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Spectators' Experience of Watching Dance without Music:

A cognitive semiotic exploration of kinesthetic empathy

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Abstract

Empathy is our ability to experience and understand the mental states of others. In movement perception, and in particular in dance spectatorship, it has been argued that we experience observed movements through our own bodies: *kinesthetic empathy*. However, it has been unclear what exactly kinesthetic empathy encompasses on an experiential level as dance spectatorship research has been dominated by brain-oriented studies, without matching this with qualitative data.

The thesis explored the nature of kinesthetic empathy in connection with how spectators experience movement – the core element of dance – from the perspective of cognitive semiotics, by combining first- and second-person methods of phenomenological analysis and interview, with third-person methods, based on experiment and questionnaire. 20 participants, grouped as either familiar or unfamiliar with dance, watched two short dance performances, one in classical ballet and the other in contemporary dance. The two dances differed in terms of *qualities of movement* (Sheets-Johnstone 2015). Participants' skin conductance and respiration were measured as they watched the dance performances, and they later answered questions and were interviewed regarding their feelings and attitudes, as well as evaluations of the performance and dance movements.

The results showed that the spectators' psychophysiological responses across the two dances differed, but that this also depended on the degree of familiarity. There were clearer correlations between the skin conductance and respiration data and the introspections for the Familiar group, suggesting that familiarity does indeed play a role in kinesthetic empathy. Based on these findings, the thesis proposes a two-level model of kinesthetic empathy in which the *pre-conscious* level (in the sense of Zlatev 2018) is manifested in psychophysiological responses, and the *conscious* level in imagined movements, reflected in explicit introspections about feelings and attitudes. Dance familiarity appears to affect the second of these levels, as well as how well-connected it is to the pre-conscious level.

Keywords: empathy, kinesthetic empathy, qualitative kinetic dynamics, qualities of movement, vitality affects, emotional arousal, respiration, skin conductance, consciousness, phenomenology, intentionality, classical ballet, contemporary dance.

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My husband played a big role in the formation of the idea for this thesis. Early in 2018, André and I were watching the classical ballet “Sleeping Beauty” on TV, and I sighed: “My never-to-be-fulfilled dream” – dancing classical ballet was my childhood dream. That same week, my husband registered me for a classical ballet course at Rhodins Dansstudio and bought me my first book on ballet practice. As the cost of the classes was a bit too high for us back then, we started practicing on our own: my husband acted as my supervisor – we watched classical ballet tutorials together, read the book and practiced the moves. He instructed me and corrected me. I want to thank my soulmate, my beloved André for encouraging me to chase my dream. This story led to me becoming interested in the cognitive underpinnings of dance experience, and I have André to thank for that. I further thank him for his support throughout the whole process: he cooked for me, took care of me and helped me with technical issues.

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Dedication

Naomi, my little angel,

I dedicate this work, just like every other act of mine, to you, my masterpiece! You were together with mommy the whole way: We presented our thesis project together, we filmed the dances together, we conducted the experiments together, and we wrote the thesis together. In those adventurous and challenging times, the thought of making you proud of and inspired by your mother when I told you this story gave me strength.

I hope that by the time you read this thesis it has led us where mommy hoped it would lead us. Even if it has not, know from me that nothing can make you as happy and your life as meaningful as doing what you love the most and what you are best at. If you combine your passion and talent with patience, hard work and self-discipline, you will get everything you aim at. As for mommy, she will always be there to foster your talent and to light your way. Mommy loves you more than you will ever know.

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Chapter 1. Introduction

Dance is grounded in movement.

Maxine Sheets-Johnstone

In moving ourselves, we move others; in observing others move – we are moved ourselves.

Jordan Zlatev

Dance is an art form mediated by the human body (Aviv 2017) that involves a “magnification of movement” (Sheets-Johnstone 2015, p. xv), in an attempt to evoke emotions and to communicate (Brownlow et al. 1997). Spectators seek emotional engagement, a key aspect of *performance* (see McConachie 2015). Dance is a type of performance that has been argued to have a strong affective power on spectators (e.g. Reason and Reynolds 2010). The mysterious nature of the effect dance can have on its audience, and the way it escapes a verbal description, has been eloquently described by the American author Paul Auster (2012, pp. 222-223):

[T]he mere sight of the bodies in motion seemed to be carrying you to some unexpected place within yourself, and little by little you felt something lift inside you, felt joy rising through your body and up into your head, a physical joy that was of the mind... Then, after six or seven minutes the dancers stopped. Nina W. stepped forward to explain to the audience what they had just witnessed, and the more she talked, the more earnestly and passionately she tried to articulate the movements and patterns of the dance, the less you understood what she was saying. It wasn't because she was using technical terms that were unfamiliar to you, it was the more fundamental fact that her words were utterly useless, inadequate to the task of describing the wordless performance you had just seen, for no words could convey the fullness and brute physicality of what the dancers had done.

This passage suggests that spectators' experience of dance, as well as the dance itself, is of a nature that is difficult to put down in words. This is hardly surprising, since dance is a very particular semiotic system, and different semiotic systems have distinctive inherent properties (Eco 2001; Sonesson 2014; Zlatev 2019). As argued by Daly (1992), spectators experience dance not just visually, that is to say through the eye, but also kinesthetically, through their bodies.

The issue of how spectators are affected by a dance performance can be addressed through the lens of the concept of *empathy*, the ability to experience and understand the mental

states of others (Zahavi 2001; McConachie 2015). A specific type of empathy, especially relevant for dance, is that of *kinesthetic empathy*, in which spectators experience observed movements through their own bodies (Gallagher and Zahavi 2008; Warburton 2011). This concept is focal for the present thesis, and it is elaborated throughout the work.

In their attempts to arrive at answers about how spectators are affected upon watching a dance performance, several studies have used *familiarity* as a relevant variable (e.g. Calvo-Merino et al. 2006; Cross et al. 2009). However, most such studies concern separate dance movements, and, as Jola, Ehrenberg and Reynolds (2012) argue, inferences made based on three-second dance movements are not necessarily transferrable to real-life dance experience. As far as whole dance performances, as opposed to separate movements, are concerned, results have not been consistent, and have also been shown to depend on the dance style (Jola et al. 2012; Reason and Reynolds 2010). Thus, the factor of familiarity needs to be addressed in regards to spectatorship of fully-fledged performances in relation to different dance styles.

While there is quite a large body of neurophysiological research on how spectators are affected upon watching dance, there is a relative lack of studies focused on *lived experience*. In one of the few studies focusing on qualitative aspects of dance perception, Reason and Reynolds (2010, p. 57) found that “lack of familiarity caused distance and an inability to connect with (...) the movements being performed”, as reported in post-viewing interviews. However, this study did not relate spectators’ post-viewing reflections to online neurophysiological or neuropsychological data, in the spirit of *neurophenomenology* where the aim is to correlate descriptions of lived experience with brain activity (Varela 1997), nor did it employ the phenomenological triangulation of cognitive semiotics (see Section 2.1). As also argued by Jola et al. (2012), divorced qualitative and quantitative research methods cannot account for a complete picture of how spectators respond to dance, and thus marriage of these two kinds of methods is advisable. On the basis of this background, this thesis addresses the following research questions:

- RQ1: To what extent does the kinesthetic empathy of familiar and unfamiliar spectators differ in general, irrespective of dance style?
- RQ2: Is there a difference in how (familiar and unfamiliar) spectators are (kinesthetically) engaged in a dance performance depending on the dance style?
- RQ3: How do the experiences of a dance spectator, as accessed through research methods of questionnaire and interview, relate to underlying psychophysiological events such as skin conductance and respiration?

This thesis addresses these questions through the prism of cognitive semiotics, starting with key concepts such as (kinesthetic) empathy, and then investigates viewers' experiences of two dance performances of approximately four minutes in length: one in classical ballet and the other in contemporary dance, using both qualitative and quantitative methods.

To give a brief overview, Chapter 2 is dedicated to the theoretical framework within which the study is to be placed, concluding with general hypotheses regarding the role of familiarity and dance style as expressed through spectators' introspections, evaluations and bodily reactions. In Chapter 3, I introduce the methods used and spell out the specific hypotheses. Chapter 4 presents the results of the study carried out within the framework of this thesis, which are later interpreted in Chapter 5, in the light of the previously provided theoretical background. In Chapter 6 conclusions are made in relation to the posed research questions, the main contributions of the thesis are highlighted and suggestions for future research are made.

Chapter 2. Theoretical background

In this chapter, I provide the necessary theoretical background that motivates the general hypotheses proposed in Section 2.5 and problematizes the gaps that this thesis aims to help fill in. Leading up to this, in Section 2.1 I provide the relevant background about cognitive semiotics and phenomenology, within the framework of which the present study is placed. The thesis acknowledges *movement* as the core and indispensable element of dance and thus starts with analyzing movement from a phenomenological perspective (Section 2.2). In Section 2.3, the concept of *empathy* is scrutinized, the debate around it is explored and the potential of dance research to shed light on various aspects of this debate is highlighted. Additionally, in an attempt to refine the concept of kinesthetic empathy, I propose a model that involves two levels of kinesthetic empathy. In Section 2.4, I discuss previous empirical research with focus on relevant variables such as familiarity and dance style. Thus, I show how the research questions posed in this thesis are relevant and what gaps need to be filled.

2.1 Cognitive semiotics and phenomenology

2.1.1 Basic tools in cognitive semiotics

Cognitive semiotics is a relatively new discipline aimed at providing insights into human (as well as non-human) meaning-making and its manifestation in various cultural practices by combining methodologies and theories from various fields including semiotics, linguistics, and cognitive science (Zlatev 2015b; Zlatev, Sonesson and Konderak 2016). As this thesis investigates experience in connection with dance, it fits well within the framework of cognitive semiotics, given that unlike linguistics, cognitive semiotics extends to semiotic systems other than language, including dance. Furthermore, in the spirit of phenomenology, it puts emphasis on the first-person perspective of experience, unlike cognitive science.

One of the main characteristics of cognitive semiotics is the *conceptual-empirical loop* (Zlatev 2012, 2015). This implies establishing a research program that carefully examines and explicates key concepts by means of conceptual and phenomenological analysis, and then subjects these explications to empirical research, which in return contributes to the further explication of the concepts. In this way, new insights are produced and our conceptual understanding of the phenomenon is enriched. In the present context, the goal of this study is to enhance our understanding of the concept of empathy the way it is manifested in dance

spectatorship. Thus, I begin by posing the following conceptual questions: “what is (kinesthetic) empathy?” and “what is the nature of movement?” and address these with the help of phenomenological analysis. In a next step, I address more empirical questions concerning how kinesthetic empathy manifests itself in cultural practices like dance, more specifically in classical ballet and contemporary dance. In answering these, I hope to provide further insights into the conceptual questions (see Figure 1).

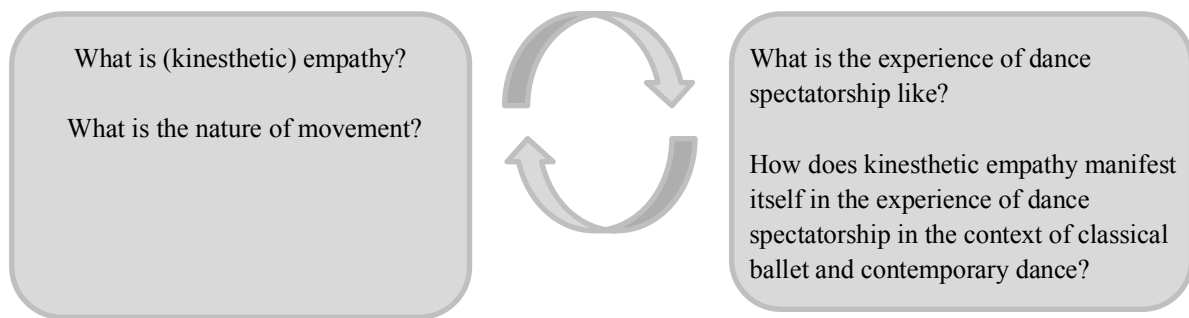


Figure 1. The conceptual-empirical loop applied to topic of the present thesis

As already mentioned, given its basis in phenomenology, cognitive semiotics acknowledges the importance of grounding all studies in a first-person perspective, since “[w]e should never forget that our knowledge of the world, including our scientific knowledge, arises from a first-person perspective, and that science would be meaningless without the experiential world” (Gallagher and Zahavi 2008, p. 89). But at the same time, it emphasizes that a second-person methodology is no less important, given that we live not in private subjective bubbles, but in an intersubjective *Lebenswelt* or *life world* (Husserl [1936] 1970; Sokolowski 2000). Finally, given that cognitive semiotics aims at “mending the gap between the sciences and the humanities” (Gould 2003), it also aims to study the phenomenon in question from a detached, third-person perspective. Combining the three kinds of methods results in a special kind of *methodological triangulation*, recently referred to as *pheno-methodological triangulation* (Pielli and Zlatev 2020). Table 1 outlines how this pluralistic methodology is applied in the present thesis.

Pheno-methodological triangulation was employed not only in the design of the study, but also in the data analysis process. The first-person perspective manifested itself in that as the researcher, I used my intuition to interpret the analyses of movement and empathy presented in the literature, as well as to analyze the qualities of movements in the two dances. The second-

person perspective was applied through the method of a semi-structured interview, inspired by the idea of a “phenomenological interview” (Polio et al. 1997), where the participant and the researcher explored the participant’s experiences (Section 3.1.3). In a phenomenological interview the meanings are continually negotiated, and this requires empathetic understanding from both sides. The second-person method was additionally used to understand, analyze and interpret the qualitative data from the interview, and partly from the questionnaire.

As for the third-person perspective, which implies that the study object is maximally detached from the subjective perspective of the researcher, this was realized through an experiment that measured the rates of respiration and skin conductance of the participants (Section 3.1.2) in relation to dance “stimuli” in the form of videos (Section 3.1.1). As part of the third-person method analysis, the psychophysiological results were analyzed statistically. In addition to this, the third-person perspective was used in the statistical analysis of the participants’ own first-person data, namely their introspections as expressed through their answers to the questionnaire.

Table 1. Pheno-methodological triangulation, as applied in this thesis

Perspective	Examples of methods	Application in the thesis
First-person	<i>Phenomenological reduction</i> <i>Intuition-based analysis</i>	<i>Analysis of movement</i> <i>Analysis of the qualities of movement; grouping participants as Familiar and Unfamiliar.</i>
Second-person	<i>Interview</i> <i>Empathy</i>	<i>Conducting interviews with participants.</i> <i>Qualitative analysis of the interview and questionnaire results.</i>
Third-person	<i>Experiment</i> <i>Questionnaire</i>	<i>Measurement of respiration and skin conductance (as dependent variables); statistical analysis of the psychophysiological and questionnaire results.</i>

2.1.2 Key concepts from phenomenology

As mentioned above, cognitive semiotics relies heavily on phenomenology both as a philosophical tradition and as methodology. Phenomenology tries to make it possible to *objectively*, i.e. in an intersubjectively valid manner, study phenomena that are generally regarded as “subjective”, such as perception and empathy (Menon et al. 2014). For this reason, phenomenology is primarily concerned with the systematic analysis of consciousness and experience by way of “careful description of what appears to consciousness precisely in the manner of its appearing” (Moran 2005, p. 1). In order to do so, an investigation must start by leaving behind as many presuppositions (and prejudices) as possible, and by coming back “to the things themselves”, as Husserl famously insisted. Gallagher and Zahavi (2008) provide a useful overview of phenomenological methods and summarize them as follows (ibid. p. 28):

The method of phenomenology can get more specialized, depending on the kind of experience that is being studied. But these four steps are the basic ones:

- (1) The epoché or suspension of the natural attitude
- (2) The phenomenological reduction, which attends to the correlation between the object of experience and the experience itself
- (3) The eidetic variation, which keys in the essential or invariant aspects of this correlation
- (4) Intersubjective corroboration, which is concerned with replication and the degree to which the discovered structures are universal or at least sharable.

The first step concerns returning to the phenomena themselves, rather than theoretical abstractions and “models” of them, as mentioned above. For example, in analyzing dance experience, we should not begin by studying the brain, but by how ordinary people react when viewing dance, as described by Paul Auster in the citation in Chapter 1. The second step, *phenomenological reduction* urges us to turn our attention from the intentional objects (in our case, the observed dance and movement), to our experience of it, and to attempt to describe this experience as carefully as possible in the way it presents itself (Bakewell 2016). The third step aims to find the “invariants”, or the essential aspects of experience, for example in exploring the nature of (kinesthetic) empathy. It could be said that this takes the investigation from a pre-theoretical to a theoretical level (Zlatev and Blomberg 2019). Finally, the analysis proposed should be, as in science, not just a “subjective” take on the phenomenon, but comprehensible to others and generalizable.

