. Additionally, there was a significant cultural difference with Japanese children performing better in the relative task, asking them to take the frame (context) more into account, and U.S. children performing better in the absolute task, requiring them to focus on the line (object) itself. However, in the same study, this difference was not yet to be found in a sample of kindergarteners (age range: 3 to 6 years), where all children performed better in the relative task.

Inconsistent findings of cultural differences in attention in preschool children might be traced back to the fact that studies often only use one task type and age group, which makes the interpretation of results more difficult. Hence, Imada et al. (2013) tested children of three age groups (4-5, 6-7 and 8-9 years) who completed two typical context-sensitivity tasks that have already been described in the previous chapter for adult samples. Both in the modified version of the verbal description task of Masuda and Nisbett (2001) and an optical illusion task of Doherty et al. (2008) there was a significant cultural difference, with Japanese children providing more descriptions of background objects and having a higher susceptibility to illusion by surrounding circles than American children. However, this cultural effect was only significant for the two older age groups (6-9 years), but not for the younger age group of 4-5 years.

Similarly, Köster et al. (2018) came to contrary conclusions, testing a sample of 5-year-old preschool children from Germany (Western context) and Japan (East Asian context) across several tasks. In an optical illusion task, there was no cultural difference at all. In a picture description task, Japanese children referred more often to objects (being less context-sensitive), which was the opposite of the expected hypothesis of higher context-sensitivity in East Asian samples. On the other hand, in

an eye-tracking paradigm, Japanese children were more context-sensitive by having first fixations on the object significantly later than German children.

While in younger age groups findings appear rather inconsistent, cultural differences in attention seem to become most noticeable between the ages of 5 and 6, with the experience of schooling (Köster et al., 2018). In line with this, the specific developmental course of attention strategies is discussed. It is suggested that culture specific attention gradually develops with age, cognitive abilities and culturally mediated learning experience (Duffy et al., 2009), starting to be rather diffuse across tasks in preschool years and turning to a more coherent pattern at later age Köster et al. (2018).

1.5. Cultural transmission

In the light of findings of cross-cultural differences in children and adults, the question arises, how variations in attentional styles are culturally transmitted. Miyamoto and Wilken (2014) describe cultural influences on two levels. On a distal level the authors discuss how differences in visual, physical and social environments influences every day thinking and behaviour and thus might encourage cultural differences in attention. One of these environments is reflected in cultural products to which children are regularly exposed. In one study, picture books from the U.S. were found to be less visually crowded than books from Japan (Kuwabara et al., 2020). In accordance with a higher emphasis on objects in U.S. children's development, the authors suggested that the smaller number of objects in U.S. books could encourage children to pay attention to culture-relevant, nameable objects and thus promote an analytic focus.

Another widely examined explanation of cross-cultural differences was attributed to differences in social orientation, as stated at the beginning of this work (Nisbett et al., 2001; Varnum et al., 2010). Independently oriented cultures were claimed to promote analytic processing, while interdependently oriented cultures were associated with more holistic processing. In line with this approach, proximal level situational factors were highlighted as a bridge between social orientations and individual psychological processes (Miyamoto & Wilken, 2014). Among these, everyday practices were emphasized, in particular the way cognitive processes might be shaped through social learning in daily interactions. Social learning processes are suggested

to be a major factor in the intergenerational transmission of beliefs and behaviours of cultures (Legare, 2019). Reviewing the literature on social learning, Legare (2019) identified a vast repertoire of children's strategies to acquire knowledge, skills and practices of their respective culture. Among others, the abilities of imitative learning and learning through instruction would play a significant role (Tomasello, 2016). Imitation, more precisely the copying of others' behaviour, has been discussed as an efficient method for children to learn about both goal-oriented (instrumental, object related) and conventional skills like social rituals (e.g. religious ceremonies) (Clegg & Legare, 2016; Legare & Nielsen, 2015). Apart from that, an increased transmission of cultural knowledge has been suggested to happen through direct interactions with other group members, which include instruction from teachers, such as caregivers, educators, or more experienced peers (Legare, 2019). Especially in the infant years, the parent-child or caregiver-child interaction has been regarded as an important context, which could shape how children and infants learn and consequently how they perceive and attend to their respective surroundings (Miyamoto & Wilken, 2014). Before the possible mechanisms of these cultural transmission processes are approached in more detail, general characteristics of early interactions and social learning are described.

1.6. Characteristics of early interactions

Within the first year of life, infants undergo significant changes in their interactional patterns with the immediate environment. Infants seem to be prepared for social engagement from the very beginning (Feldman, 2007). New-born infants can distinguish human self-produced from inanimate action (Tomasello et al., 2005) and show a preference for social stimuli, in particular for familiar faces (Marquis & Sugden, 2019).

From around 3 months, they are predominantly engaged in dyadic, face-to-face interactions (Striano & Hoehl, 2011; Tomasello et al., 2005). These are ideally characterised by mutual responsiveness between infant and caregiver, who interact with each other in turn-taking sequences and temporally match their exchange of social cues (Feldman, 2007). The specific coordinated structure is also referred to as synchronous and can be observed on the behavioural (e.g. attuned gaze, touch),

physiological (e.g. coupling of heart rate) and even neural level (e.g. coupling of brain activity) (Markova et al., 2019).

Towards the end of the first year, infants learn that actions can be intentional (Tomasello et al., 2005). From the age of 9 months, they begin to understand that actions can be directed towards a goal, which enables them to coordinate their activities with other people towards relevant goals and objects, including toys, games or external events (Mundy & Newell, 2007; Striano, Chen et al., 2006). The development of joint attention, underlies these so-called triadic interactions and has been defined as a social interaction that involves three foci of attention: the awareness of another person's attention to the self, the own attention to the external object and the other person's attention to the same external object (Striano, Reid, & Hoehl, 2006). Mundy and Newell (2007) distinguish two types of joint attention. The passive form, also referred to as responding to joint attention (RJA), describes the ability of infants to have a common point of reference with another person towards an external object by following the other's direction of gaze and gestures. But infants are also able to actively initiate joint attention (IJA), thus, to direct someone's attention to objects by using their own gestures and eye contact.

1.7. Learning in triadic interactions

Infants are assumed to be naturally predisposed to learn in triadic interactions, which is supported by the theory of *natural pedagogy* (Csibra & Gergely, 2009). This would especially apply to contents that cannot be learned by mere observation or imitation but need direct instruction through another person. The authors emphasize the importance of ostensive cues that would precede triadic interactions of infant, caregiver and an external learning target. These cues are supposed to signal the infant that it is being addressed for the purpose of instruction. Ostensive cues could be of any kind, ranging from direct gaze resulting in mutual eye contact to special intonations, like infant-directed speech. Thereafter, adults would draw from a repertoire of signals for referring to the learning target of interest that would mostly include the use of pointing gestures and eye gaze for preverbal infants and would be extended by linguistic and other symbolic modes of reference for older children.

Previous research showed that infants display a high sensitivity to these cues and signals, which was mostly reflected in findings about infants' early socio-cognitive skills

of following the attention of others. Infants as young as 6 months old were able to follow an interactional partner's gaze and locate an object at an attended location after gaze or speech cues were directed at them (Csibra & Gergely, 2009; Gredebäck et al., 2008; Senju & Csibra, 2008). Similarly, infants at the age of 7 to 8 months successfully completed tasks that required them to follow a pointing gesture and to detect the location pointed at (Beuker et al., 2013; Striano & Bertin, 2005).

1.8. Influence of joint attention on infant's attention.

Joint attention is proposed to influence some of the following attentional subprocesses that are necessary for the establishment of an attentional focus (Hendry et al., 2019; Reynolds, 2015): in order to stay responsive and to detect new visual stimuli in the surrounding, the infant has to be able to orient towards and away from relevant objects, people or visual cues (*spatial orienting*). Within the first three months infants seem to be mostly drawn to salient features of their environment. From 3 months on they gain more voluntary control over their visual attention, which enables them to direct their attention more selectively to objects or locations regarded as relevant (*selective attention*). Once selected and oriented towards a specific environmental aspect, the infant needs to maintain attention for deeper processing of this aspect (*sustained attention*).

Several studies have shown that joint attention supports infants' attention and information processing (Masuda, 2017; Reynolds et al., 2014). The primary measure that has been used to understand these patterns of attention in infants is looking behaviour (Damon et al., 2019; FANTZ, 1964). Infants' sustained attention, measured by looking duration towards object toys, was significantly longer during joint attention play than single play, with changes in parents' look followed by changes in infants' look (Wass et al., 2018). The same pattern has been found in an eye tracking study of Yu and Smith (2016), where longer joint attention durations, preceded by mutual gaze, were associated with longer infants' attention towards objects, which lasted even beyond the joint attention period. The authors suggested that parents' own sustained attention and involvement with the object would aid the infant in maintaining its own attention, by making the object more interesting and salient. This could support infants' long-term ability to self-regulate and control their own attention.

Increased object-directed attention after joint attention was also found in neurophysiological measures. In a study using event-related potentials to measure

attention with 9-months-old infants, the amplitude of the Nc- component (negative component of ERP) was higher in a joint attention interaction versus a non-joint attention interaction, reflecting infants' increased attention engagement towards an object after following the gaze of an adult (Striano, Reid, & Hoehl, 2006). Apart from longer attention spans, infants were thought to benefit from parents' guidance of attention by allocating their attentional resources more easily. Given that the infant has to deal with a myriad of perceptual inputs that they cannot process all at once (Hendry et al., 2019), the ability to "focus perceptual processing towards a particular aspect of the environment" (Reynolds et al., 2014) (selective attention) becomes especially relevant.