To be able to carry this out, we rely on the fundamental property of the human mind, *intentionality*, the directedness of consciousness to the world. This means that each act of

consciousness, each experience, is correlated with a different object, and that we can study this correlation (Sokolowski 2000). According to the existential phenomenology of Merleau-Ponty (1962), our reciprocal relation to the world may be understood as an *intentional arc* that prepares our living bodies to “receive” the various objects around us to which they direct themselves in a *pre-reflective* and dynamic manner. The most basic forms of intentionality, particularly relevant for this thesis, are *motor intentionality*, i.e. the directedness of the living body towards the world through movements, and the closely related but more object-oriented *perceptual intentionality* (Merleau-Ponty 1962, Zlatev 2018). Both are required in the perception of *affordances* (Gibson 1979), i.e. aspects of the world that display possibilities for action, such as buttons for pushing or, in the dance context, a partner for dancing with. Perception is reciprocal in that it involves “an active interplay (...) between the perceiving body and that which it perceives” (Abram 1996, p. 59).

Motor and perceptual intentionality are the most basic as they attend to the here and now, while *remembering* what is past and *anticipating* what may happen are secondary, and more complex forms of intentionality. These are all direct and unmediated, as the mind goes “directly” to its intentional objects, whether present or not. Other kinds of intentionality are mediated via signs: words, gestures, pictures or film, as in a video-recorded dance performance. Film, however, is a special kind of medium, as it easily creates the illusion of “being there”, and of the viewer being placed directly in front of the intentional object, rather than via a sign (Tarkovsky 1986; Sobchack 1992). The dance-videos used in the empirical study of the thesis are of course not artistic films, but constitute stimuli that are much closer to visual perception than signs like words or still pictures. This has implications for the present thesis, as pointed out in Section 2.4.5.

In the following section I begin the analysis of the “phenomenology of dance” by reviewing previous work, but also by interpreting this literature through my own experience as an embodied subject (and a former dancer).

2.2 Movement

2.2.1 Self-movement

As stated in the first epigraph to Chapter 1, “dance is grounded in movement” (Sheets-Johnstone 2015, p. xxvii). According to Merleau-Ponty (1962), it is our own *self-movement* that provides us with access to the world, as it plays a vital role in perceiving all the objects we interact with. As we interact with our environment, our experience of self-movement enables

us to perceive objects around us as graspable, pushable, pullable and so on. Through moving our bodies, we aim at things and “respond[s] to their call” (ibid. p. 161). At the same time, the moving body “sets itself up in advance to receive and act in relation to things” (Hass 2008, p. 81), which shows that the body is fundamentally active, and not producing passive “responses” to “stimuli” from outside.

In his phenomenological analysis, Merleau-Ponty (1962) drew upon Gelb and Goldstein’s case study of a neurological patient named Schneider, a World War I veteran who suffered considerable damage to the occipital lobe caused by shell fragments. While for most deliberate movements, such as tracing a circle in the air, Schneider needed preparatory operations to “find” the operative limb and to “accidentally” perform the movement, he could perform habitual actions with precision and speed, even with his eyes closed. Gallagher (2005) has elaborated on such analyses, suggesting that patients like Schneider have their *body schemas* (more or less) intact, as these rely on the proprioceptive sense of the body, which guides actions during practical movement and which allows the body to assume a certain degree of autonomy (e.g. Pielli and Zlatev 2020). The body schema does not require conscious monitoring of the position of the body in space, unlike the *body image* which requires explicit awareness of the position of the body in space, and is thus required for carefully controlled, volitional movement (Gallagher 2005). This distinction is also relevant for imitation: Patients with impairments in their body images can perform simple acts of copying familiar actions, but apparently not acts of “do as I do” imitation, such as raising a hand, when the model is standing face-to-face with them (Zlatev 2008). According to Merleau-Ponty’s (1962) analysis, whenever more abstract (i.e. non-habitual) movements are required, the right and left hand are still presented to patients like Schneider “as absolute locations, and not inserted into any system of correlations which links them up with the corresponding parts of the [model’s] body” (ibid. p. 163). This indicates that fluent co-ordination between the pre-conscious¹ (Zlatev 2018) and conscious control of the body is essential for the operation of the intentional arc (see Section 2.1.2), which is necessary for typical human self-movement to take place. In addition, it may be necessary for empathy, as will be discussed in Section 2.3.

¹ Throughout the thesis, the term “pre-conscious” pertains to meaning-making at the most basic level – that of the living body, and its operative intentionality (Zlatev 2018), which is on the margins of consciousness. It is thus closer to what Gallagher and Zahavi (2008), *inter alia*, refer to as “pre-reflexive”. It is not to be confused with Freud’s notion of the “preconscious” (e.g. Erwin 2002).

2.2.2 *Qualities of movement*

Movement has been analyzed in terms of its *qualitative dynamics* by one of the prominent phenomenologists in the field, Sheets-Johnstone (2015). According to Sheets-Johnstone, movement is primarily a “revelation of force” (ibid. pp. 25-26), and dance can create an “illusion” of this force (see the *tensional quality* below for an example). The body expresses such force through four dynamic qualities: *tensional*, *linear*, *areal* and *projectional*. While these are components in everyday movement, in dance they become *expressive* qualities, and thus “symbolic” (ibid. p. 39) of the reality that the movement approximates (Langer 1953). As Sheets-Johnstone puts it, in art these qualities exist *potentially*, only insofar as dance is created, as opposed to them existing *actually* in a specific movement in everyday life. Furthermore, they are clearly *dependent parts* (Sokolowski 2000), as they cannot be abstracted from the dance as a whole: “Phenomenologically, (...) neither the quality nor the particular movement has significance apart from the total dance” (Sheets-Johnston 2015, p. 40). Still, as this is a proposal for an eidetic analysis of movement (see Section 2.1.2), let us briefly discuss each one of these four qualities, starting with the second one on Sheets-Johnstone’s list.

The *linear* quality describes the design of the body and the trajectory of movement that the body as a whole creates as it moves. When going up a hill, I may choose to go in a straight line, circularly or in a zig-zag manner. These are the various “linear patterns” of movement. At the same time, my legs may be positioned vertically while I move my arms up and down. This will be the “linear design” (ibid. p. 42) of the body (see also Sheets-Johnstone 2012). Importantly, various linear designs of the body parts (be it the feet, legs, hands, head or other) can co-occur and vary over time.

To use the same example, when trudging up the hill, we will likely hunch our body and tilt it forward. The shape of our body will appear contracted. As soon as we reach the top of the hill and stretch our body, the body will expand. These shapes of our body can be described by the “*areal* design” of our moving body. This quality has another component too – the “*areal* pattern” of our movement, which can for example be intensive, if we trudge, or extensive, if we stride.

Projectional quality is the manner in which we release force. When trudging up a hill, we might plod upward in an even, smooth gait and thus move in a sustained manner. However, if we suddenly notice a puddle and try to avoid it, we might move sharply and abruptly. Alternatively, we might move in a ballistic manner if we start swinging our arms.

Tensional quality is the intensity of our movement, the felt effort or force exerted by the body through muscular tension. Importantly, “any particular movement will dissipate a

particular tensional quality” (Sheets-Johnstone 2015, p. 41) and, similar to any other quality, tensional quality will vary throughout the whole movement. By the time we approach the top of the hill, we will be moving with less effort than when we started. This quality manifests itself differently as a component of actual force in everyday life and as a quality of virtual force in dance. A dancer may exert great force when performing a dance movement, but her movement will appear effortless to us as observers, as if her body is “sinking” and “floating”. On the other hand, if the same person is trudging up a hill, a movement performed as a part of everyday life, her steps may be slow and effortful, and they will appear precisely as such to us as observers as well.

As pointed out, these qualities should be viewed as parts of a holistic structure: the movement itself. The qualitative structure of each movement generates a particular dynamic. These dynamics are experienced as *felt* by the dancer, but as a *seen* by the audience. And yet, there is a common affective value to both. For example, Sheets-Johnstone argues that what is experienced as swift by the dancer, is visually perceived by the audience not only as swift but also as “affectively charged” (Sheets-Johnstone 2012, p. 52). She gives an example of “a jagged, erratic, intense qualitative dynamic” (*ibid.*), which may have a feeling of anguish or grief to it.

To anticipate the discussion in the following sections, we may ask: How do these qualities of movement brought forth through the contraction and release of muscles evoke experiences in observers? One possible reason is because they manifest *vitality affects*, which are “dynamic, kinetic qualities of feeling that (...) correspond to the momentary changes in feeling states” (Stern 2018 [1985], p. 156). These can be captured by dynamic, kinetic terms such as “fleeting”, “explosive”, “fading away”, “surging”, etc. According to Stern, vitality affects are inherent in any behavior, for example, a person getting out of a chair or a mother grooming her baby’s hair. Stern explains that one can see someone get out of a chair “explosively” (manifesting tensional quality) but this explosiveness does not need to have arisen due to the person feeling anger, surprise or any other specific emotion; the person can simply have gotten out of a chair with “a burst of determination” (*ibid.* p. 56). Considering this example and the linguistic expressions often used to describe the experience of vitality affects, it is natural to see a connection between vitality affects and the qualities of movement described by Sheets-Johnstone, as well as the notion of kinesthetic empathy discussed later.

Stern gives a puppet show as an example and explains that despite puppets having no or little capacity to express emotions through their facial or postural signals, their movements allow spectators to perceive different vitality affects. If such movements have the potential of

expressing vitality affects, and inducing feelings in spectators, dancers' movements can be expected to be even more expressive.

2.2.3 Movement and affect

According to the influential dance critic John Martin, “the physical and psychical are merely two aspects of a single underlying reality” (Martin 1972 [1933], p. 13). A close connection between movement and affect is argued for by all contributions to *Moving Ourselves, Moving Others* (Foolen et al. 2012). Darwin (1965, p. 284) observed that upon the feeling of fear in the face of an unexpected danger, the body is momentarily “thrown into strong action” such as jumping. Sheets-Johnstone (1999, p. 262) comments on this by stating that “the expression of emotion in man and animals is a kinetic phenomenon”, and that the concordance between movement and affect originates in the expressive quality of bodily movement. Bull (1951), reviewed by Sheets-Johnstone (1999), revealed such an expressive relationship between movement and emotion. For example, with respect to fear, one participant reported “first my jaws tightened, and then my legs and feet... my toes bunched up until it hurt (...)” (ibid. p. 59). Further, the study showed that a particular emotion coincided with a particular neuromuscular attitude. The participants were told to assume a certain bodily position. For example, they were told: “you can feel your chest expanding”, a position congruent with the feeling of triumph. Then the experimenter instructed the participants to remain in that position while she uttered an adjective denoting an emotion incongruent with the assumed physical position, for example, *depression*. Feeling an emotion incongruent with the position of the body was difficult for the participants. The study thus revealed that a change in emotion requires a change in posture or bodily attitude.

Sheets-Johnstone also proposes that emotions are congruent with the *qualitative dynamics* discussed above, referred to as *qualitative affective-kinetic dynamic* (Sheets-Johnstone 2011, p. 470). In particular, Sheets-Johnstone (1999, p. 269) suggests the following phenomenological description of the kinetic dynamics of the emotion *fear*:

An intense and unceasing whole-body tension drives the body forward. It is quite unlike the tension one feels in a jogging run, for instance, or in a run to greet someone. There is a hardness to the whole body that congeals it into a singularly tight mass; the driving speed of the movement condenses airborne and impact moments into a singular continuum of motion. The head-on movement is at times *erratic*; there are *sudden changes of direction*. With these changes, the *legs move suddenly apart*, momentarily widening the base of support and *bending at the knee*, so that the *whole body is lowered*. The movement is each time *abrupt*.

It breaks the otherwise unrelenting and propulsive speed of movement. The body may suddenly *swerve, dodge, twist, duck, or crouch*, and the head may *swivel* about before the forward plunging run with its acutely concentrated and unbroken energies continues.

As this passage shows, fear may find expression through a particular kinetic dynamic subsuming the already-discussed qualities of movement. In a “sudden change of direction” as part of the kinetic dynamic of fear we recognize the projectional quality (releasing force in a sudden, abrupt manner) and the linear quality (changes of direction implying change in the linear pattern of the movement); in “the whole body is lowered” as yet another part of the kinetic dynamic of fear we recognize change in the areal quality, namely, in the areal design of the body, etc. If this analysis is correct, then emotions, and vitality affects (Section 2.2.2), should be directly perceivable in the bodily expressions, and in particular in the kinetic dynamics of the people (or animals) we observe.

2.3 Empathy and dance

2.3.1 Varieties of empathy

Observers, or in the context of dance, spectators, must both attend to the observed movements and allow their body to be ready to “receive” it (Hass 2008, p. 81). The importance of such empathetic understanding in dance spectatorship is highlighted by Warburton (2011, p. 73), who points out that for a complete experience of dance to take place “dancers and viewers must move into empathy together”.

From a phenomenological perspective, empathy is “a form of intentionality directed towards the other’s lived experiences” (Gallagher and Zahavi 2008, p. 183). On a general level, it is more or less synonymous with the concept of *intersubjectivity*: “the sharing of affective, perceptual and reflective experiences between two or more subjects. Such sharing can take different forms, some more immediate, others more mediated by higher cognitive processes” (Zlatev 2008, p. 215). This implies that there are different *kinds* of intersubjectivity/empathy: some more based on bodily movement, others less so; some more immediate, others more mediated (by signs, narratives etc.). I cannot hope to provide a full discussion here, and I limit myself to the debate surrounding the concept of “theory of mind”, and a form that is especially relevant for dance: kinesthetic empathy.

2.3.2 Empathy and “theory of mind”

Three kinds of theories have been proposed to be able to account for the nature of empathy, often under the label of “theory of mind”. Proponents of Simulation Theory (ST) suggest that our understanding of others is pretense-based: we understand others by using our own minds as models for what others might be feeling or thinking, asking ourselves what we would be feeling or thinking in that same situation (Goldman 2006). Matching the experienced state with that of the target is a requirement for successful simulation, as pointed out by Gallagher (2012). However, this is where the main weakness of ST lies: When seeing someone behaving in a way that I despise, neither my actions nor my feelings match his, yet I can still understand his actions without fulfilling the requirement of simulation.

Advocates of the so-called Theory Theory (TT) argue that our understanding of others is inferential, and that we understand others by resorting to the common knowledge of how people generally behave (e.g. Churchland 1992). In response to criticism that this is not how we *experience* our understanding of others, defenders of TT usually reply that the theoretical inferences take place unconsciously, on the “sub-personal level” (see Gallagher 2012).

The cornerstone of both ST and TT is that we understand others in a detached, “third-person” mode of observation, with a gulf between the self and the other. Since we cannot deal with the “sub-personal” response, we can clearly say that these models fail the phenomenology of (cognitive) empathy that brings forward the spontaneity of our empathetic understanding, as highlighted in the famous quote of Scheler (1954, p. 260):

For we certainly believe ourselves to be directly acquainted with another person’s joy in his laughter, with his sorrow and pain in tears, with his shame in blushing, with his entreaty in his outstretched hands ... And with the tenor of his thoughts in the sound of his words. If anyone tells me that this is not “perception”, for it cannot be so, in view of the fact that a perception is simply a “complex of physical sensations” ... I would beg him to turn aside from such questionable theories and address himself to the phenomenological facts.

As pointed out in Section 2.2, Merleau-Ponty (1962) continually emphasized that our bodily experience of movement provides us with access to the world and to the entities in the world, including other human beings. In agreement with this, Gallagher (2012) proposes Interaction Theory (IT), as an alternative to both ST and TT. The point is that in our normal *second-person* interactions we understand the intentions of others (most of the time) on the basis of their actions and perceived vitality affects, as we are immersed in an intersubjective world. In doing so, we spontaneously integrate the body as subject (the body schema) and the

body as intentional object (the body image), of both our own self and of the other. And when this does not suffice, we use our “narrative competency”, our ability to “frame the other person in a detailed pragmatic or social context” (Gallagher 2012, p. 186).

Now, insofar as dance is grounded in movement, as claimed by Sheets-Johnstone (2015), much of the argument for IT can be applied to how empathy in dance could work. Thus, a phenomenological analysis implies that this is *not* so much a mystery of how “simple physical movements” brought forth through the contraction and release of muscles and the coordination of the limbs can trigger an experience in us upon observation – this would be the wrong way to phrase the phenomenon. Rather, as captured in Paul Auster’s eloquent description of the effect of dance upon us (see Chapter 1), it is a matter of direct perception through the body, giving rise to “felt joy rising through your body and up into your head, a physical joy that was of the mind” (Auster 2012, p. 222).

2.3.3 *Kinesthetic empathy*

According to the dance critic Ann Daly (1992), despite having a visual element, dance is fundamentally a kinesthetic art. In line with the phenomenological analysis of empathy, dance theorists have proposed that the audience appreciates dance through *kinesthetic empathy* in which spectators experience observed movements through their own bodies (Gallagher and Zahavi 2008; Warburton 2011). However, this is hardly something that is specific for dance, as kinesthesia (closely related to proprioception) is what allows us to both control our movements and perceive those of others (Sheets-Johnstone 2019). According to Sheets-Johnstone, kinesthesia allows us to experience not only movements as a whole but also their qualitative dynamics (see Section 2.2.2), which makes kinesthesia and kinesthetic empathy so relevant in the experience of dance spectatorship.