The skill of infants to engage in selective attention and sustained attention, followed by joint attention is associated with infants' efficient information processing and recognition memory, which are often indexed as infants' responsiveness to novelty (Reynolds, 2015; Striano, Chen et al., 2006). Studies have shown that joint attention facilitates processing and recognition of previously seen objects and events already in infants of 7 to 9 months (Cleveland et al., 2007; Kopp & Lindenberg, 2011; Striano, Chen et al., 2006). In a first phase experimenters familiarized infants of 7 months (Cleveland et al., 2007) and 9 months (Striano, Chen et al., 2006) with a new toy, either by alternating gaze between the infant and the toy (joint attention condition) or between the toy and the room's ceiling (no joint attention condition). In a subsequent test phase, infants were presented with both the familiar and the novel toy. Both 7- and 9-months old infants showed an increased preference for novel toys, measured by longer looking times, after the joint attention in comparison to the non-joint attention condition. This was interpreted as a marker for efficient information processing of the familiar stimulus, which would be additionally facilitated by previous engagement in joint attention.

Similar results were obtained in a neurophysiological study of Kopp and Lindenberg (2011) where the amplitude of the ERP's Nc component as a marker for attentional engagement was higher for novel toys in comparison to old toys. Furthermore, the average amplitude of the positive slow wave (PSW) ERP component was significantly larger for old toys in the test phase after joint attention. As the PSW has been linked to reconsolidation and updating of existing memories (Webb et al., 2005), it has been suggested that joint attention was related to enhanced memory updating and recognition of the old, familiar toy.

In sum, infants show an early sensitivity to interaction partners' communicative cues, facilitating the engagement in joint attention on selected, relevant aspects of the environment. Joint attention is further thought to support sustained attention on these aspects and to aid in early memory and learning processes of encoding and retrieval.

1.9. The influence of culture on early social interactions

So far, abilities of joint attention have been described as beneficial for early social learning processes. While infants' basic socio-cognitive skills of joint attention are supposed to develop in a similar way across cultures, the influence of diverse socialization practices was considered relevant for shaping infants' selective attention in a culture-specific way (Callaghan et al., 2011; Kinard & Watson, 2015). Specifically, studies have investigated the hypothesis that infants' early attention processes are likely to be socialized in the infant-parent interaction and become attuned to parents' culture-specific guidance of attention (Imada et al., 2013; Köster & Kärtner, 2018).

This was reflected in findings of cross-cultural differences in mothers' communication during joint attention with children (Fernald & Morikawa, 1993; Senzaki et al., 2016; Senzaki & Shimizu, 2020). American mothers of 6-to-19 months old infants focused more on target toys by providing object labels more frequently and consistently during joint play than Japanese mothers (Fernald & Morikawa, 1993). Similarly, during a joint book reading task, American mothers were significantly more likely to focus on objects, by providing 6-to-18 months infants with a higher proportion of narrative accounts related to focal objects than Japanese mothers (Senzaki & Shimizu, 2020). This pattern has also been shown with older children. In a joint scene description task with children of 7-to-9 years, Canadian mothers made more references to a focal object of an underwater scene, while Japanese mothers referred to the background more frequently than Canadian mothers (Senzaki et al., 2016).

While maternal guidance of infants' selective attention to the object or the background of a visual scene is proposed to differ across cultures, infants' sustained attention on selected aspects has been suggested to be similar across contexts. This was reflected in similar looking times relative to joint attention time during a shared reading task (Senzaki & Shimizu, 2020).

Infants' selective attention was suggested to align with their parents' culture specific guidance of attention (Köster et al., 2017). Selective attention processes were thought to first manifest in verbal measures, influenced by parental attention guidance and align with behavioural attention measures (e.g. eye movements) and cortical processes at later age. For example, in a study of Köster and Kärtner (2018), 5-year-olds' descriptions of visual scenes were significantly correlated with their parents' references to either the object or the contextual features, but not yet with children's respective eye movements. Köster et al. (2017) also showed that visual cortical processes align with behavioural measures later in development, at the age of 7. In this study, they used steady-state visually evoked potentials (SSVEPs), another EEG measure that is „a continuous, oscillatory response of the visual cortex to a repeatedly flickering stimulus having the same fundamental frequency as the initiating stimulus“ (Regan; as cited in Müller & Hillyard, 2000, p.1544). Object and background of a visual scene were flickered in different driving frequencies of 12 and 15 Hz, a method that is called frequency tagging and enables the analysis of separable SSVEPs related to different parts of a visual scene (e.g. object and background) (Martens et al., 2011). Behavioural measures of 7-year-olds referring to objects or background in a picture description task were correlated with their visual cortex processing (SSVEP measure) of object or background, but this was not yet observed in 5-year-olds.

Again, this would support the theory that children's early attentional processes are gradually shaped through socialization experience differently across cultures, and as discussed previously, would become more coherent in accordance with culturally dominant modes of attention around the age of 5 to 6.

1.10. Underlying distal cultural factors

On the proximal level, mothers' guidance of their children's attention in social interactions was discussed as an important factor in the transmission of culture dominant attention styles. On the distal level mothers from respective cultures differ in their parental practices and believes. Within research on cultural differences in parental strategies, the eco-cultural model of development is well-established (Keller & Kärtner, 2013). It describes how diverse socioeconomic structures would guide varying parenting strategies. These strategies would influence parental goals and styles differently.

Eco-social contexts were formulated based on different socio-economic characteristics (Keller & Kärtner, 2013): (1) The first cluster was formed by parents from middle-class contexts living in urban cities of Western societies. (2) The second cluster was characterised by middle-class parents from urban, non-Western societies. (3) The third cluster was constituted by parents from rural, subsistence-based agrarian ecologies.

Each cluster was represented by socio-demographic variables of economy, family structure, household type and formal education (Keller, 2016, 2018a): (1) In Western urban middle-class contexts higher level of formal schooling has been associated with later parenthood and thus smaller number of children. Nuclear two-generation families of parents and their children were referred to as the most typical family constellation. Most children attend out of home care institutions such as day-care, kindergarten or nursery school. (2) The context of rural, subsistence-based farming ecologies has been connected with relatively basic formal education related to early age at first birth and a higher number of offspring. Children grow up in multigenerational households with a hierarchical family system based on age and communal work and are from early age on engaged in communal tasks. (3) Non-Western urban middle-class contexts (including East Asian cultural contexts) were described to have a relatively high formal education and to be on intermediate position between the other two clusters in terms of age at first birth, number of children and household organization.

1.10.1. *Two basic modes of parental strategies*

The concepts of relatedness and autonomy were introduced as essential modes of different parental strategies, which would be activated to various degrees depending on the specific eco-social environment (Keller, 2012, 2016, 2018a; Keller & Kärtner, 2013). In line with the social orientation theory, as mentioned at the beginning of this work (Markus & Kitayama, 1991), the sociodemographic milieu of the Western urban context has been described as an independently oriented culture, where psychological autonomy with a reflective awareness of personal desires, wishes and intention and psychological relatedness with relations negotiated from an autonomous stance are emphasized. Values of personal choice, self-esteem and self-maximation in terms of making full use of one's full potential are supported (Tamis-LeMonda et al., 2007).

For the context of rural, subsistence-based farming ecologies, with an interdependent orientation, the modes of hierarchical relatedness and action autonomy were regarded most relevant (Keller, 2012, 2016, 2018a). Hierarchical

relatedness was defined by a network of ranked social relations with inherent communal responsibilities towards obligatory roles and expectations. Action autonomy has been referred to as the capacity to fulfil obligations in a self-controlled and responsible way. In order to maintain harmony, respectful and responsible interactions are valued (Tamis-LeMonda et al., 2007). Given the early engagement in communal tasks, a second aspect of relatedness has been associated with the appreciation of prosocial behaviour or more specifically helpfulness in daily routines (Köster et al., 2016).

Non-Western urban contexts as interdependently oriented cultures (Varnum et al., 2010), have been described as a hybrid type with the mode of autonomous relatedness (Keller & Kärtner, 2013). While strong social cohesion and family orientation with an emphasis on interpersonal responsibility are still regarded important, higher formal education and associated occupations are connected to more flexibility and self-determination (Kärtner et al., 2010).

1.10.2. Socialization goals and parenting styles.

Research has shown these modes of autonomy and relatedness are expressed in different parental goals and associated practices (Keller & Kärtner, 2013).

Parents' preferences for their children's development within the first three years of life, have been measured with questionnaires, differentiating between autonomous socialization goals, which focus on self-realization and independence and relational socialization goals of hierarchical relatedness and prosociality, which ask for compliance with social expectations and obedience as well as the appreciation of interpersonal responsibilities and helping (prosocial) behaviour (Keller & Kärtner, 2013; Köster et al., 2016).

Studies comparing socialization goals across the three eco-social clusters (Keller et al., 2006; Köster et al., 2016) showed that mothers from Western urban middle-class contexts mostly emphasized autonomous socialization goals. Mothers from rural, subsistence-based contexts considered relational goals most relevant. Mothers from non-Western, urban middle-class contexts held an intermediate position, by showing higher emphasis on autonomous socialization goals than mothers from rural contexts and at the same time valuing relational socialization goals higher than mothers from Western urban contexts.

Sub-aspects of relatedness, associated with hierarchical and prosocial aspects, were examined more closely by comparing mothers' socialization goals from urban

middle-class contexts (Giner Torréns & Kärtner, 2017). Mothers from Eastern (Delhi, India) and Western (Münster, Germany) urban contexts emphasized autonomous goals to the same degree. Regarding relational socialization goals, mothers from Delhi put higher emphasis on goals related to hierarchical relatedness, focusing on proper demeanour, obligations and obedience, than German mothers. Mothers from both contexts endorsed prosocial goals to a similar degree, reflected in their appreciation for their children's helping behaviour. Depending on the context, different underlying motivations of prosocial goals were proposed (Köster et al., 2015). In contexts with an emphasis on autonomous relatedness (like in Delhi), helping behaviour could be supported towards the fulfilment of interpersonal responsibilities, while in an autonomous context (like in Germany), it could be valued based on the emphasis on personal choice. Therefore, it has been suggested that mothers from both contexts would mostly differ in their emphasis of goals related to hierarchical relatedness, while goals of autonomy and prosocial behaviour would be considered important to a similar extent with different underlying motivations.

Varying socioeconomic environments are considered to affect parenting practices differently. Several parenting systems, including the areas of body contact, body stimulation, object stimulation and face-to-face-contact were examined, which resulted in two types of clusters: distal and proximal parenting styles characteristic of the eco-social context (Keller et al., 2004; Keller et al., 2009). Proximal parenting, characterised by intensive bodily contact (proximity through holding and carrying), high level of physical stimulation, and relatively low face-to-face interaction and object stimulation (triadic interaction) was most pronounced in mothers from interdependently oriented contexts (e.g. traditional farming communities- rural Cameroon and India). Children were described to be a part of a dense social network with exposure to multiple caregivers (Keller, 2018b). They would mostly participate in everyday activities of the community in close physical proximity (e.g. tied to the hips or back), experiencing motor movements and stimulation in synchrony with the caregiver.

Distal parenting characterised by a high amount of face-to-face interactions and object stimulation, as well as relatively lower physical stimulation and bodily contact was most prevalent in independently oriented contexts (e.g. urban middle-class communities: Germany and Greece). Children were described to have parents as the primary caregivers and to be the centre of the family's attention (Keller, 2018b). Dyadic

interactions with face-to-face and eye contact or triadic interactions including shared attention towards external toys or events were reported as the major channels of communication.

Participants from non-Western urban contexts, representing both modes of autonomy and relatedness on a similar level, scored on intermediate level between both styles (Costa Rica, urban Chinese).

In sum, traditional cultures seem to emphasize more proximal parenting and social interdependence, with children experiencing less dyadic and triadic interactions than children from urban contexts. In line with this, Rogoff et al. (1993) reported that children from traditional communities were mostly learning through observation and participation in daily adult activities. Distal parenting seems to be mostly prevalent in urban cultures of the West, with dyadic and joint attention interactions around objects and an emphasis on autonomy and social independence (Callaghan et al., 2011). Non-Western urban contexts were discussed to be interdependently oriented and to be on intermediate position between these two prototypes, with a combination of both styles.

2. Research questions and hypotheses

Findings of cross-cultural differences in holistic versus analytic attention were found to be present already in early childhood. Several cultural levels were suggested to underlie the cultural transmission of attentional styles. On a proximal level, the role of culture-specific parental attention guidance in early interactions with joint attention was considered as potentially relevant. Joint attention abilities were proposed to develop in a similar way across cultures and to support children's sustained attention and information processing. Proximal level factors were discussed to be embedded in distal level factors related to structures of interdependent and independent social orientations. Mothers from respective eco-social environments emphasized autonomous and relational socialization goals as well as distal and proximal parenting styles to different degrees.

Building on previous research, the current study compares mother-infant dyads from two cultural contexts: Austria (Vienna) and Japan (Kyoto). In line with the social orientation hypothesis as well as the eco-social model, the Austrian dyads are considered to represent a Western urban cultural context, where an independent social orientation is most prevalent. Japanese dyads, on the other hand, are

considered to represent a non-Western (East-Asian) urban cultural context with an interdependent social orientation.

Studies so far mostly investigated maternal guidance of attention in triadic interactions with preschool children. The current study tries to further elucidate early cultural transmission and social learning processes in joint attention in infancy. As joint attention abilities were found to emerge towards the end of the first year, interactional dynamics of 11 to 12 months infants and mothers during a joint attention task are more closely explored. Japanese and Austrian mothers are compared with regard to their guidance of infants' selective attention to object or background and its influence on their sustained attention. Additional to these proximal factors of cultures, mothers are also compared on distal factors of culture-typical socialization goals.

2.1. Hypotheses

1) In accordance with earlier studies, it is hypothesized that Japanese (non-Western context) and Austrian mothers (Western context) guide their infants' attention in culture dominant ways.

H: Japanese and Austrian mothers differ in their culture specific guidance of attention, with Austrian mothers pointing more often to the object (between and within culture analysis).

2) Furthermore, the current study explores Austrian and Japanese infants' attention. Specifically, infants' attention during joint attention, as well as before and after joint attention is more closely investigated. Due to further exploration of infants' attention dynamics associated with joint attention, no specific direction of the analysis' outcome is assumed and therefore no hypotheses are formulated.

3) On the distal level, mothers' socialization goals for their infants are compared. In accordance with the eco-social model, Japanese mothers are assumed to emphasize socialization goals reflecting an autonomous-relational parenting style, while Austrian mothers' socialization goals are in line with an autonomous parenting style.

H: Japanese and Austrian mothers do not differ in their emphasis of autonomous socialization goals.

H: Japanese and Austrian mothers differ in their emphasis of relational socialization goals.

3. Methods

The study was conducted as part of a project of the research unit *Vienna Children Studies* (Wiener Kinderstudien) at the Department of Developmental and Educational Psychology of University of Vienna in collaboration with Kyoto University (Japan). Supervision was provided by Univ.-Prof. Dr. Stefanie Höhl, Dr. Dr. Moritz Köster and Anna Bánki, M.Sc.

3.1. Research design

In the current study a between-group, experimental, pre-post design was applied to compare Japanese and Austrian mother-infant dyads, engaging in a joint attention interaction task.

3.2. Participants

95 mother-infant dyads from a non-Western and Western urban context (Vienna, Austria; Kyoto, Japan) were assessed. All infants had a typical development and no known neurological disorder. The study was conducted in accordance with the World Medical Association Declaration of Helsinki and was approved by the Ethics Committees of University of Vienna and Kyoto.

3.2.1. Recruitment

Mothers were contacted by phone or e-mail via the institute's own voluntary database. Upon agreement to participation, information on the background of the study and the general procedure was provided. Mothers were briefed that there were no risks associated with the study and that the procedure could be stopped at any time. Participation was not possible if there were any neurological disorders (e.g. epilepsy) or birth complications present. Austrian mothers were asked to provide a written declaration of informed consent for participation and recording of personal data in agreement with the Declaration of Helsinki and the General Data Protection Regulation of the European Union. A similar procedure was followed at Kyoto University, Japan in accordance with local ethics guidelines for research participants. For their contribution, Austrian mothers received a travel compensation of 6 €, a certificate and a toy, while Japanese mothers received 2000 ¥.

3.2.2. Demographic data

On average, Japanese infants were slightly older ($M = 11.81$, $SD = 0.48$) than Austrian infants ($M = 11.58$, $SD = 0.48$), $t(81) = 2.09$, $p < .05$, $d = -0.479$. In total infants' age ranged from 11 to 13 months ($M = 11.68$, $SD = 0.49$). Proportions of girls and boys ($n = 83$, 58.8% girls in Japan and 55.1% in Austria) didn't significantly differ between cultures, $\chi^2(1) = 0.113$, $p = .74$. As Table 1 shows, Japanese households were significantly bigger, with a higher number of siblings, than Austrian households, $p < .05$. Japanese and Austrian mothers' age didn't significantly differ.

As tested by Fisher's exact test, there was no significant association between culture and family constellation, with infants from both cultures mostly living in nuclear families, consisting of parents and siblings, $p = .18$. None of the Austrian infants and only 5.9% of the Japanese infants were from extended families (e.g. grandparents or parents' siblings living in the same household).

Migration background was only assessed for Austrian mothers as immigrants account for only 2.1% of Japan's population (Komisarof et al., 2020). This served to control for any cultural differences within group. Most Austrian mothers did not report any migrational background (77.1%). 6.3% were first generation immigrants from Spain and Germany, living on average 12.5 years in Austria, and 16.6 % were second and third generation.

Across the whole sample, only a small proportion of infants attended child-care facilities, provided by nursery schools in Japan and kindergartens in Austria (Japan: 5.9%, Austria: 15.2%, $p = .29$, with most infants being cared for at home.

Table 1

Comparison of demographic data of Japanese and Austrian families

Variables	Japan		Austria		$t(81)$	p	Cohen's d
	M	SD	M	SD			
Household size	3.91	1.03	3.35	0.78	2.850	0.006*	0.613
Number of siblings	0.88	0.73	0.39	0.73	3.036	0.003*	0.671
Mothers' age (years)	34.56	4.43	35.51	4.71	-0.927	0.357	-0.208

Note. * $p < .05$

3.3. Study procedure and stimuli

Mothers and their infants visited the infant lab facilities of University of Vienna and Kyoto University for an experimental session of 60 to 70 minutes. During a preparation phase, infants were familiarised with the surroundings, while mothers were asked to fill out an informed consent form. Before the actual assessment, a warm-up phase took place, where mothers were asked to show their infants interesting elements of their choice in a picture book. Mothers were instructed to point with their index finger to three to five distinct elements on different pages of the book, and leave their finger on each element for at least 3 seconds while saying a verbal comment to their child in infant-directed speech such as “look at this” or “look at that”.

During an approximately 15 minutes assessment phase, dyads engaged in a joint visual attention task, while infants’ brain activity was measured with electroencephalography (EEG). Stimuli consisted of 20 segmented images of natural objects (e.g. an animal or a vehicle) in front of a neutral background, presented on a cathode-ray tube (CRT) computer screen. As depicted in Figure 1, dyads completed three conditions: in a pre- and post-phase mothers and infants watched 20 pictures, each displayed for 3 seconds, with no interaction taking place.

In the joint attention interaction phase, consisting of the same 20 pictures, each displayed repeatedly (twice) , for a duration of 6 seconds, mothers were asked to freely point to a feature of interest and to hold their finger on the screen, until the offset of the picture.