However, how exactly to characterize kinesthetic empathy remains open, both theoretically and, as shown in the next section, empirically. Following John Martin (1972 [1933]), Warburton (2011, p. 74) argues for kinesthetic empathy as “a kind of covert simulation of physical action (...) at least for expert dancers and perhaps for longtime viewers as well”, rather in line with ST. Contrary to Warburton’s suggestion, some forms of kinesthetic empathy do not seem to require special expertise or even familiarity with dance, if dance is indeed grounded in movement. It seems that all spectators (like Paul Auster in the example cited in Chapter 1) can at least to some degree feel they are participating in some form in the movements they observe. Based on this I propose an analysis of kinesthetic empathy which involves two levels. The first corresponds to IT, while the second incorporates aspects of ST and TT, but on a conscious

rather than unconscious, “sub-personal” level (see Section 2.3.2), the latter distinct from the pre-conscious, by being completely inaccessible to consciousness.

- *Direct, pre-conscious kinesthetic empathy:* The body resonates with the observed movements, and this resonance is reflected in physiological reactions.
- *Indirect, conscious kinesthetic empathy:* The experience of the observed movement is mediated by imagination (re-enactment) of the movements, allowing introspection and conscious judgements concerning these.

2.4 Empirical research on dance spectatorship

The present section turns more explicitly to the empirical side of the conceptual-empirical loop concerning the phenomenon of (kinesthetic) empathy in dance spectatorship. I review previous research in terms of the “variables” that have been suggested to have an effect on the behavior of the participants.

2.4.1 Effects of familiarity

Various studies, using videos of movement sequences stretching over only a few seconds, have found that spectators’ kinesthetic engagement with the observed dance, often expressed in terms of “emotional arousal”, can be influenced by spectators’ (motor) familiarity with dance. At the same time, unfamiliar spectators have shown similar brain activity in response to similar dance movements in two performance types - ballet and capoeira, while expert spectators’ response depended on whether or not they could do the observed movement (Calvo-Merino et al. 2005). Similar results were produced by another study where the dancers showed greater brain activity upon viewing moves included in their acquired motor repertoire, compared to opposite-gender moves that they had often seen but never performed (Calvo-Merino et al. 2006). Based on these findings, the authors further conclude that prior dance training induces greater brain activity upon watching familiar dance movements than visual-only experience.

However, in this study, the scholars had no account of whether the amount of dancers’ motor experience was equivalent to the amount of their visual experience. In an improved experimental design (Cross et al. 2009), unfamiliar (or “naïve”, as they call them) participants were given equal time to (a) passively observe and (b) physically rehearse unknown dance movements. These conditions led to the activation of similar neural substrates upon observing

dance move sequences. Importantly, neural activity upon post-training observation of physically trained or passively observed movements was greater than watching the untrained sequences.

Although Cross et al. agree that observing an action with the intention to reproduce it leads to a better performance, action learning is still facilitated through observation even when attention is not focused on learning. This suggests that frequent spectators who watch dance for pleasure rather than for learning purposes can “accidentally” learn, and thus gain familiarity with the observed dance moves. This is consistent with Jola, Abedian-Amiri et al.’s finding (2012) that, in the absence of physical training, spectators with long-term visual experience of deliberately watching ballet, covertly simulated the movements for which they had acquired visual experience in a kinematic-compliant manner. More specifically, the simulation was revealed through the participants’ motor-evoked potential (MEP) amplitudes recorded from their forearm muscles. The authors relate their findings to Simulation Theory as they state that the observed brain activity showed how the spectators “would perform the movement, if they had to” (ibid. p. 8). However, this interpretation ignores the spontaneity of empathetic understanding as conceived in Interaction Theory, and as suggested by the evidence in this study itself. Keeping in mind that ballet is built on a choreographed relationship between movement and meaning (Martin 1939), the authors speculated that visually experienced ballet spectators show an enhanced understanding of the observed movements thanks to “having access to the action semantics of those movements for which they had gained visual experience” (Jola, Abedian-Amiri et al. 2012, p. 9). They support their interpretation with the findings by Möttönen et al. (2010) showing that greater brain activity is facilitated upon observing hand actions to which one can attribute a meaning. In the same line, in a study by Reason and Reynolds, unfamiliar spectators reported to have experienced “distance and inability to connect with (...) the movements being performed” due to their lack of familiarity (Reason and Reynolds 2010, p. 57).

In contrast with the studies above, Jola in collaboration with Ehrenberg and Reynolds (2012) came across an inconsistency in regards to brain activity and the role of familiarity. In this study, participants who had previous visual experience in watching classical ballet showed higher brain activity when watching classical ballet compared to the Indian dance Bharatanatyam, with which they were not familiar. However, this was not the case with familiar spectators of Bharatanatyam, who did not show higher brain activity upon watching the Bharatanatyam performance compared to when they watched classical ballet with which they were not familiar. At the same time, we should keep in mind that in the same study an unfamiliar

spectator of Bharatanatyam (who was however familiar with classical ballet) reported to have felt involved in both dances and experienced a physical response in the face or in terms of wanting to dance along. The difference was that this participant was evaluative of the ballet dancer's skills during the interview. This is consistent with Sheets-Johnstone's (2015, p. 2) claim that prior knowledge and experience of dance as gained through training or through spectatorship "only affect our aesthetic judgements and evaluations of that experience" but not "how responsive we are, pre-reflectively, to what is happening on the stage".

Evaluative responses were observed in Reason and Reynolds' (2010) study too, and, in some cases, they were based on the spectator's comparison with their own experience of dancing, which eventually led to emotionally engaged responses. In Reason and Reynold's study (2010), spectators' familiarity with the observed movements were considered to influence their ability to *imagine* themselves as the person moving; trained dancers imagined the movements in detail and with more precision, which is reminiscent of Warburton's (2011, p. 74) cited description of kinesthetic empathy as "a kind of covert simulation of physical action (...) at least for expert dancers" (see above).

As we can see, in qualitative research, participants tend to provide two kinds of reflections: one which focuses on the intentional object (in the terms of phenomenology), be it movement, dancer or the entire performance (e.g., "it is calm" or "it is beautiful"), and the other which describes the spectator's response (e.g., "I feel calm" or "I like it"), that is, how the spectators felt while watching the performance (Calvo-Merino, Jola et al. 2008). Importantly, neither kind of judgement has been able to be reliably matched to the third-person, "objective" data in terms of brain activity (Jola et al. 2012). This should not, however, be taken to imply that such judgements are unreliable. As we have seen from the first lines of Chapter 1, the capacities of human language to describe the experience of dance appear to be limited, even in the case of expert dancers as spectators. However, that should not be understood as implying that we are being (self) "deceitful" in expressing our experiences. Participants are (most of the time) doing their best to articulate their experiences, under the constraints of the experimental setup (see Mouratidou 2020, for a discussion of a parallel case concerning choice).

In the more brain-oriented research on the other hand, although familiarity has been shown to play a role in spectators' brain activity, the results have not always been consistent and it has rarely been clear what this implies on an experiential level on the side of the spectator, especially in terms of kinesthetic empathy (see Section 2.3.3). Based on the present model of kinesthetic empathy (see Section 2.3.3), it can be suggested that familiarity, be it familiarity gained through motor or visual experience, is tied to the more indirect, conscious kinesthetic

empathy which implies overt imagination of the perceived movements, and related evaluative responses. Conversely, the more direct, pre-conscious kinesthetic empathy, by the virtue of its panhuman nature occurs independently of the level of familiarity.

In sum, there appears to be some discrepancy between participants' reflections and direct experiences, expressed through brain activity or some other measure. Following the phenomenological analysis of movement and dance of Sheets-Johnstone (2015), as well as keeping in mind the findings presented in Sections 2.4.1 and 2.4.2, we could possibly account for this discrepancy by hypothesizing that it is only our reflections (evaluative and introspective responses) that are affected by a multitude of background factors, including familiarity with dance. On the other hand such factors do not have a direct relation to "how responsive we are, pre-reflectively, to what is happening on the stage" (ibid. p. 2).

2.4.2 Effects of the qualities of movement

As discussed in Section 2.2.2, we cannot even get out of a chair without manifesting distinct qualities such as "explosiveness", which can express determination and make us as observers, immediately feel the same. Such vitality affects are ever-present in our movements, and since we are submersed in an intersubjective world, we are able to directly experience the qualities we perceive in the observed movements.

Two studies – one by Calvo-Merino et al. (2008) and the other by Reason and Reynolds (2010) have connected the effect of qualities of movement with the degree of pleasure experienced by spectators. Based on the spectators' brain activity and ratings given in the behavioral questionnaire, Calvo-Merino et al. showed that spectators appeared to prefer dance movements that involve "whole body movement with significant displacement of the body in space (e.g. jumping)" (ibid. p. 918) rather than in-place movements that involve movement of a single limb and no significant displacement of the torso. On the other hand, Reason and Reynolds found that spectators derived pleasure from those dance movements which they would be unable to perform. Moreover, qualities such as effortlessness, grace and flow (subsumed by the tensional quality in Sheets-Johnstone's terms) led the spectators to the admiration of the movements and the dancer's virtuosity.

2.4.3 Effects of dance style

Previous research has not shown consistent results in relation to the style of dance. For example, in Reason and Reynolds' study (2010), upon recognition of the dance type, participants

dismissed the dance as boring if it was the style that they disliked. On the other hand, in the same study, familiarity, irrespective of the dance style, affected responses to virtuosity and technique. Even greater inconsistency arose in Jola et al.'s (2012) study on classical ballet and Bharatanatyam, in which the familiar spectators of Bharatanatyam did not show differences in their brain activity between the dance style that they were familiar with and the dance style that they were not familiar with (see above). The authors explain this by the inconsistent visual experience of the latter group, but it might as well be related to the dance style. Thus, dance style could be a factor that affects kinesthetic empathy.

It is clear that the experience of dance spectatorship in relation to dance style needs to be further addressed. In this thesis, I use two dance styles: classical ballet and contemporary dance. Classical ballet is a discrete dance style with a well-defined “vocabulary”, while contemporary dance often combines elements characteristic of different dance styles (Jola et al. 2012; Reason and Reynolds 2010). In the mid-nineteenth century, classical ballet was challenged by the choreographer Merce Cunningham who, in opposition to what was characteristic of classical ballet, ascribed such elements to contemporary dance as (1) movement being expressive and devoid of any goal, intention or story; (2) independence between dance and music; and (3) unpredictability in the change of rhythm and direction of movements, among others.² Considering these juxtaposing features of the two dance styles, we might be able to give a clearer account of whether or not the experience of dance spectatorship is dance-style-related.

2.4.4 *Effects of music*

The experience of dance spectatorship in everyday settings is characterized by a *cross-modal bias*, a term that denotes how the effect of an affective stimulus presented to one sensory modality (e.g. visual) is altered by the affective stimulus presented to another modality (e.g. auditory)” (Stein et al. 1996). This is to say that in dance spectatorship the effect movements have on us is usually altered by music. This makes it hard to know for sure which one is truly responsible for the effects we experience as spectators.

One unfamiliar participant in the study by Reason and Reynolds (2010) felt that music was a must for the performance to be called “dance”. On the other hand, according to Calvo-Merino et al. (2008), music is only an additional element in dance, just like costume and narrative, and it is not necessary for defining dance as such. At the same time, they acknowledge that music has a huge impact on how spectators engage with the dance performance. In relation

² <https://www.contemporary-dance.org/contemporary-dance-history.html> (last accessed 30.04.2020).

to a section where there was no music but only breathing sounds, one participant in the study by Reason and Reynolds (2010) commented that she felt disengaged with the performers and became more stimulated only after music started again. Moreover, according to the authors of this study, empathetic responses and lack thereof were clearly associated with music type, not with movement. As these findings show, we cannot expect spectators to be affected by muted dance performances to the same degree as they would otherwise. Still, if we wish to truly understand how spectators respond only to *movement* - the essential element of dance - music needs to be left out from the study.

2.4.5 Effects of mediation

Most empirical studies have used video recordings of dance, even though this abstracts from important aspects of dance spectatorship. It has indeed been shown by various studies (e.g. Shimada and Hiraki 2006; Järveläinen et al. 2001) that spectators showed greater brain activity upon watching body movements live than on a screen. As noted in Section 2.1.2, direct perception of the life world is the most authentic, and fully non-mediated form of intentionality. Yet due to its dynamic and immersive qualities, film can facilitate a kind of “quasi-perception”, and especially if film directors are skillful, spectators can get the feeling of “being there” and confuse representation with reality, at least temporarily (see Section 2.1.2). Thus, even when a dance performance is mediated through video, there will likely be some effect on dance spectators.

2.5 Summary and general hypotheses

The impression from summarizing the field of dance spectatorship in the preceding three sections is somewhat contradictory. As stated above, Sheets-Johnstone’s detailed phenomenology of movement and dance (Sections 2.2, 2.3) distinguished a number of qualities of movement, which could be related to Stern’s notion of vitality affects: a pan-human feature of intersubjective experience that is not based on previous experience of a particular dance style. This is also consonant with Interaction Theory, which implies a rather direct form of empathy, without simulating others’ movements or theorizing about them. On the other hand, familiarity seems to influence spectators’ evaluative responses and their tendency to “simulate” movement by imagining themselves as the persons moving while they are in fact sitting still (Section 2.4.2). These contradictory findings are not made more easily interpretable by the fact

that the more empirical the research on dance spectatorship, the more reductive it has been, using “three-second videos”.

Still, it is possible to suggest a possible interpretation that goes as follows. Spectators will respond to basic qualities of dance, in a (nearly) universal manner, irrespective of culture and previous experience, simply by virtue of being embodied human beings. To the extent that different dance styles are characterized by differences in such qualities, there should be observable differences in dance perception. This leads us to the first general hypothesis.

- GH1. Spectators’ *pre-conscious* kinesthetic empathy will depend not on previous experience with dance, but on differences in the qualities of movement across dance styles.

Conversely, participants’ conscious, and verbally formulated judgements concerning the dance and dancer can with good reason be expected to be influenced by previous experience (e.g. recognition of the observed movements either through motor or visual familiarity) as it would be used as a basis for evaluating the dancer’s performance. This would result in a higher ability to mentally re-enact the observed movement. Consequently, the following second general hypothesis can be formulated.

- GH2. Evaluations of observed dances, possibly based on *conscious* kinesthetic empathy, will be more consistent between spectators who are more familiar than between those who are less familiar with dance.

A higher ability to mentally re-enact the observed movement would also lead to a higher ability to describe its affective significance in terms of introspections about one’s emotional responses. In addition, assuming that the border between the pre-conscious and the conscious levels of kinesthetic empathy is not sharp, in accordance with phenomenology, an additional hypothesis may be formulated:

- GH3. There will be a correlation between (a) spectators’ introspections and (b) their bodily reactions, possibly stronger for familiar than for unfamiliar spectators.

These hypotheses were tested in the empirical study described in the following chapters.

Chapter 3. Methods

In this chapter I present the specific kind of pheno-methodological triangulation (see Section 2.2) used in the study, realized as (a) an experiment measuring psychophysiological responses to video-recorded dance, combined with (b) a questionnaire and (c) an interview with the participants. I begin by presenting the various materials used (Section 3.1) and the participants, including the method of grouping participants based on previous dance experience (Section 3.2). I continue with presenting the procedure (Section 3.3), the analysis of the dance videos (Section 3.4) and conclude with specific hypotheses, operationalizing those presented at the end of the previous chapter (Section 3.5).

3.1 Materials

3.1.1 Dance stimuli

The study used video clips of two dance pieces, and one additional for training the participants.³ These were performed by a professional dancer with 17 years of training experience in classical ballet and three years of training experience in contemporary dance:

- Classical ballet: “Dying Swan”, performed to the music of *Le cygne* by the French composer Camille Saint-Saëns; 2.57 minutes long
- Contemporary dance performed to the song “Miss you” by Trentemøller; 3.59 minutes long.⁴

These two pieces of music have a comparably slow tempo. The dancer improvised⁵ to the music under the restriction that she followed the music and occupied approximately the same amount of space. The dances were performed in the same room. The dancer was wearing minimal makeup and the same outfit for both dances: black top, black shorts and white tights. In the classical ballet performances, she was wearing pointe shoes while in contemporary dance she was barefoot.

³ The additional one was a ballet piece of 3.28 minutes in duration and performed to *Waltz of the Flowers* by Tchaikovsky.

⁴ Videos are available at: <https://drive.google.com/drive/u/0/folders/1EECCPuauaT8euio7g2A-XoxZxgrZqvGl>

⁵ The fact that the dances were improvised and not strictly controlled can, to some extent, be considered as a shortcoming in the design of the study.

In the experiment, the pre-recorded dance video clips were presented with the stimulus presentation and response collection software *E-prime 2*, with a resolution of 1000 (W) x 564 (H). In order to focus on how participants respond to movement, the essential element of dance, the music was muted throughout the presentation of the video clips.

3.1.2 Analysis of the qualities of movement in the dance stimuli

GH1 predicted that spectators' direct, pre-conscious kinesthetic empathy would be affected by the qualities of movement differentially across dance styles (Section 2.5). For this reason, as part of the first-person method adopted by the thesis (Section 2.2.1), I analyzed the two dances in terms of such movement qualities. The analysis showed that intuitions regarding the linear and projectional qualities (Section 2.2.2) were more obvious and easily distinguishable. Thus, here I limit myself to these two qualities. Moreover, since the dances were of different lengths, the differences are shown in percentages. The detailed analysis of the qualities of movement in each dance showed noticeable differences (summarized in Table 5; see Appendix B for more details), boiling down to unpredictable changes in movement as the influential factor, a typical feature of contemporary dance.