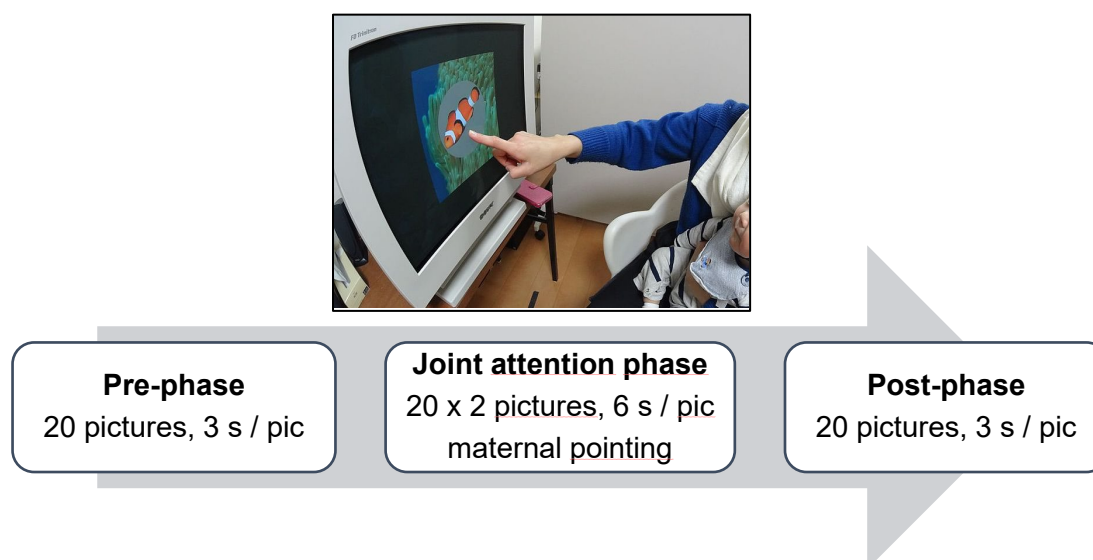
In all phases, object and background of each visual scene were flickered with different driving frequencies (5.66 and 8.5 Hz) to track infants’ selective attention to object and background. This approach is called frequency-tagging: dependent on which element the participant attends to, a stronger evoked response (SSVEP) can be seen on the EEG for the relevant driving frequency, enabling to disentangle neural responses for object and background (Köster et al., 2017). However, since neural data was not included in the current analysis, the EEG paradigm will not be further discussed.

Between trials, as well as during breaks, in case the infant’s attention dropped, a child-friendly animation (a black spiral turning in front of a white background accompanied with music) was presented. At any time, if needed, a short break was introduced. After the assessment, mothers filled out self-report questionnaires on demographic data (Appendix A) as well as on socialization goals (Appendix B). At the

end, they were debriefed on the purpose of the experiment and infants received a certificate and a toy. Participants were compensated for the travel costs associated with their participation.

Figure 1

Structure of the research study



Note: Photograph adapted from Bánki et al. (2019)

3.4. Measures

3.4.1. Behavioural data and coding

Sessions were video recorded with an action camera at 60 frames per second and a live view remote device to monitor infants' looking behaviour during the experiment (e.g. for infants' attention, necessity to introduce short breaks etc). Video data was later micro-coded with the video analysis software *Mangold Interact*. Videos were coded for infants' looking time during trials in all phases and for maternal guidance of attention (pointing to the object or the background of each scene) during the joint attention phase. Figure 2 to 5 show timelines with respective coding timestamps for pre- and post-phases as well as the joint attention phase.

Full trials of the pre- and post-phases (Figure 2) were the ones where infants looked at the screen until the offset of the picture (resulting in a minimum looking time of 2500 ms as infants had to start looking at the image no later than 500 ms = 30 frames after picture onset). Short trials in the pre- and post- phases (Figure 3) were characterised by infants looking away earlier than the offset of the picture.

For the joint attention phase, trials were divided in full look and short look trials for infants' looking and full point and short point trials for maternal pointing. Full point trials consisted of the mothers holding their finger on the screen until the offset of the picture, while in short point trials mothers stopped pointing before the offset of the picture. In full look trials of the joint attention phase, infants started to look no later than 30 frames after onset of the pointing and looked at the screen until the offset of the picture. As depicted in Figure 4, infants' looking time in full look trials was coded from the onset of the pointing to the offset of the picture. Short look trials were characterised by infants looking away earlier than the offset of the picture, resulting in looking times lasting from onset of the pointing until the coding timestamp of the infant starting to look away (Figure 5). In both figures (4 and 5), full and short look trials are depicted in combination with maternal full point trials. For the analysis of infants' looking behaviour, only full point trials were included, to keep conditions constant. The reason why short point trials were not included, was because they were attributed to too many different interference factors, such as infants' fussiness or mothers' repositioning of the infant, dropping of a toy, wrong understanding of the instructions and other disturbances. Furthermore trials, in which mothers did not point at all or where the direction of pointing (object/background) was not possible to code from the videos due to insufficient visibility or ambiguous visual angle, were discarded. Additionally, missed trials in which infants did not look at the screen at all following the pointing onset or where the looking behaviour was not codable, were excluded from the analysis, as they were due to too many alternative explanations. The same applied to the pre- and post-phases, where trials, in which the infant completely missed to look at the picture, were discarded.

Interrater reliability for the video coding was calculated, based on 20 videos (10 per cultural context) double-coded by two independent coders. The observer agreement between two independent coders was high (Japan: Cohens κ = 0.96, Austria: Cohens κ = 0.97).

Figure 2

Coding timeline of a full trial during pre- and post-phases

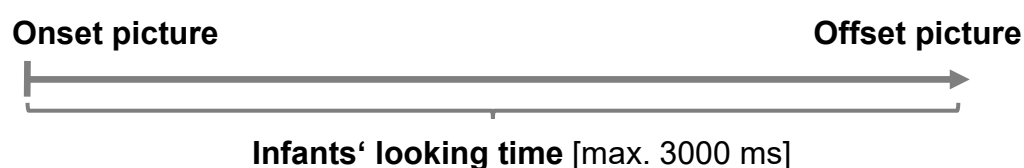


Figure 3

Coding timeline of a short trial during pre- and post-phases

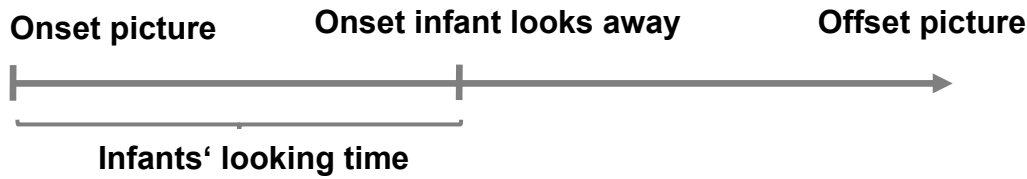


Figure 4

Coding timeline of a full look/full point trial during the joint attention phase

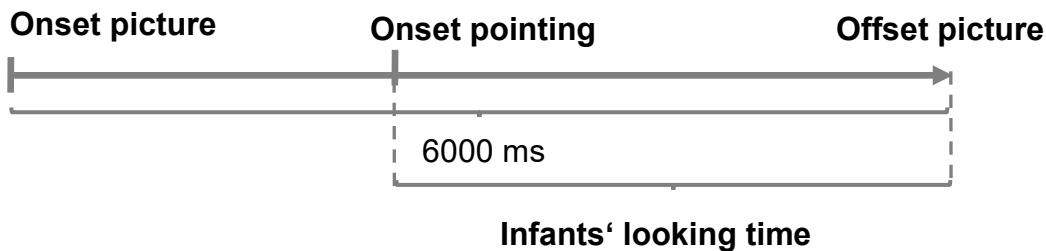
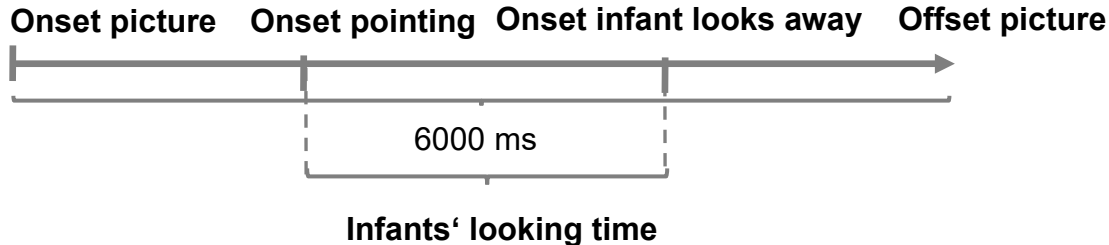


Figure 5

Coding timeline of a short look/full point trial during the joint attention phase



3.4.2. Socialization goals questionnaire

Comparisons of maternal cultural differences in socialization goals (SG) were made by using a self-report questionnaire (Appendix 2). The questionnaire was adapted from Giner Torréns and Kärtner (2017) and consisted of three scales: (1) autonomous SGs, referring to self-realization and independence (e.g. “learn to express own preferences very clearly”); (2) hierarchical SGs, referring to obedience and proper demeanour (e.g. “learn to do what parents say”); and (3) prosocial SGs, related to the appreciation of infants’ helping behaviour in household tasks (e.g. “learn to assist, when something needs to be done”). Mothers were asked to indicate, on a four-point Likert scale (ranging from strongly, and slightly disagree to slightly, and completely agree), how important they considered socialization goals for the first three years of their infant’s

life. For reliability analysis, Cronbach's α was calculated, to assess the internal consistency of the items. The internal consistency of the questionnaire was satisfying, with Cronbach $\alpha = .85$.

3.5. Statistical analyses

Statistical analysis was carried out with *IBM SPSS* and *Microsoft Excel*. Assumptions of statistical procedures were tested in advance. Normal distribution was tested by Shapiro-Wilk test and a graphical analysis, using Q-Q-plots. Variance homogeneity was tested by Levene's test.

3.5.1. Maternal pointing to object/background

In order to examine whether mothers within cultures differed between the first and second pointing to the same picture, proportions of pointing to object/background (O/B) combinations between first and second point were calculated, resulting in pointing only to object [OO], only to background [BB] or pointing to both [OB].

In order to examine whether Austrian and Japanese mothers differed in their culture-specific guidance of attention, the proportion of maternal pointing to objects was compared between cultural groups. Proportions were calculated by dividing the times mothers pointed to the object by the total number of maternal pointing to object or background. Missed trials, where pointing direction was not codable or pointing did not take place, were not included in the total sum.

Eight cases were excluded from the analysis, due to more than 50% of missing values or incomplete procedures (Austria: $n=4$, Japan: $n=4$).

3.5.2. Looking behaviour in pre-and post-phases

Infants' attention levels in the pre-phase as well as a change of attention from pre- to post-phase, were explored by comparing proportions of short trials and looking time in short trials between groups and phases. Proportions of short trials were calculated by the number of short trials divided by the total number of short and full trials in the respective phase (pre or post). Missed trials, where infants missed looking at the picture, were not included in the total sum, as they were not consistently attributable to attention dynamics, but were rather due to external disturbances. After the inspection of boxplots, outliers, which were outside 1.5 times the interquartile range above the upper quartile and below the lower quartile, were excluded from the

analysis, as well as cases with more than 70% of missed trials, resulting in an exclusion of 15 cases (Austria: $n=10$, Japan: $n=5$).

3.5.3. Looking behaviour during the joint attention phase

For the investigation of infants' attention dynamics in response to joint attention, proportions of short look with full point trials and looking time in relation to pointing time in short look trials were compared between cultures. As previously mentioned, only full point trials where mothers pointed according to the instructions until the offset of the picture were considered for the analysis.

Proportions of short look trials were calculated by the number of short look trials divided by total number of short look and full look trials. Missed trials, where infants did not look at all or where infants' look was not codable, were not included in the total sum. Proportion of looking time in short trials was calculated by dividing looking time (from onset of the pointing to onset of the infant looks away) by pointing time (from onset of the pointing to offset of the picture). After the inspection of boxplots, 6 cases with more than 70% of missed trials were discarded (Vienna: $n = 4$, Japan: $n = 2$).

3.5.4. Socialization goals

Socialization goals were calculated based on Giner Torr ns and K rtner (2017). Mean scores per subscale were computed and averaged across cultural groups, resulting in three scales of autonomy, hierarchical relatedness and prosociality. Six cases were not included in the analysis due to missing questionnaires (Japan: $n=6$).

4. Results

4.1. Culture specific guidance: pointing behaviour

4.1.1. Proportion of pointing to object in comparison to background

Maternal attention guidance during joint interaction was quantified by computing proportions of pointing to objects in comparison to background.

Average proportions were compared between cultures, by performing an independent t-test. Normal distribution, tested by Shapiro-Wilk-test was not given, $p < .05$. However, in accordance with the *central limit theorem*, stating that sample sizes above 30 are large enough to assume normal distribution (Field, 2009), the planned analysis was carried out. Variance homogeneity, as tested by Levene's test was present, $F(1, 83) = 1.83$, $p = .18$. Austrian mothers pointed significantly more often to

objects ($M = 0.81$, $SD = 0.24$) than Japanese mothers ($M = 0.67$, $SD = 0.20$), $t(84) = 2.89$, $p < .05$, $d = 0.63$ (Figure 6).

4.1.2. Proportion of pointing: first/second pointing comparisons

Proportions of pointing to object/background (O/B) combinations between first and second point were compared within cultures, by performing repeated measures ANOVA. Assumption of normal distribution as tested by Shapiro-Wilk-test, $p < .05$ and visual inspection with Q-Q-Plots, was not fulfilled. However, in accordance with the *central limit theorem* and due to the robustness of ANOVA (Field, 2009), the planned analysis was carried out. Mauchly's test indicated that the assumption of sphericity had been violated, $\chi^2(2) = 44.23$, $p < .05$. Therefore, for interpretation of results, *Greenhouse-Geisser* correction was used. Mean proportions of combinations significantly differed within groups, Austria: $F(1.36, 60.04) = 31.97$, $p < .05$, $\eta_p^2 = 0.42$, Japan: $F(1.20, 47.67) = 25.38$, $p < .05$, $\eta_p^2 = 0.38$. Post-hoc comparisons revealed, that Austrian mothers significantly more often pointed to only the object ($M = 0.67$, $SD = 0.37$), than both to the object and background ($M = 0.26$, $SD = 0.32$) or only the background ($M = 0.06$, $SD = 0.18$).

For Japanese mothers there was no significant difference among pointing to only the object ($M = 0.38$; $SD = 0.33$) and pointing to both the object and background ($M = 0.57$, $SD = 0.31$). They significantly less often pointed out only the background ($M = 0.05$, $SD = 0.12$) (Figure 7).

Figure 6

Proportions of pointing to object in comparison to background

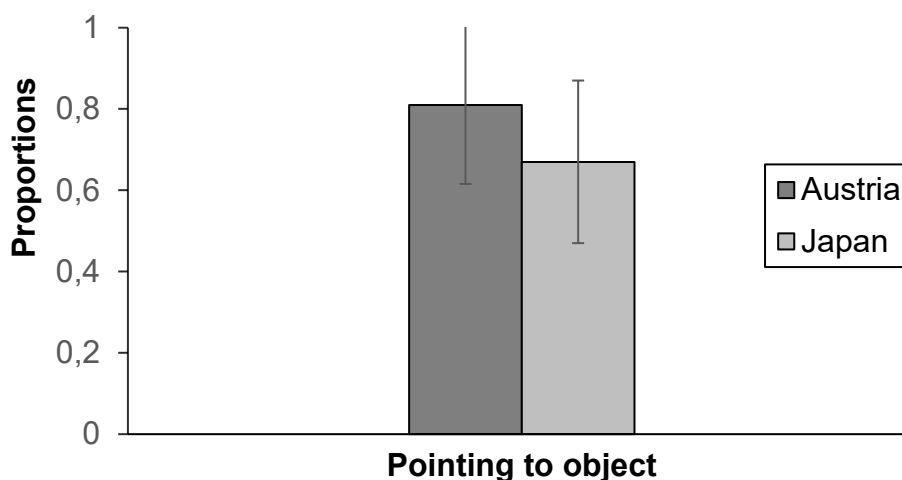
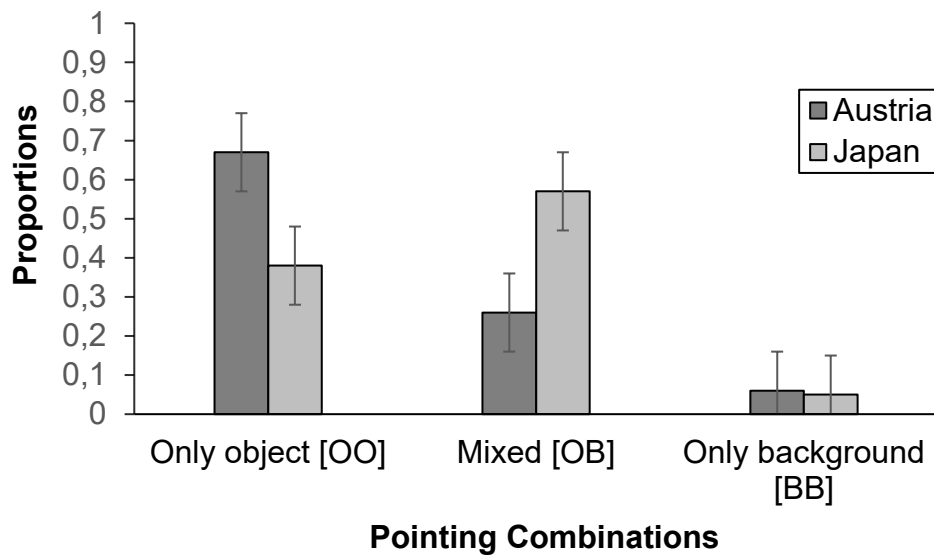


Figure 7

Proportions of first/second point combinations



4.2. Infants' looking behaviour

4.2.1. Baseline comparison (Pre-phase)

For the comparison of infants' attention in the pre-phase, independent t-tests were conducted. According to Shapiro-Wilk-test, normal distribution was not given, $p < .05$. However, in accordance with the *central limit theorem*, stating that sample sizes above 30 are large enough to assume normal distribution (Field, 2009), the analysis was carried out.

First, proportions of short trials were compared between groups. The required assumption of variance homogeneity was tested with Levene's test. Variances were equal for Japanese and Austrian infants, $F(1,76) = 1.44$, $p = .23$. On average, Austrian infants ($M = 0.17$; $SD = 0.13$) didn't significantly differ from Japanese infants ($M = 0.12$; $SD = 0.13$) in proportion of short trials ($M = 0.17$; $SD = 0.13$), $t(76) = 1.29$, $p = .20$.

Furthermore, average looking time in short trials of the pre-phase was compared between groups. Heterogeneity of variance was present due to a significant Levene's test, $F(1,76) = 31.51$, $p < .05$. Therefore, an independent t-test with *Welch's* correction was used. Austrian infants ($M = 1984.30$; $SD = 525.10$) significantly differed from Japanese infants ($M = 1570.73$; $SD = 1069.40$) in their average looking time in short trials, $t(55.32) = 2.17$, $p < .05$, $d = .49$.