Table 2. Differences in the proportions of employment of the linear and projectional qualities in the classical ballet and contemporary dance; SDoB = *significant displacement of the body*.

Quality of Movement	Specification		Classical ballet	Contemporary dance
Linear Quality	Linear pattern	Straight	90%	93%
		Circular	10%	7%
	Linear design	Straight	72%	15%
		Curved	28%	85%
	SDoBs		7%	22%
Projectional Quality	Sustained		88%	83%
	Abrupt		12%	7%
	Ballistic		-	10%

To remind, the “linear quality” is the extent to which the body and the movement created by the body are straight, as opposed to, for example, moving in a circular or zig-zag manner, or with curved body shape (Section 2.2.2). Analysis showed that in the classical ballet, the body of the dancer generally moved in straight lines with a straight design. It was only in roughly 10% of the dance that the body moved in circles and only 28% that the body appeared curved. On the other hand, in the contemporary dance the body of the dancer was predominantly curved, and it appeared straight in only roughly 15% of the entire dance (compare examples *a* and *b* in Figure 5).

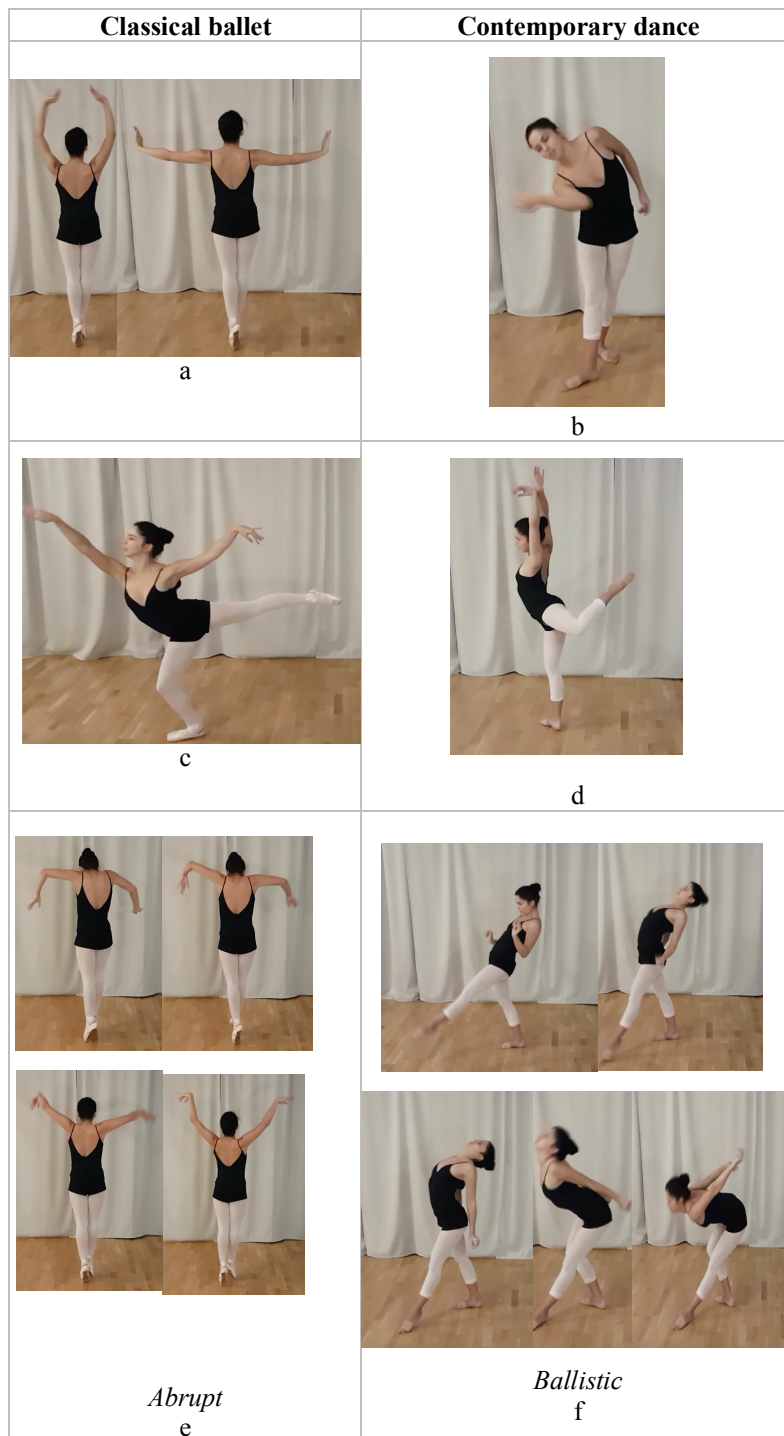


Figure 2. Differences in the linear and projectional qualities of movement in the classical ballet and contemporary dance.

In the classical ballet, it was common for the linear design of one body part to change while the linear design of the rest of the body remained the same. This is not surprising considering that this particular dance mainly relies on arm movements, which follow a rather basic pattern – the design of the arms changes from vertical to diagonal to horizontal as they

move up and down, eliminating an element of surprise. On the other hand, such occurrences were unusual in the contemporary dance, to be found only at the very beginning and very end of the dance. There were few instances in the contemporary dance where only one part of the body changed at a time, since the body of the dancer was continually bending (compare examples *a* and *b* in Figure 5).

Interestingly, the classical ballet showed that movements that involved a large variation in the linear design of the body parts also involved, what could be called, *significant displacement of the body* (SDoB). SDoBs were defined as extreme changes in the linear design of the body parts. This would involve body parts angled or extremely bent from their usual linear design, making them “stick out”, such as horizontal or upward diagonal positioning of the legs while throughout the dance they tend to be vertical, touching the floor (compare examples *c* and *d* in Table 5).⁶ Five instances of SDoB were identified in the classical ballet, stretching over a total of 13 seconds, which is roughly 7% of the entire dance. As noted earlier, in the contemporary dance the various body parts tended to bend in various ways at the same time, meaning that their linear design changed continually. However, extreme changes occurred in the linear design in twelve instances, marked as SDoBs. These stretch over 52 seconds, constituting roughly 22% of the entire dance.

While most movements that involved SDoB unfolded in a smooth and sustained manner, some appeared abrupt or even ballistic. This corresponds to the *projectional quality*: the manner in which perceived force is released – in a sustained, abrupt or ballistic manner (see Section 2.2.2). During the analysis, a movement was considered abrupt if the linear design of body parts changed unexpectedly, ballistic if the body appeared as if it was being pulled by some external force (compare examples *e* - focus on the head - and *f* - focus on the head and upper body - in Figure 5), and sustained in all other cases, i.e. cases in which the movement followed its generally established pattern in a smooth way. Movements were generally sustained in the classical ballet, and only roughly 12% of the movements were abrupt, equaling a total of 22 movements.⁷ No ballistic movements were found in the ballet. On the other hand,

⁶ The notion of SDoB was in part based on the work of Calvo-Merino et al. (2008), who found that spectators appear to prefer dance movements that involve whole body movement such as jumping, as opposed to single limb movements with no significant displacement of the body.

⁷ The dances were divided into separate movements based on the changes in the direction of the movement and in the linear design of the moving body. This is to say that one second did not necessarily correspond to one movement, that is a certain movement could stretch over a few seconds. Several of such movements included movement of two (or more) body parts. In such cases, *abrupt* and *ballistic* were marked as many times as the number of involved body parts and the duration of the movement.

in the contemporary dance abrupt and ballistic movements represented roughly 17% of all movements (16 movements were abrupt and 24 ballistic).

To summarize, the contemporary dance appeared to defy expectations and offer novelty and an element of surprise more frequently, owing to its higher number of SDoBs, the continually and unexpectedly curving body which exerted force not only in an abrupt but also in a ballistic manner.

3.1.3 Skin conductance and respiration

In order to estimate bodily reactions in response to dances, a third-person method was used, based on continuously measuring the rates of respiration and skin conductance of the participants. Skin conductance is a psychophysiological measure, considered to reflect changes in “emotional arousal” (e.g. Lang et al. 1998; Khalfa et al. 2002). It may be measured by applying low levels of voltage through one electrode and capturing it with another (Braithwaite et al. 2015). Changes in skin conductance are facilitated by sweat, which is a great conductor of electric current. The present experiment used the TBS203 transducer with two electrodes, whose cavities were filled with electrode gel (Signa Gel “GEL 100”), attached to the palmar surface of the tips of the index and middle fingers (see Figure 2) on the non-dominant hand of the participant (the left-hand for most of the participants, and the right-hand for those who reported to be left-handed).

There are two types of skin conductance measurements: Tonic skin conductance measures the baseline level of skin conductance, also referred to as Skin Conductance Level (SCL), irrespective of any discrete event in the stimulus. The typical tonic level usually ranges between 2-20 or 10-50 μ S (microsiemens), according to different sources.⁸ Phasic skin conductance measures rapid event-related changes, referred to as Skin Conductance Responses (SCRs) or Galvanic Skin Responses (GSRs). SCRs are sudden increases in the skin conductance, lasting 10-20 seconds and followed by a return to the baseline level of skin conductance SCL. The standard SCR rate per minute varies from one to three during rest and over 20 per minute in high arousal situations (Braithwaite 2015).

As Bach et al. (2010) note, SCL as well as the rate and amplitude of SCRs are the most commonly used variables of skin conductance in measurements of emotional arousal. Higher SCL has been associated with higher arousal by, for example, Jacobs et al. (1994) and Osugi

⁸ <https://www.rsu.edu/wp-content/uploads/2015/06/TheGalvanicSkinResponseGSRInvestigationCheating.pdf>
<https://www.tobiipro.com/learn-and-support/learn/GSR-essentials/types-of-gsr-components/> (last accessed 12.01.2021)

(2018). Osugi (ibid.) further associated a higher rate of SCRs with higher arousal. In the present experiment tonic skin conductance was measured in terms of mean SCL and phasic skin conductance in terms of the rate of SCRs per minute.



Figure 3. electrodes attached to the palmar surface of the tips of the index and middle fingers.

Faster breathing, resulting in a higher number of respiratory cycles (RCs), has also been associated with higher emotional arousal (e.g. Woodworth and Schlosberg 1955; Nyklicek et al. 1997; Boiten 1998). The typical respiration rate for an adult in a resting state is from 12 to 20 breaths per minute.⁹ In the present study, faster respiratory effort would yield a higher rate of respiratory cycles (inhalation + exhalation) per minute, which is what was analyzed in order to measure participants' respiratory effort. Respiration was measured using the RSP100C amplifier module together with the TSD201 respiration transducer, also known as Respiration Belt Transducer, which can even measure extremely slow respiration patterns. The respiration transducer, with its accompanying belt, was attached to participants around the abdomen, and abdominal expansion and contraction were measured while breathing, as shown in Figure 3.¹⁰



Figure 4. Respiration belt transducer attached around the abdomen.

⁹ <https://my.clevelandclinic.org/health/articles/10881-vital-signs> (last accessed 12.01.2021).

¹⁰ For technical details, see BIOPAC Systems, Inc. Product Sheet. TSD201 – RESPIRATION TRANSDUCER. <https://www.biopac.com/wp-content/uploads/TSD201.pdf> (last accessed 12.01.2021).

To collect and analyze data from the two devices, the BIOPAC System MP150 device was used.¹¹ The system was coupled with a module for the registration of skin conductance (GSR100C), and a module for the registration of respiration (RSP100C). The output from the MP150 was collected and processed by *AcqKnowledge* (version 5.0), software that allows the researcher to view, measure and analyze the data.¹² The MP150 received a digital signal from the stimulus-presentation computer with a value of 0 volts during clip presentation time and a value of 5 volts otherwise (see Figure 4).

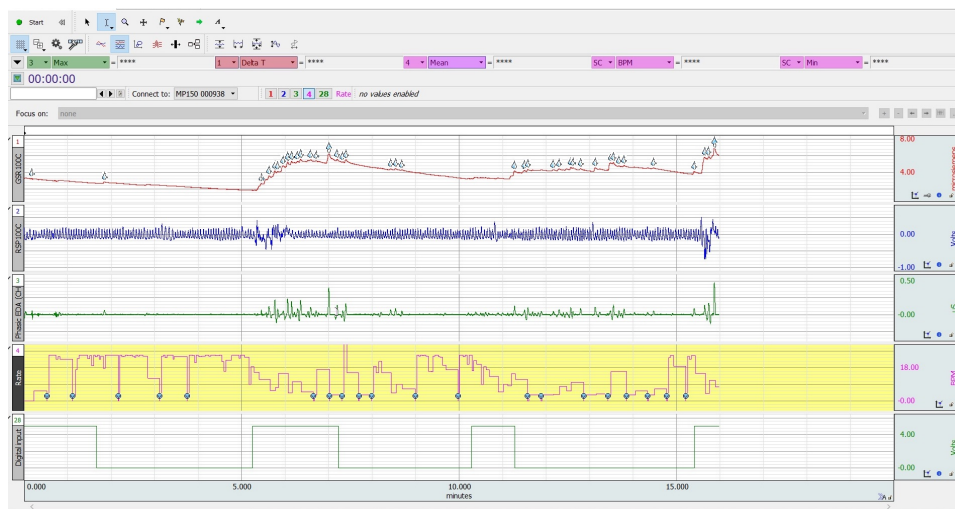


Figure 5. In the bottom “Digital Input” line, the falls – 0 volts - represent clip presentation time and rises – 5 volts - represent breaks before, between and after the clips.

3.1.4 Questionnaire and interview

With the help of a questionnaire, the participants evaluated their own reactions to and evaluations of the dance performances. This consisted of eight questions, shown in Table 2. Four of these focused on the participant’s evaluation of the observed movements, including the dancer’s skills, while the other four focused on their own emotional and attention states.

The questions were presented on a computer screen in a randomized order, along with a 6-level Likert scale, where 1 was the lowest and 6 was the highest. For instance, in answer to the question IQ4 “*How focused did you feel while watching the dance?*” the participants could

¹¹ For technical details, see BIOPAC Systems, Inc. Product Sheet. <https://www.biopac.com/wp-content/uploads/MP150-Systems.pdf> (last accessed 12.01.2021)

¹² For technical details, see BIOPAC Systems, Inc. <https://www.biopac.com/product/acqknowledge-software/> (last accessed 12.01.2021).

answer, using the keys on the keyboard, from 1 (not at all focused) to 6 (very focused). The 6-point scale was chosen to exclude a “neutral” middle value.

Table 3. Questionnaire, targeting the participants’ evaluations of the dance (EQ1-4) and their introspections, directed at themselves (IQ1-4), translated from Swedish.

<i>Evaluative</i>	EQ1. How good would you say the dancer’s performance was? EQ2. How effortless and light did you find the dancer’s movements? EQ3. How well-controlled did you find the dancer’s movements? EQ4. How fluid did you find the dancer’s movements in general?
<i>Introspective</i>	IQ1. How much did you enjoy the dance? IQ2. How emotionally close to the dancer did you feel? IQ3. How relaxed did you feel while watching the dance? IQ4. How focused did you feel while watching the dance?

Given that quantitative measures using questionnaires of subjective phenomena are not always reliable (e.g. Fayers and Machin 2000), an interview where the participants were given a chance to report freely on their experiences of the dances was used as a complement. This was a semi-structured interview, inspired by the idea of a “phenomenological interview” (Polio et al. 1997), which aims at describing participants’ experiences using meanings and frames of reference that are continually clarified by the researcher and the participant, as one would do in a naturally-occurring dialogue. The interview included nine pre-determined questions designed to elicit answers about how the participants experienced each dance they watched (see Table 3). Seven questions focused on emotional responses and two questions on perceived (or imagined) bodily reactions – all focusing on the participant’s experience, and not on the dance or the dancer. In the spirit of a phenomenological interview, the questions were adjusted to fit with the proceeding of the dialogue.

Table 4. Interview questions focusing on (a) participants' emotional responses and (b) their bodily reactions, translated from Swedish.

<i>a</i>	<ol style="list-style-type: none"> 1. How did you feel in general while watching this dance? 2. Which statement describes your experience best? <ol style="list-style-type: none"> a. I was so engaged in the dance that at no point did I think about my surroundings. b. I was not that engaged in the dance. 3. Did you feel emotionally affected by the dance? 4. Which three adjectives would you use to describe the feelings you experienced while watching the dance? 5. How did the dancer's facial expressions make you feel? 6. What feelings did you think the dancer communicated in the dance? Did she make you feel the same? 7. In sum, how would you describe the experience of the dance in your own words?
<i>b</i>	<ol style="list-style-type: none"> 1. Did you feel anything in your body? What? Where? 2. Did you at some point feel the desire to move along with the dancer? Which part of the body felt like moving in particular?

3.2 Participants

20 participants (13 female) aged between 20 and 46 years old (mean 27.9) participated in the study, in exchange for a cinema ticket, provided by the MA Program in Language and Linguistics at Lund University. The participants were recruited with the help of fliers put up around the university and online announcements. All participants were native speakers of Swedish, except for one, who was nevertheless a fluent speaker of Swedish. 17 participants were right-handed, and 3 were left-handed. Each participant was assigned a code, for convenient, anonymous reference.