4.2.2. Change of attention over time (Pre- to post-phase)

Change of proportion of short trials and looking time in short trials from pre- to post-phase was examined, performing a mixed-ANOVA. According to Shapiro-Wilk-test, normal distribution was not given, $p < .05$. Variance homogeneity, tested by Levene's tests was fulfilled for all variables across conditions, $p < .05$. Only for looking time in short trials of the pre-phase, heterogeneity of variance was present, $F(1, 76) = 31.51$, $p < .05$. Due to equal sample sizes ($n_{1,2} = 39$) and robustness of ANOVA to violation of assumptions (Field, 2009), the analyses were carried out as planned.

4.2.2.1. Change of proportion of short trials. The interaction effect between phase and group on proportions of short trials was non-significant, $p = .51$. Therefore, only main effects were interpreted. The main effect of phase showed a statistically significant difference in mean proportions of short trials from pre- to post-phase across groups, $F(1,76) = 33.15$, $p < .05$, $\eta_p^2 = 0.30$. Inspection of pairwise comparisons showed, that proportions of short trials in the pre-phase were significantly lower than in the post-phase ($M = 0.16$ versus 0.31 , as shown in Figure 7). The main effect of group, averaged over both phases, showed that groups did not significantly differ in mean proportions of short trials, $p = .09$.

4.2.2.2. Change of looking time in short trials. The interaction effect between phase and group on average looking time in short trials was non-significant, $p = .09$. The main effect of phase did not show any significant difference in mean looking time from pre- to post-phase across groups, $p = .80$ (Pre: $M = 1777.52$; Post: $M = 1745.51$). The main effect of group, averaged across phases, showed that groups also did not significantly differ in mean looking time, $p = .09$.

4.2.3. Attention during joint attention

Infants' attention following maternal pointing during joint attention was examined by calculation of proportions of short look trials and average looking time in relation to pointing time in short look trials. Cultural groups were compared by using independent t-tests. As tested by a Shapiro-Wilk test, normal distribution for proportion of short trials, $p = .24$ and looking time, $p = .86$ was present. The assumption of variance homogeneity for proportion of short trials, $p = .21$, looking time, $p = .62$ and average pointing time, $p = .76$ was also fulfilled. Japanese and Austrian infants did not significantly differ, with respect to both variables. Respective means and standard deviations are shown in Table 2.

Table 2*Characteristics of short trials during joint attention*

Variables	Japan		Austria		<i>t</i> (80)	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
proportion of short trials	0.39	0.18	0.42	0.21	0.805	0.423
proportion of looking time	0.55	0.11	0.55	0.12	0.084	0.933
average pointing time [ms]	4484.20	402.24	4464.01	378.69	-0.234	0.816

Note. $p > .05$.

4.3. Socialization goals

Average mean scores of socialization goals scales were compared between cultural groups. As assumptions of independent t-test regarding normal distribution and variance homogeneity were not fulfilled, a non-parametric Mann–Whitney U-test was run. Autonomy scores of Japanese mothers ($Mdn = 3.25$) were significantly lower, than those of Austrian mothers ($Mdn = 3.75$); $U(n_1 = 40; n_2 = 49) = 539.00$, $z = -3.72$, $p < .001$, $r = -.39$. However, scores on hierarchical relatedness did not significantly differ between Japan ($Mdn = 2.5$) and Austria ($Mdn = 2.5$), $U(n_1 = 40, n_2 = 49) = 832.00$, $z = -1.23$, $p = .22$. The same applied to Japanese ($Mdn = 3.3$) and Austrian ($Mdn = 3.0$) scores on prosocial goals, $U(n_1 = 40; n_2 = 49) = 974.50$, $z = -.05$, $p = .96$.

Figure 8

Pre- to post-phase increase in proportions of short trials across groups

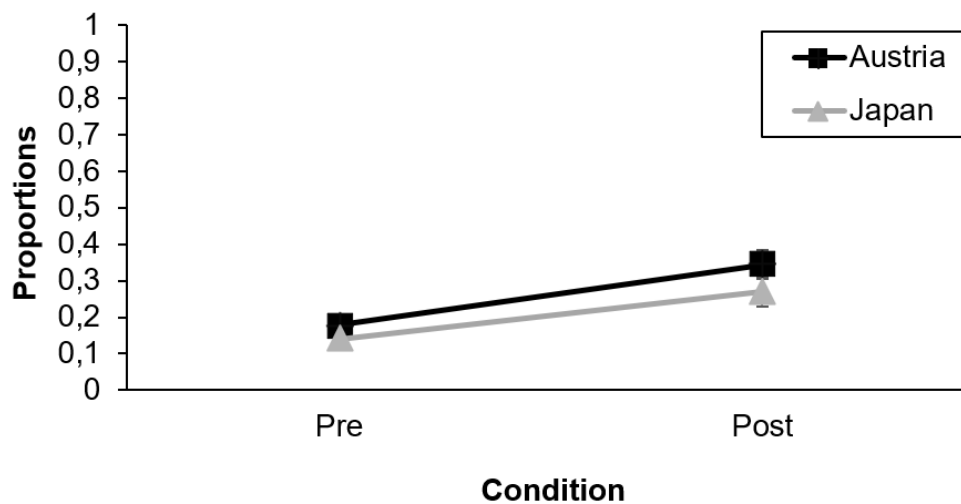
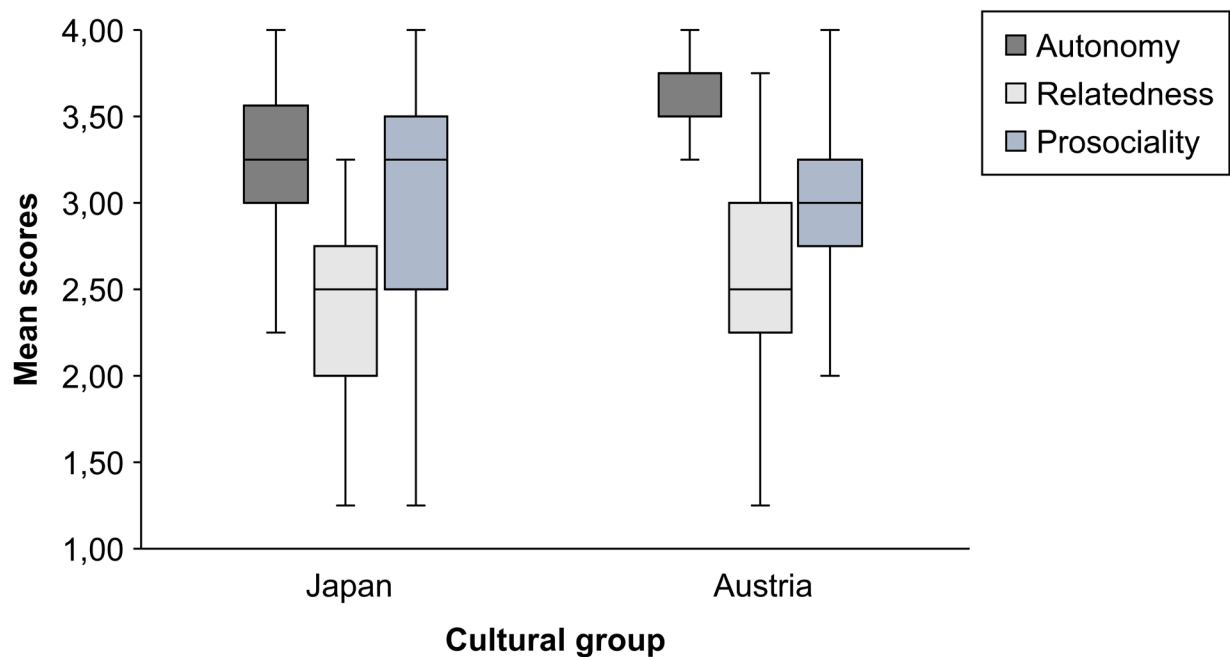


Figure 9

Socialization goals scores per cultural group



5. Discussion

Given the main focus of previous studies on the preschool age, the current study aimed to further elucidate cultural transmission processes of visual attention during early mother-infant interactions. On the proximal cultural level, joint attention dynamics were examined with respect to maternal culture-specific guidance of infants' selective attention and its influence on infants' sustained attention. It was assumed that mothers from respective cultural contexts would differ in guiding infants' attention towards object or background elements of visual scenes, in accordance with previous findings indicating a higher context-sensitivity in Eastern compared to Western cultures. Furthermore, infants' attention dynamics before during and after joint attention were explored. On the distal cultural level, mothers from respective eco-social contexts (Japan and Austria) were compared regarding their prioritization of socialization goals for their infants. It was hypothesized that mothers from Japan and Austria would partly differ in their relative emphasis of socialization goals related to autonomy, hierarchical relatedness and prosocial behaviour.

On the proximal level, the hypotheses could be confirmed, in line with previous findings. Japanese and Austrian differed in their culture-specific guidance of attention, as already reported in previous studies (Fernald & Morikawa, 1993; Senzaki et al.,

2016; Senzaki & Shimizu, 2020). Austrian mothers were proportionally more often pointing to objects than Japanese mothers. The current study further explored the roots of this phenomenon within cultures, by comparing first/second pointing between two identical, successive pictures. Austrian mothers were mostly pointing to only objects, while Japanese mothers were either pointing to only objects or a mixture of object and background. This latter finding would align with the suggested concept of field-dependency and holistic attention in non-Western samples (Nisbett et al., 2001; Witkin & Berry, 1975), characterised by attention that is dominated by the organization of the whole field, including focal and background aspects.