Participants were categorized in two main groups: (relatively) Unfamiliar (UF) and Familiar (F) with dance, as shown in Table 4. To belong to the Familiar group, a participant needed to meet two criteria: (a) have at least two years of dance training (classical ballet, contemporary or another kind of dance) and (b) be a relatively frequent dance viewer. As a result, ten participants were assigned to the Unfamiliar group: seven had no or insignificant (e.g. one month) experience in dance training; three had received dance training over half a year (UF10), a year (UF7) and two years (UF5). All had no or insignificant dance-viewing experience.

Table 5. Grouping of participants based on dance experience

	<i>Unfamiliar (UF)</i>	<i>Familiar (F)</i>		
Groups		<i>Somewhat familiar</i>	<i>Moderately familiar</i>	<i>Highly familiar</i>
Dance training	0-2 years	2-5 years	6-10 years	20+ years
Participants (codes)	UF1, UF2, UF3, UF4, UF5, UF6 UF7, UF8, UF9, UF10	F1, F2, F3	F4, F5, F6, F7, F8	F9, F10

The Familiar group was more heterogeneous. One participant (F2) who had received dance training of only two years, was the most frequent spectator of both classical ballet and contemporary dance as well as the only participant that described their attitude towards both of these two dance types as “I love classical ballet/contemporary dance”. Together with this participant, I assigned two more (F1 and F3, with dance training of four and five years, respectively) to the sub-group “somewhat familiar”. Five participants (F4, F5, F6, F7, F8) were classed as “moderately familiar” as their dance training varied between six to ten years. The remaining two participants (F9 and F10) were sub-grouped as “highly familiar” as they had received long dance training (over 20 years). However, the differences between the two were considerable. While F10 had received training in both classical ballet (11 years) and contemporary dance (25 years), along with having noticeable spectatorship experience in these dance styles, F9 had received insignificant training in classical ballet (four-five lessons), with extensive dance experience from dance types other than classical ballet and contemporary dance. The spectatorship rate of this participant in these dance styles was also relatively low.

3.3 Procedure

3.3.1 Introducing the study

Participants first received detailed information about the setup of the study, and were told that it investigated how spectators experienced dance. After signing an Informed Consent form which described the specifics of participation and guaranteed anonymity (see Appendix A), basic data about participants were collected concerning age, gender, mother tongue and handedness. All participants were offered a glass of water as well as some raisins and chocolate

to make sure they were not hungry, dehydrated or sleepy. This, and all other steps were conducted in Swedish.

3.3.2 Initial interviews

The participants were introduced with the following brief descriptions of classical ballet and contemporary dance and asked if they agreed to them. If they did not fully agree, suggestions were discussed.¹³

Classical ballet has precise and fluid movements. Unlike classical ballet, contemporary dance emphasizes a freer and less regulated movement vocabulary. Contemporary dance is associated with floor contact and there is a kind of "weight" in the dance movements. In contemporary dance you experiment a lot with body, room and music. You don't do that in classical ballet (*Translated from Swedish*).

After this, the participants were asked questions about their training and viewing experience of dance (classical ballet, contemporary and other types) as well as their attitude towards classical ballet and contemporary dance. Based on their experience of dance and their preferences, the participants were grouped, as described in Section 3.2.

3.3.3 Experiment

Prior to the start of the experiment, the participants were once again given a detailed description of what was going to happen in this part. It was emphasized that all dance video clips would be shown without sound. First, the respiratory belt was attached around the participant's abdomen. After this, the participant was asked to take a seat in front of the stimulus-presentation computer, and the two electrodes were applied. The participants were instructed to sit straight and not move or talk while watching the videos. The training video (see footnote 2) was shown, and participants were asked if they felt comfortable (the respiration belt was adjusted in a few cases), or had any questions.

After a short break (ca. 1 minute) the two muted dances were shown, with a one-minute break in between. Ten participants saw the classical ballet first, while the remaining ten saw the contemporary dance first. While the participants watched the two dances, their psychophysiological responses were measured. At the end, the electrodes and the respiratory belt were removed. This step took approximately ten minutes.

¹³ The definitions were revised in the case of one familiar viewer 10130 after such a discussion.

3.3.4 Questionnaire and interview

The participants were once again shown the two target dance videos (without sound), in the order in which they had seen them in the previous step, with a one-minute break in between. This time the participants were encouraged to focus more on how they experienced the two dances. For each dance, they first answered the Likert scale questionnaire, and were subsequently interviewed. The step took approximately 30 minutes. With this, the session was concluded: the participant was thanked and provided with the film voucher.

3.4 Analysis of the collected psychophysiological and questionnaire data

As reviewed in Section 3.1.2, higher mean SCL, rate of SCRs and faster breathing have been associated with higher emotional arousal in previous studies. In the present study, faster breathing would translate into a higher rate of respiratory cycles. Thus, in regards to the psychophysiological data, mean SCL, rate of SCRs per minute and rate of respiratory cycles per minute were analyzed for each participant.

For each participant, mean Skin Conductance Level (SCL) was calculated by the help of *AcqKnowledge*.¹⁴ Furthermore, Skin Conductance Responses (SCRs) were located by means of deriving phasic electrodermal activity (Phasic EDA), measuring spontaneous fluctuations (Section 3.1.2), by the help of the software (See Figure 6).

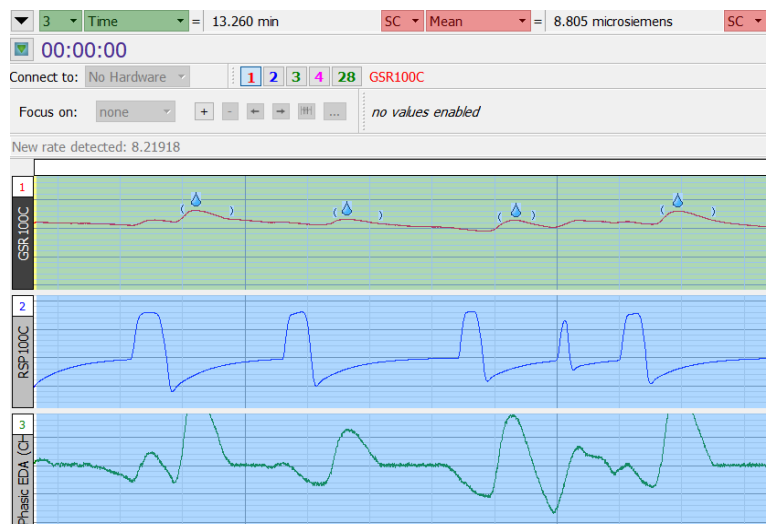


Figure 6. Example from part of the data of participant F9 in response to the contemporary dance. Mean SCL = 8.805 microsiemens, red box at the top-right corner; SCRs marked as peaks (water droplets) - channel 1, based on Phasic EDA analysis – channel 3.

¹⁴ Due to technical issues, Skin Conductance Level was measured without excluding Skin Conductance Responses from equation, which may (or may not) have slightly affected the values.

Moreover, each participant manifested an idiosyncratic breathing pattern (see examples from the respiration signal of participants UF2 and F9 in Figure 7). To analyze the rate of respiratory cycles (RCs), I identified a typical respiratory cycle for each participant and automatically marked similar respiratory cycles with the help of the software.

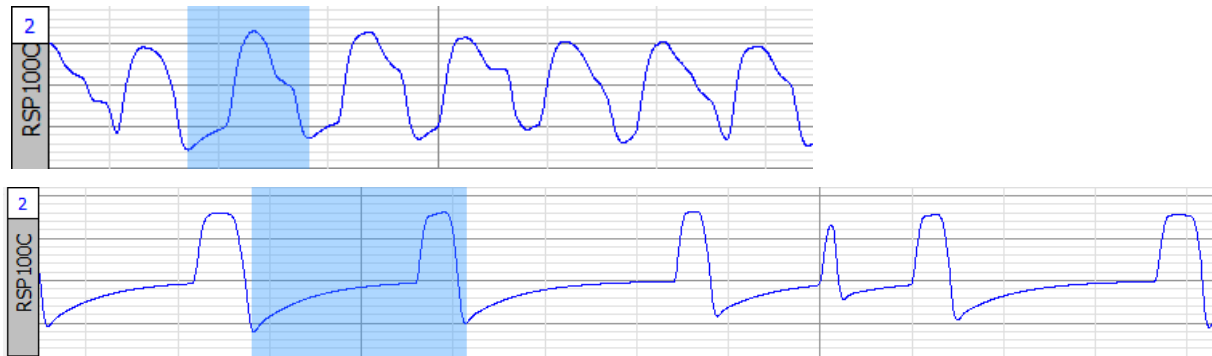


Figure 7. Identification of a typical respiratory cycle in participants UF2 and F9.

Statistical analysis was conducted for both the psychophysiological and questionnaire data. In intergroup comparisons independent samples t-tests were used for statistical analysis considering that in those cases no participant was tested twice. In intragroup dance style comparisons on the other hand paired t-tests were used as in those cases each participant was tested twice, once for classical ballet and once for contemporary dance. The statistical tests used were powered by GraphPad QuickCalcs.¹⁵ To account for variation in the evaluative responses provided by the two groups, Standard Deviation was calculated using Microsoft Excel. To correlate psychophysiological results with the introspective questionnaire responses, Pearson correlation coefficient was used.

3.5 Summary and specific hypotheses

In general, pre-conscious kinesthetic empathy was operationalized in terms of the levels of skin conductance and respiration, measures associated with emotional arousal in previous research, while conscious kinesthetic empathy was operationalized in terms of the judgements expressed in response to the questionnaire and interview. On the basis of the general hypotheses presented in Section 2.5 and the methodological operationalization provided in this chapter, the following *specific hypotheses* (SHs) were formulated. First, given that pre-conscious kinesthetic empathy was not expected to differ for the two groups (GH1), the following could be predicted:

¹⁵ <https://www.graphpad.com/quickcalcs/ttest1.cfm> (last accessed 10.08.2020).

- SH1: There will be no difference between the Familiar and Unfamiliar groups in terms of psychophysiological measures as expressed through the rate of SCRs per minute, mean SCL and rate of RCs per minute.

Second, given that the contemporary dance used in the study manifested a higher number of SDoBs as well as a continually and unexpectedly curving body, moving not only in an abrupt but also in a ballistic manner, the following could be predicted:

- SH2: The contemporary dance will induce a higher rate of SCRs per minute, mean SCL and rate of RCs per minute.

Third, given that familiar spectators would use their experience as a basis for evaluating the dancer's virtuosity and performance, they would have expectations about how the dance movements should be performed and would be more likely to agree with respect to this aspect of their conscious kinesthetic empathy than participants unfamiliar with dance. Thus the following could be predicted:

- SH3: Standard deviation in the evaluative questions of the Familiar group will be lower than that of the Unfamiliar group.

Finally, following from the general hypothesis (GH3) concerning a fluid boundary between pre-conscious and conscious levels of kinesthetic empathy, as well as considering that participants who are familiar with dance are more likely to be able to reenact the observed movement and to describe its affective significance more accurately, the following could be expected:

- SH4: There will be a correlation between the psychophysiological measures and the responses to the introspective questions, stronger for the Familiar than the Unfamiliar group.

Chapter 4. Results

4.1 Introduction and general observations

In the sections below I present general observations on the psychophysiological (4.1.1) and questionnaire (4.1.2) data. Sections 4.2 to 4.5 are dedicated to findings related to the four specific hypotheses (SH) proposed in Section 3.6.

4.1.1 Psychophysiological results

The dances were of slightly different lengths (see Section 3.4.1) and therefore, as Table 6 shows, the results were normalized by way of calculating the rates of Skin Conductance Responses (SCRs) and Respiratory Cycles (RCs) *per minute*. For some participants, no SCRs were detected in response to one or both dances, which is common if fluctuations are too small to be detected by the analysis software. The rate of SCRs per minute was generally lower or higher than the standard one-to-three range (see Section 3.1.2), and only three participants (UF4, UF8 and F10) showed the rate of SCRs to be within the standard range in response to both dances. Mean Skin Conductance Level (SCL) on the other hand was generally within the standard 2-20 microsiemens range (see Section 3.1.2), with the exception of participants UF7 and F5. As for the rate of Respiratory Cycles per minute, in total eleven participants had it within the standard range of 12-20 (see Section 3.1.2) in response to both dances. In five participants RCs were within the standard range in response to only one dance. The remaining four did not fall within the standard range in response to either dance.

Table 6. Rate of skin conductance responses (SCRs) per minute, Mean skin conductance level (SCL), rate of respiratory cycles (RCs) per minute: Raw and mean (in bold) values in the Unfamiliar (UF) and Familiar (F) groups in response to the classical ballet (B) and contemporary dance (C), and total mean (in bold) values irrespective of dance style.

	SCRs / min.		Mean SCL (microsiemens)		RCs / min.	
	B	C	B	C	B	C
UF1	0.0	4.5	3.1	7.5	6.9	6.0
UF2	0.0	0.0	2.7	4.6	16.3	15.8
UF3	6.5	5.6	15.7	16.9	9.5	9.7
UF4	1.3	2.4	4.2	4.3	17	17.3
UF5	5.2	6.6	7.0	8.9	10.8	12.9
UF6	0.0	0.0	6.4	8.9	16.6	16.6
UF7	0.0	0.0	1.0	0.8	14.8	14.9
UF8	1.3	2.4	9.8	10.2	7.5	13.2
UF9	2.3	3.4	7.7	9.4	13.9	13.2
UF10	4.9	4.6	13.6	14.0	16.7	16.7
Mean	2.2	3.0	7.1	8.9	13	13.6
Total Mean	2.6		7.8		13.3	
F1	2.3	0.5	5.1	2.0	16.9	16.9
F2	0.3	1.0	7.4	8.1	16.2	16.1
F3	0.0	1.2	9.2	9.5	12.9	11.0
F4	0.7	0.2	7.2	3.8	10.0	9.5
F5	0.0	0.2	1.8	3.2	5.8	14.2
F6	0.3	0.2	4.4	5.5	12.4	13.0
F7	1.0	0.2	11.7	9.1	10.1	12.6
F8	0.3	0.0	4.3	3.0	14.0	13.0
F9	0.3	0.0	8.6	5.1	6.8	5.6
F10	1.3	1.5	6.4	8.8	17.9	16.0
Mean	0.7	0.5	6.6	5.8	12.3	12.8
Total mean	0.6		6.2		12.5	

4.1.2 Questionnaire results

Table 7 shows an overview of the responses to the eight questions of the questionnaire (see Section 3.1.3). As can be seen, participants generally gave moderate to high ratings (ranging between 3-6) to the *evaluative* questions. Low ratings (ranging between 1-2) occurred only in response to EQ1 (*How good would you say the dancer's performance was?*) and EQ2 (*How effortless and light did you find the dancer's movements?*). The lowest average ratings were given to EQ2 in response to the contemporary dance (4.0 and 4.2) and the highest rating was given to EQ3 (*How well-controlled did you find the dancer's movements?*) in response to the classical ballet (5.0 and 5.6) by both groups.

As for the *introspective* questions (see Section 3.1.3), moderate to high ratings (ranging between 3-6) were given to IQ4 (*How focused did you feel while watching the dance?*) while

low ratings (ranging 1-2) were concentrated in responses to IQ2 (*How emotionally close did you feel to the dancer?*) in both groups. The lowest average ratings were given to IQ2 (3.4 and 3.6 in response to the classical ballet, and 2.8 and 3.6 in response to the contemporary dance) by both groups. The highest rating was given to IQ3 (*How relaxed did you feel while watching the dance?*) in response to the classical ballet (4.7) by the Unfamiliar group and IQ4 (*How focused did you feel while watching the dance?*) in response to the contemporary dance (4.5) by the Familiar group.

Table 7. Raw and mean results of the Evaluative and Introspective questionnaire data, in response to the classical ballet (B), and contemporary dance (C).

	Evaluative questionnaire data								Introspective questionnaire data							
	EQ1		EQ2		EQ3		EQ4		IQ1		IQ2		IQ3		IQ4	
	B	C	B	C	B	C	B	C	B	C	B	C	B	C	B	C
UF1	5	3	4	2	5	3	6	3	5	3	4	2	6	4	4	5
UF2	4	5	5	5	6	5	5	5	4	5	3	4	5	5	3	4
UF3	6	4	1	4	6	5	5	3	4	3	3	2	5	3	4	5
UF4	5	6	5	4	6	6	6	5	6	6	6	4	4	3	4	5
UF5	4	5	5	2	4	3	3	6	3	5	2	4	3	5	5	5
UF6	3	4	4	4	3	5	3	4	3	3	3	2	4	5	5	3
UF7	5	5	6	6	6	6	6	5	5	5	3	2	6	4	5	4
UF8	5	5	3	5	4	5	6	5	4	4	2	4	3	4	3	4
UF9	6	6	5	4	6	5	6	5	6	5	5	3	6	5	5	5
UF10	3	2	3	4	4	4	5	4	3	2	3	1	5	3	4	4
Mean	4.6	4.5	4.1	4.0	5.0	4.7	5.1	4.5	4.3	4.1	3.4	2.8	4.7	4.1	4.2	4.4
Mean B	4.7								4.2							
Mean C	4.4								3.9							
Mean B+C	4.6								4.0							
	EQ1		EQ2		EQ3		EQ4		IQ1		IQ2		IQ3		IQ4	
	B	C	B	C	B	C	B	C	B	C	B	C	B	C	B	C
F1	6	6	6	4	6	6	6	6	3	3	2	1	5	5	3	3
F2	6	5	5	3	5	5	5	5	5	4	5	4	4	2	5	5
F3	6	6	6	5	6	6	6	6	5	5	3	4	5	4	6	4
F4	5	6	6	5	5	5	3	6	6	6	5	6	5	5	4	5
F5	6	5	4	4	6	5	6	5	6	5	6	5	6	5	5	4
F6	6	5	5	5	6	6	5	6	4	3	4	2	3	4	4	4
F7	3	4	2	3	5	5	4	3	3	4	2	4	4	5	4	5
F8	5	4	4	5	6	5	5	5	5	4	3	4	5	4	3	4
F9	5	4	6	5	6	5	3	5	2	5	4	5	4	5	3	5
F10	3	2	2	3	5	4	4	4	1	1	2	1	2	1	4	6
Mean	5.1	4.7	4.6	4.2	5.6	5.2	4.7	5.1	4.0	4.0	3.6	3.6	4.3	4.0	4.1	4.5
Mean B	5.0								4.0							
Mean C	4.8								4.0							
Mean B+C	4.9								4.0							

In sum, the analysis showed that the Familiar group (4.9) gave a higher average rating in response to the evaluative questions than the Unfamiliar group (4.6) when the dance styles were combined. As regards the introspective responses, the two groups gave an equally high rating (4.0) when the dance styles were combined.

4.1.3 Correlation between psychophysiological and questionnaire results

To evaluate the correlation between the psychophysiological and questionnaire values, a correlation analysis was performed (see Table 8). The strength of correlations may for present purposes be interpreted as follows: 0.1-0.24 for *weak*, 0.25-0.49 for *moderate*, and 0.50-1.0 for *strong* (Cohen 1992), though it should be noted that the precise borders are somewhat arbitrary.

Table 8. Correlation between psychophysiological variables and questionnaire responses, with moderate and strong correlations in bold face.

SCRs: SCL			
0.66			
SCRs: RCs	SCL: RCs		
-0.06	-0.11		
SCRs: EQs	SCL: EQs	RCs: EQs	
-0.42	-0.49	0.04	
SCRs: IQs	SCL: IQs	RCs: IQs	EQs: IQs
-0.14	-0.28	0.06	0.33

As Table 8 shows, skin conductance variables, i.e. SCRs and SCL were positively correlated while they had very weak or no correlation with RCs. In this general analysis wherein the groups were not considered separately, SCRs and SCL had a moderate, notably *negative* correlation with the evaluative responses. Both SCRs and SCL further had a negative correlation with introspective responses. However, in the case of SCRs the correlation was rather weak and in the case of SCL it was moderate. This means that participants with high skin conductance values also gave lower ratings in response to the evaluative questions, and likewise, but to a lesser extent, in response to the introspective questions. It should also be noted that on this general level neither introspective nor evaluative responses were correlated with the respiration variable.

4.2 SH1: Unfamiliar vs Familiar group in psychophysiological values

SH1 predicted that familiarity would not be a contributing factor in participants' psychophysiological values in response to the viewing of dance, as such values were hypothesized to correspond to pre-conscious (direct) kinesthetic empathy, which should not be affected by dance expertise.

Figure 8 shows the average values of SCRs, SCL and RCs for the two groups for both dance styles combined. The means in all three psychophysiological variables were higher for the Unfamiliar group than in those for the Familiar group. For SCRs the difference between the two groups was in fact significant ($t = -3.535$, $df = 38$, p -value = 0.0011), but not for mean SCL ($t = -1.3357$, $df = 38$, p -value = 0.1896), nor for RCs ($t = -0.6598$, $df = 38$, p -value = 0.5134). Given that two of the three psychophysiological variables did not show significant differences, we may regard SH1 as predominantly supported.

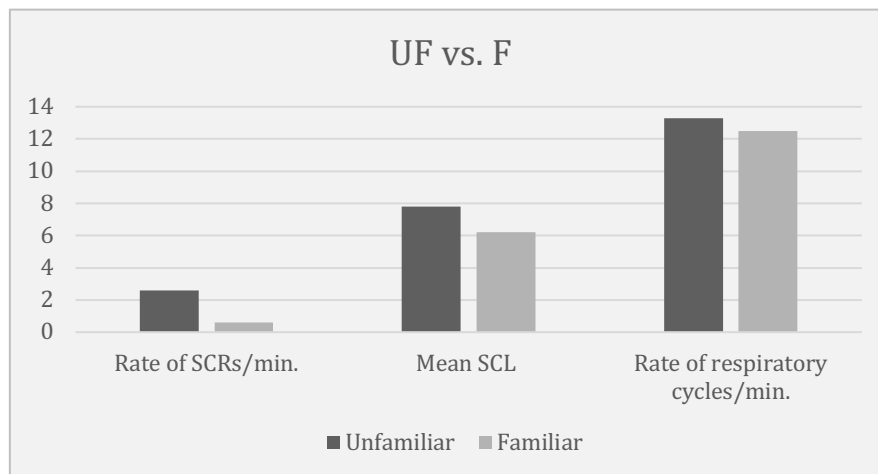


Figure 8. Comparison of the Unfamiliar and Familiar groups, with both dance types combined: Rate of Skin Conductance Responses per minute, mean Skin Conductance Level, rate of Respiratory Cycles per minute.

4.3 SH2: Classical ballet vs Contemporary dance in psychophysiological values

SH2 predicted that the contemporary dance would induce higher values in terms of SCRs, SCL and RCs in participants, regardless of their familiarity, due to the higher proportion of linear and projectional qualities that lead to novel developments in movements in the contemporary dance (see Section 3.4.1, Figure 5).

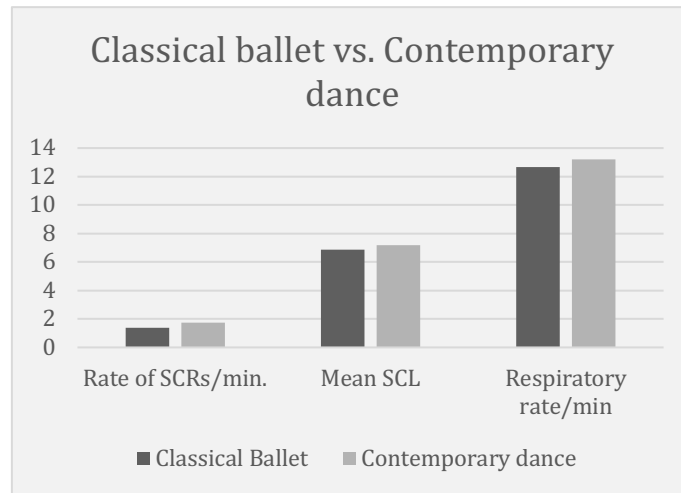


Figure 9. Comparison between responses to the classical ballet and contemporary dance, irrespective of familiarity.

As Figure 9 shows, the contemporary dance indeed induced a higher rate of SCRs per minute, higher mean SCL and a higher rate of RCs per minute than the classical ballet. However, the difference in SCRs was not statistically significant ($t = -1.1387$, $df = 19$, $p = 0.2690$), nor was it significant in mean SCL ($t = -0.6586$, $df = 19$, $p = 0.5180$) or in RCs ($t = -0.9990$, $df = 19$, $p = 0.3304$).

To interpret these results, intragroup analysis of the responses was performed, and the differences between the two dance styles within each group were tested statistically with paired t-tests. The Unfamiliar group showed higher average values in all three variables in response to the contemporary dance than to the classical ballet (see Figure 10). The difference between the classical ballet and contemporary dance was not statistically significant in relation to SCRs ($t = -1.6828$, $df = 9$, $p = 0.1267$) or RCs ($t = -1.0158$, $df = 9$, $p = 0.3363$), but the difference in relation to mean SCL was ($t = -3.2825$, $df = 9$, $p = 0.0095$).

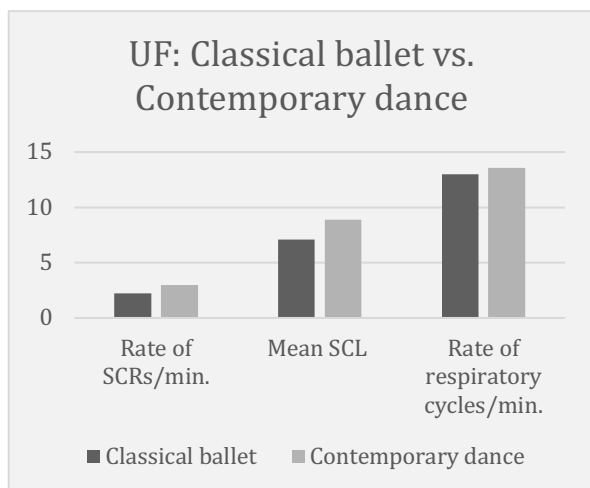


Figure 10. Mean comparison between psychophysiological values in response to the classical ballet and contemporary dance in the Unfamiliar group.

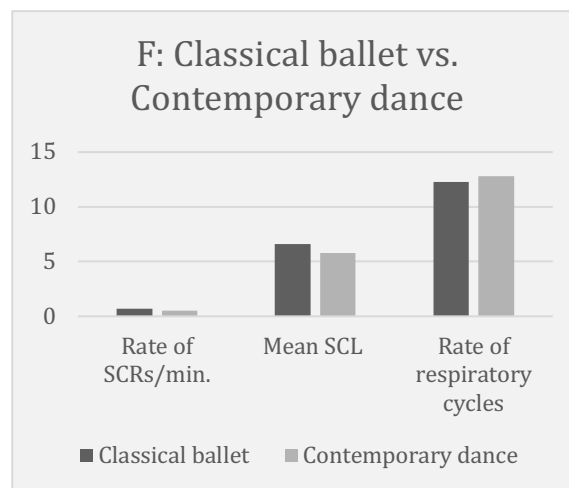


Figure 11. Mean comparison between psychophysiological values in response to the classical ballet and contemporary dance in the Familiar group.

Unlike the Unfamiliar group, the Familiar group showed somewhat lower values in skin conductance variables in response to the contemporary dance than to the classical ballet. On the other hand, respiration values were, as with the Unfamiliar group, higher in response to the contemporary dance than to the classical ballet (see Figure 11). The differences were, however, not statistically significant in relation to SCRs ($t = 0.5759$, $df = 9$, $p = 0.5788$), mean SCL ($t = 1.1316$, $df = 9$, $p = 0.2870$) or RCs ($t = -0.5051$, $df = 9$, $p = 0.6256$).

To sum up, the Unfamiliar group showed consistently higher values in all three variables in response to the contemporary dance than to the classical ballet, with one statistically significant difference between the two dances. Thus, SH2 was partly supported, in the case of the Unfamiliar group. However, since only one group showed a difference in terms of dance style, this suggests some effect of familiarity on the psychophysiological variables, which can be seen as contradicting SH1, which, to remind, predicted no general role of familiarity.

4.4 SH3: Intragroup variation in the evaluative judgements

SH3 predicted less variation in the evaluative responses of the Familiar group than in those of the Unfamiliar group, as these responses were expected to reflect conscious judgements, at least in part based on conscious kinesthetic empathy, expected to be modulated by familiarity.

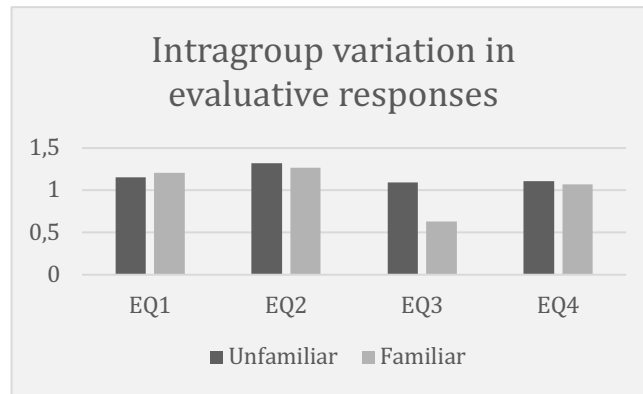


Figure 12. Standard deviation in the evaluative responses of the Unfamiliar and Familiar groups to questions 1-4.

Analysis showed (see Figure 12) that the standard deviations in the responses to EQ2, EQ3 and EQ4, focusing on the degree to which the dancer's movements were effortless, well-controlled and fluid, were lower in the F-group ($SD = 1.27$, $SD = 0.63$ and $SD = 1.07$, respectively) than in the UF-group ($SD = 1.32$; $SD = 1.09$ and $SD = 1.11$, respectively). However, the standard deviation in the responses to EQ1, focusing on how good the performance was in general, was higher in the Familiar group ($SD = 1.21$) than in the Unfamiliar group ($SD = 1.15$). An independent samples t-test was used for statistical analysis, which showed that the difference between the standard deviations measuring variation in the evaluative responses of the two groups was not statistically significant ($t = 0.7969$, $df = 6$, $p = 0.4559$), rendering SH3 unsupported.

4.5 SH4: Correlations between psychophysiological values and introspective responses

SH4 predicted a correlation between the psychophysiological results and ratings given in response to the introspective questions in the questionnaire, more for the Familiar than the Unfamiliar group. The reasoning was that the introspective responses should reflect conscious kinesthetic empathy, while psychophysiological values were supposed to reflect pre-conscious kinesthetic empathy, and that a degree of overlap between the two levels of kinesthetic empathy would occur, possibly modulated by familiarity.

To estimate this, the two groups were considered separately. In this, still rather general analysis (see Table 9), SCRs and RCs had mostly moderate (ranging between -0.39 and -0.47) and some even strong (ranging between -0.54 and -0.60) correlations with the introspective responses in the Familiar group, and mostly weak and moderate correlations (ranging between -0.20 and -0.37) in the Unfamiliar group. In contrast, SCL had weak or moderate correlations

with the introspective responses in the Familiar group (ranging between -0.13 and -0.38), while the Unfamiliar group had moderate and strong, consistently negative correlations (ranging between -0.29 and -0.53). As noted in Section 4.1, the correlations between psychophysiological and introspective responses were negative for the most part. These general results considered together suggest that SH4 was supported as there was a correlation between the psychophysiological results and ratings given in response to the introspective questions, with somewhat stronger correlations overall in the Familiar group than the Unfamiliar group.

Table 9. An overview of correlations between psychophysiological values and introspective responses in the Unfamiliar and Familiar groups, with moderate and strong correlations marked in boldface.

	SCRs		SCL		RCs	
	UF	F	UF	F	UF	F
IQ1	-0.25	-0.12	-0.53	-0.13	-0.37	-0.12
IQ2	-0.20	-0.54	-0.33	-0.24	0.23	-0.60
IQ3	-0.28	-0.45	-0.29	-0.38	-0.05	-0.47
IQ4	-0.25	-0.43	-0.29	0.26	0.30	-0.43
Total	-0.01	-0.44	-0.31	-0.03	0.13	-0.39

To help interpret these findings, I separately analyzed responses to the introspective questions with regards to each dance. When the dance styles were considered separately, the Familiar group showed a similar number of moderate and strong correlations in response to both dances. Importantly, in response to the classical ballet the Familiar group had consistently negative correlations between all psychophysiological variables and introspective responses, with only one exception where SCL had a positive, but weak, correlation with IQ4. In response to the contemporary dance, on the other hand, they had somewhat mixed correlations: positive correlations were detected between all psychophysiological variables and IQ1 as well as between SCL and IQ4.

Table 10. Correlation between psychophysiological values and introspective responses in the Unfamiliar and Familiar groups, in response to the classical ballet (B) and contemporary dance (C), with moderate and strong correlations marked in boldface.

	Unfamiliar						Familiar					
	SCRs		SCL		RCs		SCRs		SCL		RCs	
	B	C	B	C	B	C	B	C	B	C	B	C
IQ1	-0.46	-0.04	-0.53	-0.51	-0.20	-0.53	-0.44	0.38	-0.38	0.17	-0.13	0.31
IQ2	-0.23	-0.08	-0.26	-0.35	0.34	0.16	-0.64	-0.46	-0.42	-0.10	-0.56	-0.66
IQ3	-0.21	-0.29	-0.22	-0.32	0.11	0.04	-0.21	-0.79	-0.26	-0.54	-0.46	-0.49
IQ4	-0.11	-0.47	-0.12	-0.56	0.36	0.21	-0.66	-0.02	0.20	0.41	-0.36	-0.59

The Unfamiliar group had somewhat mixed correlations in response to both dances. A notable difference was that the *positive* correlations were always weak (0.16 and 0.21) or almost non-existent (0.04) in response to the contemporary dance, while in response to the classical ballet they were mostly moderate (ranging between 0.34 and 0.36). The remaining correlations were negative and they were predominantly moderate or strong with regards to the contemporary dance (seven out of nine negative correlations) while with regards to the classical ballet the negative correlations were predominantly weak (six out of nine negative correlations). Notably, SCL – the psychophysiological variable that showed statistically significant differences between this group’s emotional arousal levels in response to the two dances in favor of the contemporary dance had moderate and strong negative correlations with all introspective responses to the contemporary dance. I return to these findings in the interpretations of the results offered in the following chapter.