Regarding the impact of joint attention on infants' attention, the current study found similar attention durations following joint attention. Both proportions of short trials, as well as looking time in short trials during joint attention, did not differ between Japanese and Austrian infants. This would support a preliminary finding of similar sustained attention durations following joint attention (Senzaki & Shimizu, 2020). Thus, guidance during joint attention is suggested to aid infants across cultures in maintaining their attention on culture-relevant aspects.

Whether infants align their selective attention, measured by SSVEPs to object or background, with their mothers' emphasis onto the object or background is in the focus of overarching project of the current study and will be still explored.

In the current study, infants from both cultures started from similar attention levels, as revealed by similar proportions of short trials during the pre-phase. Comparison of attention levels across phases (from pre- to post-phase) showed that both cultural groups were becoming less attentive towards the post-phase, which was reflected in similar increases of proportions of short trials in relation to full trials across time. This contradicts earlier findings that reported even increased attention durations, beyond the joint attention phase (Kopp & Lindenberger, 2011; Yu & Smith, 2016). A pre-post decrease of attention in the current study might be attributed to the long duration of the experimental procedure, affecting infants' fatigue levels to similar degrees.

On the distal level, socialization goals of mothers were compared between cultures. Previous findings could be partly supported. In line with Keller et al. (2006) and Köster et al. (2016), Japanese mothers had lower scores on autonomous socialization goals than Austrian mothers. This might be interpreted in accordance with the eco-social model of Keller and Kärtner (2013), suggesting that a non-Western, urban culture (Kyoto, Japan) as an interdependently oriented context (Varnum et al., 2010) would

emphasize autonomous goals to a lesser degree than a Western, urban culture (Vienna, Austria), with an independent social orientation (Varnum et al., 2010). The finding of a similar emphasis of prosociality socialization goals was also in accordance with earlier findings (Giner Torréns & Kärtner, 2017), favouring the assumption that mothers from both cultural groups appreciate infants' help in household tasks to a similar degree. Regarding hierarchical relatedness socialization goals, the current study found no difference between Austrian and Japanese mothers, which contradicts earlier findings of a higher emphasis on hierarchical socialization goals in non-Western urban contexts. Earlier studies compared socialization goals across the three eco-social clusters of Western and non-Western urban contexts, as well as subsistence-based rural contexts, suggesting non-Western urban contexts as a hybrid type between the other two, with a mode of autonomous relatedness (Keller & Kärtner, 2013). It might be, that the difference in hierarchical relatedness is most pronounced when comparing Western urban and rural contexts. The inclusion of the third cluster (rural contexts) in the current analysis might have provided more detailed information on that assumption.

5.1. Limitations and implications for future studies

The following section deals with several limitations connected to the current study. The first limitation is associated with the selection of cultures and their representation of other cultures for the cross-cultural comparison of psychological processes. This study is part of previous research, that has chosen samples that were supposed to differ in the cultural construct of interdependent and independent social orientations. In particular, the West-East comparison has been most prevalent, with a focus on North American, Middle European and East- or South Asian countries. Countries differing on interdependence and independence in the North-South direction, like North- and Latin America or Northern- and Southern Europe, are underrepresented in current research, as well as countries of the Middle East and Africa (D. Cohen, 2018). This raises the question if Western and East Asian countries are representative enough to apply findings to other contexts.

Another critical point is the generalization of cultural findings to countries, given that there can be high cultural variation within countries as well (Alotaibi et al., 2017). Cultural factors, such as religious beliefs, socioeconomic conditions, political

orientations or characteristics of the language spoken, to only name a few, could also influence social orientations, and in turn shape cultural practices and psychological processes differently. Köster et al. (2018) highlights the importance of assessing phenomena in cross-cultural psychology with diverse populations, studying characteristics of the respective eco-social environments thoroughly. The authors call for research that further elucidates theories on cultural factors (e.g. ecological and social factors) that contribute to differences in cognitive processes.

The current study selected two cultural contexts of urban middle-class contexts (Vienna, Austria and Kyoto, Japan). Based on previous research, it was assumed that both contexts are similar in terms of ecology (urbanization, education and wealth), but differ in social structure (Köster et al., 2018). Whether contexts actually differed in family income and maternal education could not be analysed in the current study due to missing data and needs to be explored in the overarching project. This could have further elucidated whether these factors are associated with differences in psychological processes.

Additionally, the behavioural coding of looking time as a measure for infants' sustained attention has been discussed. As proposed by Gredebäck et al. (2008), this technique makes it difficult to capture infants' gaze in detail. The complimentary use of eye tracking technology could be considered, making it possible to measure gaze with a higher spatial and temporal resolution.

With regard to the drop of attention from pre-to-post phase, the length of the procedure and its application for assessing infants' attention resources has to also be considered in future studies. Additionally, in order to be able to clearly attribute sustained attention to shared attention during the joint attention phase, a control comparison without joint attention could be implemented. For example, this could be done by including an attention enhancing condition without joint attention (e.g. sound coming from the computer during picture presentation).

Finally, short point trials, in which mothers did not point until the offset of the picture could not be included in the analysis, due to too many different, incidental factors, such as misunderstanding of instructions or repositioning of the infant. In order to be able to attribute short pointing of the mother to attentional dynamics affecting infants' attention, those trials would have had to be coded more consistently. For example, this would have been interesting for short point trials, in which the infant was still looking calmly until the offset of the picture.

5.2. Conclusion

Overall, the current study demonstrated that culture-specific guidance of attention is already prevalent in mother-infant interactions, which help infants across cultures to keep attention on culture-relevant aspects and potentially shape their selective attention in culture dominant ways. Previously reported cultural differences of mothers on a distal level could only be partially supported and could be further explored in future studies. When attributing differences in psychological processes (e.g. attention) to cultural differences, several possible underlying variables on both distal and proximal cultural levels must be considered. The assessment of attentional dynamics using diverse populations as well as measures is recommended for future studies.

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Figure Captions

Figure 1 <i>Structure of the research study</i>	25
Figure 2 <i>Coding timeline of a full trial during pre- and post-phases</i>	26
Figure 3 <i>Coding timeline of a short trial during pre- and post-phases</i>	27
Figure 4 <i>Coding timeline of a full look/full point trial during the joint attention phase</i>	27
Figure 5 <i>Coding timeline of a short look/full point trial during the joint attention phase</i>	27
Figure 6 <i>Proportions of pointing to object in comparison to background</i>	30
Figure 7 <i>Proportions of first/second point combinations</i>	31
Figure 8 <i>Pre-to-post-phase increase in proportions of short trials across groups</i>	33
Figure 9 <i>Socialization goals scores per cultural group</i>	34

Table Captions

Table 1 <i>Comparison of demographic data of Japanese and Austrian families</i>	23
Table 2 <i>Characteristics of short trials during joint attention</i>	33

Abstract (english)

Cultures with different social orientations and associated cultural practices differ in attentional processes. Western cultures, which are mostly independently oriented, are object oriented (less context-sensitive). East Asian cultures, which are mostly interdependently oriented, are more context oriented (higher context-sensitive). In early childhood cross-cultural differences in context sensitivity start to become most noticeable between the ages of 5 and 6. Parental guidance of attention during joint attention is assumed to play an important role in the influence of infants' attention. Caregivers from respective cultural contexts also differ in their parental styles. An emphasis on socialization goals reflecting an autonomous parenting style would be most prevalent in urban Western contexts. Caregivers from urban non-Western contexts are assumed to value socialization goals associated with an autonomous-relational parenting style. To assess how parental guidance of attention influences 11-12-month old infants' attention, 89 Japanese (Non-Western/East Asian context) and Austrian (Western context) mother-infant dyads engaged in a joint attention task. Mothers guided their infant's attention in culture-specific ways, with Austrian mothers being less context-sensitive than Japanese mothers. Infants' sustained attention decreased from the pre-to-post phase and was comparable across culture in response to joint attention. Additionally, Japanese mothers emphasized autonomous socialization goals less than Austrian mothers. Both mothers valued relational socialization goals to the same degree. For further research on how culture influences attention processes, the use of different populations in consideration of different cultural factors is recommended.

Abstract (german)

Kulturen mit unterschiedlichen sozialen Orientierungen und damit verbundenen kulturellen Praktiken unterscheiden sich in ihren Aufmerksamkeitsprozessen. Westliche Länder, die vorwiegend independent (autonom) orientiert sind, sind in ihrer Wahrnehmung eher objekt-orientiert bzw. weniger kontextsensitiv. Ostasiatische Länder, die meist interdependent (relational) orientiert sind, sind eher kontextsensitiv. Interkulturelle Unterschiede in der kindlichen Kontextsensitivität werden im Alter zwischen 5 und 6 Jahren deutlich. Es wird vermutet, dass Betreuungspersonen in frühen Interaktionen mit geteilter Aufmerksamkeit die kindliche Aufmerksamkeit beeinflussen. Des Weiteren unterscheiden sich Betreuungspersonen aus den jeweiligen kulturellen Kontexten in ihren Erziehungsstilen. Betreuer aus städtischen, westlichen Kulturen betonen Sozialisationsziele, die einen autonomen Elternstil widerspiegeln. Betreuer aus städtischen, nicht-westlichen Kontexten betonen Sozialisationsziele, die mit einem autonomen-relationalen Elternstil verbunden sind. Um zu beurteilen, inwiefern Eltern die Aufmerksamkeit ihrer 11-12 Monate alten Kleinkinder beeinflussen, haben 89 japanische (nicht-westlicher, ostasiastischer Kontext) und österreichische (westlicher Kontext) Mutter-Kind Dyaden in einer Aufgabe mit geteilter Aufmerksamkeit teilgenommen. Mütter lenkten die Aufmerksamkeit ihrer Kinder auf kulturspezifische Weise, wobei österreichische Mütter weniger kontextsensitiv waren als japanische Mütter. Die Aufmerksamkeit der Kleinkinder nahm von der Prä- bis zur Post-Phase ab. Während der Phase mit geteilter Aufmerksamkeit, behielten die Kinder ihre Aufmerksamkeit auf ähnliche Weise. Zusätzlich betonten japanische Mütter autonome Sozialisationsziele weniger als österreichische Mütter. Beide Mütter schätzten relationale Sozialisationsziele in gleichem Ausmaß. Für die weitere Erforschung kulturspezifischer Wahrnehmungsprozesse wird die Heranziehung verschiedener Populationen unter Berücksichtigung unterschiedlicher kultureller Faktoren empfohlen.