Chapter 5. Discussion

5.1. Introduction

In this chapter, I bring together the general hypotheses (Chapter 2), the specific ones (Chapter 3) and results from Chapter 4, interpreting the findings with the help of the interviews. Section 5.2 provides interpretations about the effect of familiarity and the effect of the qualities of movement across dance styles (GH1). Section 5.3 focuses on the possible role of familiarity in the evaluative responses, where differences were expected to occur on the basis of expectations familiar spectators may have about how the dance movements should be performed (GH2). Section 5.4 interprets the observed correlations between the psychophysiological and questionnaire data (GH3).

5.2 Role of familiarity and dance style

It may seem reasonable to expect that familiarity would affect spectators' experience of watching dance, but previous findings on the issue have not been consistent. While in some studies (Calvo-Merino et al. 2006; Cross et al. 2009) watching familiar dance movements led to greater brain activity, in others it did not (Jola et al. 2012). One possible way to resolve such conflicting results was the two levels of kinesthetic empathy: pre-conscious and conscious proposed in Section 2.3.3. Assuming that at the level of pre-conscious kinesthetic empathy our bodies directly resonate with the other's bodily actions upon perception without the requirement of careful monitoring of our own body, GH1 predicted that pre-conscious kinesthetic empathy would not depend on previous dance experience. Indeed, the psychophysiological data showed that the psychophysiological values for the Familiar and Unfamiliar groups were for the most part similar (Section 4.2). However, some differences between the groups were found in relation to the other hypotheses, especially when analyzing the two dances separately.

With regards to dance style, GH1 predicted that spectators' pre-conscious kinesthetic empathy would depend on differences in movement qualities across dance styles. The classical ballet and contemporary dance employed in this thesis indeed showed to be different when they were compared based on Sheets-Johnstone's typology of the qualities of movement. Namely, the contemporary dance included a higher proportion of such linear and projectional qualities that appeared to defy expectations and offer novelty more frequently. As reported in Section

4.3, the corresponding specific hypothesis on this, SH2, was in part supported, but only for the Unfamiliar group. It is possible that the interview data on participants' feelings, attitudinal responses and bodily reactions can help shed light on the role of dance style, as well as of familiarity, in emotional arousal shown on the psychophysiological level. The section is divided into two parts. Section 5.2.1 focuses on SH1 predicting no difference between the groups in general as familiarity would not matter on the pre-conscious level of kinesthetic empathy while 5.2.2 provides interpretations regarding the role of dance style (SH2) in relation to the role of familiarity.

5.2.1 Effect of familiarity on pre-conscious level

First, it should be noted that both groups produced two kinds of judgements: introspective and evaluative. *Evaluative judgements* involved participants' descriptions of the dances and dance movements (see Section 5.3). Introspective judgements were directed at participants' experience and consisted of three kinds: those that described participants' feelings per se such as *lugn* ('calm') and *lätt* ('light'), hereafter *introspective judgements on feelings*; those that described participants' felt bodily reactions such as *fick ryck* ('got twitches'), hereafter *introspective judgements on bodily reactions*; and those that described participants' attitudes towards the performances, for example, *nyfiken* ('curious') and *imponerad* ('impressed'), hereafter referred to as *attitudinal judgements* (see Appendix C).

While both groups reported feeling more or less calm, relaxed and glad, using descriptions such as *lugn* ('calm'), *ostressad* ('not stressed'), *avspänd* ('relaxed'), *lättad* ('relieved') and *glad* ('glad'), positive introspective judgements on feelings still showed some differences. More specifically, only one Unfamiliar participant reported relatively complex aesthetic experiences, in contrast to seven Familiar participants who used descriptions such as *estetiskt* ('esthetic'), *komplett* ('complete'), *öppen på något sätt* ('open in some way') and *tänkte på naturen och balans* ('thought of nature and balance') among others. Additional noteworthy differences were found in what was considered as "strong negative feelings". The Unfamiliar group reported having experienced strong negative feelings seventeen times, while the familiar group reported having such feelings ten times. Moreover, while strong negative feelings such as *uttråkad* ('bored'), *obekväm* ('uncomfortable') and *irriterad* ('irritated') occurred in both groups, negative feelings were more pronounced in the Unfamiliar group. For example, there was a noticeable difference between the two groups with regards to "boredom", as illustrated in (1): the Unfamiliar participant appears much more bored than the Familiar

participant, despite feeling bored for similar reasons, namely that they did not get the chance to dance along.

- | | |
|---|--|
| (1) Unfamiliar: | Familiar: |
| <i>(...) jag inte får vara med; började jag tänka: 'är hon inte klar än?'</i> | <i>lite uttråkad efter ett tag för att jag ville dansa med</i> |
| (...) I do not get to join; I started thinking: 'Isn't she done yet?' | a bit bored after a while because I wanted to dance along. |

Some differences across groups occurred in terms of introspections on bodily reactions as well. Namely, the Unfamiliar group reported to have experienced uniform bodily reactions limited to (2) with only one of them occurring per participant. The Familiar participants reported not only these but also many other types of bodily reactions such as those in (3). Unlike Unfamiliar participants, each Familiar participant reported having experienced multiple bodily reactions at the same time.

- | | |
|--|---|
| (2) <i>fick ryck</i>
<i>got twitches.</i> | <i>hjärtat slog snabbare</i>
the heart was beating faster. |
| <i>lättare i kroppen</i>
lighter in the body | <i>ville röra på mig</i>
(I) wanted to move. |
| (3) <i>fick rysningar</i>
got shivers. | <i>resonerade lite med andning</i>
resonated a bit through breathing. |
| <i>jag ville dansa</i>
I wanted to dance. | <i>vissa rörelser som jag kände till kände jag dem i kroppen</i>
Some movements that I was familiar with, I felt them in the body. |
| <i>aktiverade mina ben</i>
activated my legs. | |

Importantly, the described differences did not occur independently of dance style, and when the dance styles were considered separately in the interviews, the effect of familiarity became even clearer, as reported below.

5.2.2 Effects of dance style and familiarity

If we look at the Unfamiliar participants' positive introspective judgements on feelings (see Appendix D), we see no noticeable difference in the intensity, as they used expressions such as *avslappnad* ('relaxed'), *mindre spänd/mindre stelt* ('less tense'), *lättad* ('lightened'), *inbjuden* ('welcomed') and *inspirerad* ('inspired') in response to both dances. However, the difference occurred in frequency: the majority (73%) of the total number of positive introspective judgements on feelings of the Unfamiliar group (48) were produced in response to the classical ballet, while only 27% were produced in response to the contemporary dance.

Noticeable differences occurred in their negative introspective judgements on feelings. More specifically, only 29% (10) of the negative feelings of the Unfamiliar group were reported in response to the classical ballet, while the remaining 71% (25) were reported in response to the contemporary dance. These differences were largely due to what was considered as "stronger negative feelings": 20% (3) of the stronger negative feelings occurred in response to the classical ballet while 80% (12) occurred in response to the contemporary dance. This is to say that the Unfamiliar group reported strong negative feelings such as *uttråkad* ('bored'), *irriterad* ('irritated'), *obekväm* ('uncomfortable'), *nervös* ('nervous') more often in response to the contemporary dance than in response to the classical ballet. In response to the contemporary dance one Unfamiliar participant even said (4) and another Unfamiliar participant reported (5).

(4) *Nervös när hon tittade rakt på mig.*

Nervous when she was looking right at me.

(5) *När hon såg så allvarligt ut, ville jag backa lite och avstå från henne; jag ville titta men ändå ville jag inte det.*

When she looked so serious, I wanted to step back and avoid her. I wanted to watch but at the same time I did not want to.

While the Unfamiliar group reported more positive feelings in response to the classical ballet as mentioned above, their positive attitudinal judgements were mainly related to the contemporary dance as 77% of the responses that described the Unfamiliar participants' positive attitudes, for example, *intresserad* ('interested'), *imponerad* ('impressed') and *fokuserad* ('focused'), were produced in response to the contemporary dance and only 33% in response to the classical ballet. In terms of negative attitudinal judgements, two Unfamiliar participants reported feeling uninterested and unimpressed in response to the classical ballet,

which was not reported in response to the contemporary dance. Otherwise, this group showed virtually no differences in their negative attitudinal judgements across dance styles as they expressed equally few attitudinal judgements such as *lite ofokuserad* ('slightly unfocused') in response to both dances.

In contrast, the Familiar group reported more or less the same degree of positive feelings in response to both dances. More specifically, 46% (21) were reported in response to the classical ballet and the remaining 54% (24) in response to the contemporary dance. For example, intense feelings such as *passionerad* ('impassioned') and *intensiva känslor* ('intense feelings') were reported twice in response to the classical ballet and twice in response to the contemporary dance, this time using descriptions *smittad* ('infected') and *inspirerad* ('inspired'). As these examples suggest, even the intensity of the experienced feelings were similar. This was the case in terms of feeling harmonious as well among others. More specifically, participants described their feelings as *harmonisk* ('harmonious'), *något estetiskt* ('something aesthetic') in response to the classical ballet and *drömig* ('dreamy') and *öppen på något sätt* ('open in some way') in response to the contemporary dance. However, some differences still occurred: descriptions such as *sensuell* ('sensual'), *emotionellt* ('emotional'), *berörd* ('touched') and *sorg* ('sorrow') only occurred in response to the contemporary dance.

As with the positive introspective judgements on feelings, the Familiar group reported more or less equally negative feelings with regards to both dances both in amount and in degree. There were, for example, virtually no differences in stronger negative feelings as the Familiar participants used descriptions such as *uttråkad* ('bored') and *störd* ('disturbed') in response to the classical ballet and *uttråkad* ('bored') and *obekväm* ('uncomfortable') in response to the contemporary dance. However, a noticeable difference occurred in terms of feeling "unstimulated" as this feeling was reported five times in response to the classical ballet, but never in response to the contemporary dance, using descriptions such as *passiv* ('passive') and *nedsaktad* ('slowed down'). This is to say that, as in the psychophysiological values, only subtle differences occurred in the introspective judgements on feelings of the Familiar group across the two dances, with only slightly more negative feelings in response to the classical ballet.

The Familiar group had more or less equally positive and negative attitudinal judgements towards both dances. Very little difference appeared with regards to their positive attitudinal judgements as two Familiar participants reported having felt interested in response to the classical ballet and four in response to the contemporary dance using descriptions such as *intresserad* ('interested') and *nyfiken* ('curious'). On the other hand, this difference was balanced by another, but closely related, difference with an opposite direction: namely, two

Familiar participants reported being impressed by the contemporary dance and four by the classical ballet using descriptions such as *imponerad* ('impressed') and *fascinerad* ('fascinated'). Virtually no differences occurred in the negative attitudinal judgements as equally few Familiar participants felt, for example, *dömande* ('judgemental') and *kritisk* ('critical'). This is to say that the Familiar group reported more or less comparable positive and negative attitudes towards both dances.

To sum up, the Familiar group did not show any consequential differences across dances, be it in terms of the psychophysiological values, introspective judgements on feelings or attitudinal judgements. On the other hand, the Unfamiliar group reported more positive feelings in response to the classical ballet and more and stronger negative feelings in response to the contemporary dance. Keeping in mind that this group was more strongly affected on the psychophysiological level by the contemporary dance (see Section 4.3), this part of the interview data suggests that the Unfamiliar group's response to the contemporary dance had a *negative valence* due to experiencing negative feelings such as irritation and nervousness. On the other hand, the interview data regarding the attitudinal judgements of the Unfamiliar group showed that a majority of the positive attitudinal responses were produced in response to the contemporary dance by this group. This may be interpreted as suggesting that the qualities of movement in the contemporary dance affected the Unfamiliar participants' feelings and psychophysiological responses in one way and their attitudinal judgements in another way, while the psychophysiological responses, feelings and attitudinal judgements of the Familiar group were affected in a similar manner. Thus, in the case of the Unfamiliar group we see a "disconnection" in terms of the two levels of kinesthetic empathy, with the preconscious level having a negative valence, while the attitudinal, and hence highly-conscious, level was positive. This supports the two-level analysis of kinesthetic empathy proposed in this thesis, but since this disconnection was only found for the Unfamiliar group, it means that familiarity in fact mattered.

Furthermore, the contemporary dance and the qualities of movement employed in this dance had a greater effect on the feelings and attitudes of the Unfamiliar group than the classical ballet. However, this was not the case in the Familiar group as they reacted to both dances in a similar manner, which could mean that the effect of dance style was overruled by familiarity. These interpretations render GH1 as only partly supported.

5.3 Variation in evaluative judgements

GH2 predicted that spectators' evaluations would be more consistent within the group for Familiar than Unfamiliar participants under the assumption that Familiar participants would have a stronger ability to mentally re-enact the observed movement, and to thereby evaluate the observed movements. Although responses to EQ2, EQ3 and EQ4 showed less variation within the Familiar than the Unfamiliar group, these differences were not statistically significant, and thus the corresponding SH3 was not supported (see Section 4.4). In this section we look at whether the interview data show any evidence on whether the two groups were able to mentally re-enact (imagine) the observed movements when asked to evaluate them and how varied these evaluations were within the groups.

Familiar participants put a lot of emphasis on movements. They generally described arm movements in the classical ballet as *mjuka* ('soft'), *flytande* ('smooth'), *flygande* ('flying'), *svävande* ('hovering'), *böljande* ('flowing') and compared the dancer (or her movements) to birds or waves as in (6). Unfamiliar participants also paid attention to movements and some descriptions of the movements in the classical ballet provided by them were similar to those provided by the Familiar group (7) (see Appendix C).

(6) *armarna som vingar och så flög hon* *naturliga vågrörelser*
the arms were like wings and so she flew. natural wave movements

(7) *Mjuka rörelser* *Böljande, naturliga vågrörelser*
Soft movements Billowing, natural wave movements

As for the movements in the contemporary dance, they were described as *extrema* ('extreme'), *oväntade* ('unexpected') and *mystiska* ('mystical'). Participants in the Familiar group generally described the contemporary dance as in (8), while the Unfamiliar group described this dance as in (9). Notably, Familiar spectators described movements in more detail as in (10), which can be indicative of a stronger ability to mentally re-enact observed movements.

(8) *levande* *mjukhet i ett utforskande* *granskande*
alive softness in exploration examinatory

(9)	<i>spännande</i>	<i>utforskande</i>	<i>mer som en resa</i>
	exciting	exploratory	more like a journey

(10) *När hon sitter på sidan, böjer ryggen bakåt och sträcker ut benet.*

When she is sitting on the side, bends her back backwards and extends the leg.

As these examples illustrate, the qualities of movement had an effect on how the spectators described movements in each dance. Namely, descriptions of the contemporary dance, as opposed to the classical ballet, suggest that this dance was indeed perceived as the one offering more novelty and elements of surprise, as expected.

As regards variation, no prominent themes were identified in the evaluative judgements provided by the Unfamiliar group except for three minor ones, each occurring in a total of three participants, focusing on the dancer's skills and roughness and softness in the movements, using descriptions as in (11). Otherwise, the evaluations were varied in response to both dances. The movements in the classical ballet were described as in (12), and in the contemporary dance they were described as in (13) among others. No two participants provided similar descriptions. There were also contradicting evaluations: while one participant found the dancer's movements in the contemporary dance extreme and unnatural, another participant thought they were natural. In another instance controversy across two participants' descriptions occurred with regards to the engagement of the dancer (14).

(11)	<i>duktig</i>	<i>mycket kraft i hennes kropp</i>	<i>böljande rörelser</i>
	skilled	lots of strength in her body	flowing movements

(12)	<i>öppna</i>	<i>enklare</i>
	open	simpler

(13)	<i>vig</i>	<i>sensuella</i>	<i>oväntade</i>
	flexible	sensual	unexpected

(14)	<i>dansar för sig själv</i>	<i>närvarande</i>
	is dancing for herself	present

Compared with the Unfamiliar group, there seemed to be less variation in the evaluative descriptions of the dancer and movements given by the Familiar group. Several themes were prominent in their evaluations, such as control over movements (15), softness in the arms (16) and engagement of the dancer in the dance (17) among others. This is rather similar to how EQ3 (*How well-controlled did you find the dancer's movements?*) received less varied responses from the Familiar group than the Unfamiliar group in the questionnaire. However, as with the Unfamiliar group, there were some contrasting evaluations too. In response to the classical ballet, several participants agreed that the dancer was skilled (18) and had good control over the movements (19). However, some also found her movements too controlled in the classical ballet (20) or not well-controlled enough in the contemporary dance (21).

(15) *vilken kroppskontrol!*
what body control!

(16) *mjuka rörelser på händerna*
soft movements in the hands

(17) *hon fokuserade på dansen.*
she focused on the dance.

(18) <i>välskolad</i>	<i>behärskar dessa rörelser</i>
well-schooled	masters those movements

(19) <i>imponerad av hennes kontroll</i>	<i>struktur på hennes fötter – nedre delar var starka.</i>
impressed by her control	structure in her feet: the lower parts were strong.

(20) <i>för mycket precision</i>	<i>Kan hon inte slappna av?</i>
too much precision	Can't she relax?

- (21) *hon fick inte balansera sig så bra.*
 she did not manage to balance herself
 very well.