Appendix

Appendix A: self-report questionnaire on demographic data

Appendix B: self-report questionnaire on socialization goals

Elternfragebogen

Bitte füllen Sie den Fragebogen möglichst vollständig und nach bestem Wissen aus. Alle Angaben sind selbstverständlich freiwillig und werden vertraulich behandelt.

Kind

1. Füllen Sie bitte folgende Informationen zu den Geburtsdaten Ihres Kindes aus:**Geburtsdatum:** _____**Geschlecht:** ☐ männlich ☐ weiblich**Schwangerschaftswoche:** _____**Gewicht bei Geburt:** _____ g**Körperlänge bei Geburt:** _____ cm**Kopfumfang bei Geburt:** _____ cm**APGAR Score:** 1 Minute _____ 5 Minuten _____ 10 Minuten _____**Geburtsort:** _____**Wie lange hat Ihr Kind bisher in Österreich gelebt? (Dauer in Monaten)** _____**Wie lange hat Ihr Kind bisher in anderen Ländern gelebt? (Dauer in Monaten)** _____**2. Gab es während der Schwangerschaft oder Geburt Auffälligkeiten oder Komplikationen (z.B. Diabetes, Frühgeburt, etc.)?**☐ ja ☐ nein ☐ unsicher

Wenn ja, welche?

3. Hat(te) Ihr Kind ernsthafte oder chronische Erkrankungen☐ ja ☐ nein ☐ unsicher

Wenn ja, welche und in welchem Zeitraum:

4. Hatte Ihr Kind jemals Sehstörungen?☐ ja ☐ nein ☐ unsicher

Wenn ja, welcher Art?

5. Hatte Ihr Kind jemals Hörstörungen, ernsthafte Ohrerkrankungen (z.B. Mittelohrentzündung) oder Ohroperationen (z.B. Paukenröhrchen)?☐ ja ☐ nein ☐ unsicher

Wenn ja, welcher Art?

6. Wurde Ihr Kind gestillt?

☐ ja ☐ nein ☐ unsicher

Wenn ja, bis zu welchem Monat? _____

7. Hat Ihr Kind folgende Fähigkeiten erlernt?

	ja	nein	unsicher
Alleine vom Rücken auf den Bauch drehen	☐	☐	☐
In Bauchlage mit geöffneten Händen abstützen	☐	☐	☐
Gezielt nach einem Gegenstand greifen	☐	☐	☐
Freies Sitzen	☐	☐	☐

8. Wer ist die Hauptbezugsperson des Kindes?

☐ Mutter ☐ Vater ☐ Andere Person: _____

9. Ist das Ihr erstes Kind? ☐ ja ☐ nein

Anzahl Geschwister: _____

Platz des Kindes in Geschwisterreihe: _____

Wie viele Personen leben in Ihrem Haushalt? _____

	Beziehung zum Kind (z. B. Vater, Bruder)	Alter
1.		
2.		
3.		
4.		
5.		
6.		

10. Besucht Ihr Kind einen Kindergarten oder wird es von einer Tagesmutter/einem Tagesvater betreut?

☐ Kindergarten ☐ Tagesmutter/ -vater ☐ nein

11. Wie hoch ist das ungefähre monatliche Haushaltseinkommen (netto)?

☐ < 1000€ ☐ 1000-1500€ ☐ 1500-2000€ ☐ 2000-2500€ ☐ 2500-3000€ ☐ > 3000€

Eltern**Angaben zur Mutter:**

1. Geburtsdatum: _____
2. Geburtsort: _____
3. Nationalität: _____
4. Wie lange haben Sie bisher in Österreich gelebt (Dauer in Jahren, ev. Monaten)? _____
5. Sind Sie, ihre Eltern oder Ihre Großeltern aus einem anderen Land nach Österreich eingewandert? ☐ ja ☐ nein

Wenn ja, woher? _____

Wer ist eingewandert? ☐ Sie ☐ Ihre Eltern ☐ Ihre Großeltern

Falls Sie selbst nach Österreich gezogen sind, vor wie vielen Jahren war das? _____

Ist Ihr Partner, seine Eltern oder seine Großeltern aus einem anderen Land nach Österreich eingewandert? ☐ ja ☐ nein

Wenn ja, woher? _____

Wer ist eingewandert? ☐ Ihr Partner ☐ Seine Eltern ☐ Seine Großeltern

Falls er selbst nach Österreich gezogen ist, vor wie vielen Jahren war das? _____

6. Muttersprache(n): _____

7. Welche Sprache(n) verwenden Sie im Umgang mit Ihrem Kind hauptsächlich?

8. Händigkeit: ☐ Linkshändigkeit ☐ Rechtshändigkeit ☐ Beidhändigkeit

9. Höchster Bildungsabschluss:

☐ Ohne ☐ Pflichtschule ☐ Lehre, BMS ☐ BHS ☐ AHS
☐ Kolleg, Fachlehrgang ☐ Universität, Hochschule

10. Erlernter Beruf/ Studienabschluss: _____

11. In welchem Beschäftigungsverhältnis befanden Sie sich vor der Karenzzeit (falls zutreffend)?

☐ Schülerin ☐ Auszubildende ☐ Studentin ☐ Angestellte ☐ Beamte
☐ Selbstständig ☐ Arbeitslos/-suchend ☐ Sonstiges ☐ Trifft nicht zu

12. Familienstand:

☐ alleinerziehend ☐ zusammenlebend ☐ zusammenlebend mit neuem Partner
☐ Sonstiges _____

Angaben zum Vater:

1. **Geburtsdatum:** _____
2. **Geburtsort:** _____
3. **Nationalität:** _____
4. **Muttersprache(n):** _____
5. **Welche Sprache(n) verwendet er im Umgang mit Ihrem Kind hauptsächlich?**

6. **Händigkeit:** ☐ Linkshändigkeit ☐ Rechtshändigkeit ☐ Beidhändigkeit
7. **Höchster Bildungsabschluss:**

☐ Ohne	☐ Pflichtschule	☐ Lehre, BMS	☐ BHS	☐ AHS
☐ Kolleg, Fachlehrgang		☐ Universität, Hochschule		
8. **Erlerner Beruf/ Studienabschluss:** _____
9. **In welchem Beschäftigungsverhältnis befanden Sie sich vor der Karenzzeit (falls zutreffend)?**

☐ Schülerin	☐ Auszubildende	☐ Studentin	☐ Angestellte	☐ Beamte
☐ Selbstständig	☐ Arbeitslos/-suchend	☐ Sonstiges	☐ Trifft nicht zu	
10. **Familienstand:**

☐ alleinerziehend	☐ zusammenlebend	☐ zusammenlebend mit neuem Partner
☐ Sonstiges _____		

Weitere Sprachen, die in der Familie gesprochen werden: _____

Anhang 1: Fragebogen

Liebe Untersuchungsteilnehmerin, lieber Untersuchungsteilnehmer,
auf den folgenden Seiten finden Sie eine Reihe von Fragebögen, die wir Sie bitten möchten
zu beantworten. Dabei würden wir Sie bitten, das Folgende zu beachten:

- Alle Angaben, die Sie in diesem Fragebogen machen, werden absolut vertraulich behandelt und bleiben anonym.
- Seien Sie bitte bei der Beantwortung der Fragen offen und ehrlich.
- Beantworten Sie bitte alle Fragen spontan und aus dem Bauch heraus. Meistens ist der erste Impuls der zutreffendste.
- Bei einigen Fragen nutzen wir eine numerische Skala. Wählen Sie jeweils diejenige Ziffer an, die Ihre Position am besten widerspiegelt. Beschränken Sie sich dabei bitte nicht nur auf wenige Ziffern, sondern nutzen Sie die gesamte Bandbreite der Skala aus.

Haben Sie noch Fragen?

Entwicklungsziele

Im Folgenden sehen Sie eine Reihe von Aussagen, die sich auf Entwicklungsziele beziehen, die Eltern für ihre Kinder **innerhalb der ersten drei Lebensjahre** haben können. Bitte äußern Sie den Grad Ihrer Zustimmung oder Ablehnung spontan.

Ich stimme ... zu	① überhaupt nicht	② ein bisschen	③ weitgehend	④ vollständig
-------------------	-------------------------	-------------------	-----------------	------------------

Mir ist es wichtig, dass mein Kind...

1. das tut, was die Eltern sagen	①	②	③	④
2. lernt, sich durchzusetzen	①	②	③	④
3. im Haushalt hilft	①	②	③	④
4. Erwachsene respektiert	①	②	③	④
5. sich um andere kümmert	①	②	③	④
6. Unabhängigkeit entwickelt	①	②	③	④
7. lernt, dass seine/ihre Hilfe benötigt wird	①	②	③	④
8. die eigenen Talente und Interessen entwickelt	①	②	③	④
9. sich anderen anpasst	①	②	③	④
10. sich nicht daneben benimmt, wenn andere Erwachsene dabei sind	①	②	③	④
11. eigene Vorlieben klar ausdrückt	①	②	③	④
12. mitmacht, wenn etwas erledigt werden muss	①	②	③	④
13. um das Wohlergehen anderer kümmert	①	②	③	④
14. sich vor anderen Erwachsenen richtig verhält	①	②	③	④
15. anderen hilft	①	②	③	④