Another theme in relation to which Familiar participants gave varied responses was the dancer's lower parts of the body in the classical ballet: one participant judged her feet and legs negatively while several others judged them positively (22). One participant who compared the dancer with a flamingo due to the admiration of her proud posture gave a negative evaluation at the same time (23). This last example could be indicative of indecisiveness in the participants, which could have been hard to put into numbers (ratings 1-6) in the questionnaire.

- (22) *Ben och kroppen var (...) stel.* *stela ben, på ett fint sätt*
 The legs and body were (...) stiff. stiff legs, in a good way

- (23) *Hennes armar och ben – så fina: kändes* *kanske för stolt*
stolt som flamingo. *maybe too proud*
 Her arms and legs – so beautiful: felt
 proud like a flamingo.

As a final note, although interview results showed somewhat less variation in the evaluative responses of the Familiar group than of the Unfamiliar group, the contradicting evaluations cannot be ignored, which makes it hard to provide any convincing evidence from the interview in support for GH2. Still, there were notable differences in the evaluative judgements between the two groups, suggesting an effect of dance familiarity.

5.4 Correlation between psychophysiological and introspective data

GH3 predicted a correlation between the Familiar participants' introspections (as a measure of indirect, conscious kinesthetic empathy) and their psychophysiological responses (as a measure of direct, pre-conscious kinesthetic empathy), to a greater extent than for the Unfamiliar group.

The interview supported such a correspondence between the Familiar participants' pre-conscious and conscious levels of kinesthetic empathy, as this group was more or less equally psychophysiological affected by both dances and they reported more or less equally positive and negative feelings and attitudes in response to both dances. As for the Unfamiliar group, the

results reported in Section 4.5, and the analyses of the interviews in Section 5.2, showed only a partial correspondence between their pre-conscious and conscious levels of kinesthetic empathy: their psychophysiological responses agreed with their introspective judgements on feelings but not with their attitudinal judgements.

To remind, although the Familiar group had more or less equally positive and negative judgements to both dances, they reported slightly more negative feelings (Section 5.2.2) and had slightly higher psychophysiological responses to the classical ballet (Section 4.3), suggesting slightly more *negative* emotional arousal in response to this dance. This slight difference was expressed in the correlations as well: the Familiar group consistently had moderate and strong negative correlations in response to the classical ballet, suggesting emotional arousal with a negative valence. On the other hand, the moderate correlations in response to the contemporary dance were partly positive. For example, the correlation with IQ1 (*How much did you enjoy the dance?*) is particularly noteworthy as all correlations with this question were moderately positive in response to the contemporary dance, suggesting that the Familiar group's emotional arousal was an expression of them enjoying the dance. However, the fact that they had negative correlations with regards to (IQ3) how relaxed and (IQ2) how emotionally close they felt to the dancer confirms the findings in the interview, namely, that they experienced both positive and negative feelings in response to the contemporary dance.

As regards the Unfamiliar group, the interview data showed more negative feelings in response to the contemporary dance than in response to the classical ballet in this group. When correlations in the respective dance styles were considered separately, the Unfamiliar group had somewhat mixed correlations in response to both dances. However, as noted in Section 4.5, there were only three weak correlations in response to the contemporary dance and only weak correlations were positive. The fact that the remaining correlations were negative and they were predominantly moderate and strong could be taken as supporting the interview-based interpretation regarding negative feelings of the Unfamiliar group in response to this dance. Notably, SCL – the psychophysiological variable that showed statistically significant differences between this group's response to the two dances in favor of the contemporary dance had moderate and strong negative correlations with all introspective responses to the contemporary dance. This provides additional support for the observed *negative* correlation between the psychophysiological responses (pre-conscious kinesthetic empathy) and introspective judgements on feelings (conscious kinesthetic empathy) of the Unfamiliar group in response to the contemporary dance.

As for the classical ballet, the interviews showed relatively positive feelings in response to this dance in the Unfamiliar group. As with the contemporary dance, the correlations in response to the classical ballet were somewhat mixed but, unlike the correlations in response to the contemporary dance, these were generally weak. The fact that there was a rather meaningful correlation between this group's (negative) introspective judgements on feelings and psychophysiological responses to the contemporary dance, while the correlations in response to the classical ballet were weak and inconsistent can indicate partial disconnection between the pre-conscious and conscious levels of kinesthetic empathy in the Unfamiliar group, as also suggested above.

Chapter 6. Conclusions

The goal of this thesis was to enrich our understanding of how movement, the indispensable element of dance, affects the experience of dance spectatorship on several levels. This was addressed through the conceptual lens of cognitive semiotics, focusing on the concept of *kinesthetic empathy* (e.g. Gallagher and Zahavi 2008; Warburton 2011), with the help of an empirical study of relatively familiar and relatively unfamiliar spectators viewing two different kinds of dance – classical ballet and contemporary dance.

An important extra concept was that of *qualities of movement* (e.g. Sheets-Johnstone 2015) on the basis of which differences between the dances could be spelled out. Considering the dominance of brain-oriented research in the field (e.g. Calvo-Merino et al. 2006; Cross et al. 2009), the thesis further aimed to provide a perspective that combined both quantitative and qualitative methods, in the manner of pheno-methodological triangulation of cognitive semiotics (Pielli and Zlatev 2020). Below I summarize the implications drawn from the results and refer back to the research questions.

- RQ1: To what extent does the kinesthetic empathy of familiar and unfamiliar spectators differ in general, irrespective of dance style?

From a bird-eye view, there were very few differences between the familiar and unfamiliar spectators as only one psychophysiological variable showed a statistically significant difference between the two groups (hypothetically corresponding to their emotional arousal). However, when this data was complemented with subsequent interviews, subtle differences between the familiar and unfamiliar spectators could be noticed. For example, more complex aesthetic experiences were reported by the familiar participants, while more negative feelings were reported by the unfamiliar participants. The differences between the two groups became even more obvious when the dance styles were considered in relation to the second research question.

- RQ2: Is there a difference in how (familiar and unfamiliar) spectators are (kinesthetically) engaged in a dance performance depending on the dance style?

The evidence regarding attitudinal judgements as well as evaluations of dance movements, exemplified by expressions such as *nyfiken* ('curious') and *utforskande*

(‘exploratory’) in response to the contemporary dance, suggest that this dance affected the spectators in a way that they appreciated novelties thanks to the higher proportion of “significant displacements of the body” (SDoBs), curved linear design of the body, and abrupt and ballistic movements.

However, the effect of dance style seemed to have been affected by the factor of familiarity, as the familiar participants appeared to be more or less equally affected on the psychophysiological level by both dances and reported more or less equally positive and negative feelings and attitudes to both dances. A marked difference between the two dances in terms of psychophysiological responses was only found for the unfamiliar spectators. Furthermore, the unfamiliar spectators reported to have experienced more and stronger negative feelings in response to the contemporary dance, thereby suggesting that the higher psychophysiological response to the contemporary dance in this group corresponded to emotional arousal with a negative valence. This seemed to correspond to negative feelings such as nervousness and irritation.

On the other hand, the attitudinal judgements of the unfamiliar participants towards the contemporary dance were positive as they reported feeling *imponerad* (‘impressed’) and *intresserad* (‘interested’). This indicates that the differences across the effect of dance styles were simultaneously tied to the factor of familiarity and, for the unfamiliar participants, to the question of whether the introspective judgements concerned feelings or attitudes.

- RQ3: How do the experiences of a dance spectator, as accessed through research methods of questionnaire and interview, relate to underlying psychophysiological events such as skin conductance and respiration?

The correlation analysis showed a rather strong correspondence between the quantitative and qualitative data for the familiar spectators, but a partial disconnection in the unfamiliar spectators. The familiar spectators consistently had moderate and strong negative correlations in response to the classical ballet, which supported the findings that this group experienced slightly more negative feelings and slightly higher psychophysiological responses (emotional arousal) in response to the classical ballet. This suggests that the emotional arousal of the familiar spectators had a negative valence in response to the classical ballet. On the other hand, the moderate correlations in response to the contemporary dance were both positive and negative. This was consistent with the reports in the interview, namely, that the familiar

spectators experienced both positive and negative feelings in response to the contemporary dance.

The unfamiliar spectators had predominantly moderate and strong negative correlations with the responses to the introspective questions. Notably, SCL – the psychophysiological variable that showed statistically significant differences between the two dances in favor of the contemporary dance – had moderate and strong negative correlations with all introspective responses to the contemporary dance. This provides support regarding *negative* emotional arousal of the unfamiliar spectators in response to the contemporary dance. In contrast, the correlations in response to the classical ballet were weak and inconsistent, which indicates partial disconnection between the pre-conscious and conscious levels of kinesthetic empathy for the unfamiliar spectators. Furthermore, as noted above on the basis of the interview results, the negative correlation in regards with the contemporary dance did not have a connection with the attitudinal judgements of the unfamiliar spectators, who instead reported more positive attitudes towards the contemporary dance than towards the classical ballet.

The fact that the unfamiliar participants showed only a partial correspondence between their psychophysiological responses (emotional arousal) and introspective judgements on feelings as well as no correspondence between their introspective judgements on feelings and attitudinal judgements, while the familiar spectators showed a correspondence between all responses, supports the validity of the important conceptual contribution of this thesis, namely the proposed model of kinesthetic empathy. In sum, kinesthetic empathy was analyzed as consisting of (at least) two levels of explicitness, viz. pre-conscious and conscious, with the first corresponding to bodily reactions, and the latter to explicit judgements. The findings based on correlation analysis suggest that familiarity with dance plays a role in “communication” between the two levels of kinesthetic empathy. They further suggest that the conscious level of kinesthetic empathy subsumes two aspects – one that includes conscious introspections regarding feelings and one that includes conscious introspections regarding attitudes. Introspections about feelings were shown to have a connection with the pre-conscious level of kinesthetic empathy even in the unfamiliar spectators. On the other hand, introspections regarding attitudes may or may not have a connection with the pre-conscious level of kinesthetic empathy or with the conscious introspections regarding feelings, depending on familiarity, as shown in Figure 13.

In addition, it is possible that (conscious) kinesthetic empathy may affect the evaluative judgements of spectators, as was initially proposed. However, given that the general hypothesis (GH2) of stronger consistency among the evaluative judgements of the familiar than the

unfamiliar participants was not supported (see Section 5.3), and that a correlation between these judgements and the psychophysiological responses was not explored, it is best for the present to leave these out of the proposed model of kinesthetic empathy (Figure 13).

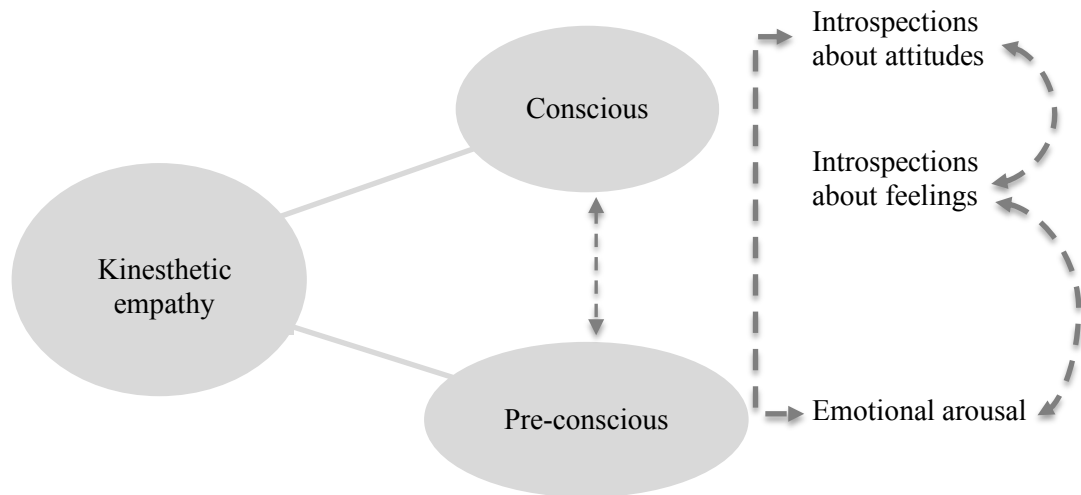


Figure 13. The two-level model of kinesthetic empathy proposed in this thesis. Dashed arrows indicate a partial correspondence between the levels of kinesthetic empathy: Familiar spectators showed correspondence between all types of responses, but unfamiliar spectators showed only a partial correspondence between their emotional arousal and introspections about their feelings, but no correspondence between their introspections about their feelings and introspections about their attitudes or between their emotional arousal and introspections about their attitudes.

Despite the promising findings, there are several limitations that may have affected the participants’ kinesthetic empathy in response to the observed movements. More specifically, participants’ experience with dance was rather varied, and factors such as interest in sports or past injuries that may have affected participants’ kinesthetic empathy were not considered. Further, inter-rater reliability was not used to confirm my intuitions about the qualities of movement in the two dances. Conceptually, the notion of “emotional arousal” was used to help interpret the psychophysiological measures of skin conductance and respiration, in accordance with some of the literature. However, it is hardly a well-defined notion, and was used here mostly as a temporary “step in”, before a better understanding of how affect permeates the pre-conscious level of kinesthetic empathy.

Future research should consider these shortcomings to make more reliable conclusions about how familiarity and dance style influence spectators’ kinesthetic empathy. Moreover, the evaluative and introspective questions in the questionnaire should be made more specific. The questionnaire should further include questions focused on experienced bodily reactions to

explore this aspect of kinesthetic empathy, which would possibly shed more light on the relationship between the pre-conscious and the conscious levels.

In sum, the thesis makes a contribution to the field of cognitive semiotics by advancing our understanding of the semiotic system of dance, and in particular concerning how it is experienced by more and less familiar spectators. Using the conceptual-empirical loop, it has advanced our understanding of the concept of kinesthetic empathy, distinguishing between two kinds (levels) and exploring their interrelations. Furthermore, the thesis has demonstrated the vital role of pheno-methodological triangulation in interpreting third-person data in experiential terms, by combining and correlating - within the same study - third-person psychophysiological measures with methods based on conscious judgements. Finally, the contribution made by this thesis is relevant outside academia, namely in therapy sessions where engaging individuals in movement with focus on enhancing their awareness of their kinesthetic experiences can help them articulate and connect with their everyday experiences. Findings regarding the effect of the qualities of movement on spectators' affective states can even be applied in dance teaching practices where teachers tend to focus on how precisely the students carry out the taught movements in a motoric sense, often ignoring the phenomenological and affective nature of movement.

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Appendix A: Form of informed consent

I hereby agree to participate in the study for the MA thesis project “How Spectators Experience Dance” in Cognitive Semiotics, at the Centre for Languages and Literature, by the student Khatia Chikhladze (Researcher), supervised by Professor Jordan Zlatev and Associate Professor Joost van de Weijer.

Prior to participation, I have been informed of the following:

- The overall procedure of the study, which involves watching recordings of two four-minute dances while respiration and perspiration are being measured, and in a second step, a few questions are answered. Finally, there will be a short interview, which will be audio-recorded.
- All data will be treated strictly confidentially and made anonymous, without the possibility of tracing results to specific individuals.
- Extracts from the interview may be quoted in the thesis, and in a possible subsequent paper, without revealing the identity of the participant.
- There will be a possibility to ask questions after a training session, and the purpose of the whole study will be explained at the end.
- Upon completion, participants will be reimbursed with a cinema voucher.
- It is possible to write to the Researcher at any time by email, and to ask for more information, and to request a copy of the MA thesis, to be completed by the end of 2020.

This form is made in two copies, for the Participant and for the Researcher.

Lund, (date)

..... (participant)

Khatia Chikhladze (researcher)

..... (signature)

.....

E-mail:

E-mail: chikhladzekhatia1993@gmail.com

Appendix B: Analysis of the Qualities of Movement

1. Linear design and pattern

Criteria: To what extent the body and the movement created by the body are straight as opposed to the body being curved or the body moving in a circular or zigzag manner.

<i>Classical ballet</i>	Curved body (linear design)	Full body circles (linear pattern)
	00:36-00:39,00:42-00:43; 00:54-01:00; 01:05-01:13; 01:15-01:17; 01:23-01:29; 01:39-01:41; 01:43-01:44;01:49; 01:52-01:53;02:14; 02:49-02:50; 02:51-02:57 A total of 50 seconds. = roughly 28% of the fragments.	00:27-00:29, 00:46-00:48, 01:50-01:52; 02:03-02:08; 02:45-02:47; A total of 18 seconds = roughly 10% of the fragments.
<i>Contemporary dance</i>	Straight body (linear design)	Full body circles (linear pattern)
	00:00-00:05; 00:48-00:49; 01:25-01:27; 01:56; 02:08-02:14; 02:39-02:42; 02:45-02:47; 02:56-02:57; 03:03-03:06; 03:11-03:12, 03:20; 03:33-03:34; A total of 36 seconds = roughly 15% of all fragments	01:38-01:41 (the whole body); 01:43-01:44 (full body); 01:46-01:47 (full body; all others are horizontally drawn circles, this one is vertical semi-circle); 03:11-03:13; 03:13-03:15 (2 full body circular movements); 03:19-03:20; 03:20-03:21 (2 full body circular moves); A total of 17 seconds of full circles = roughly 7% of all fragments.

2. Significant Displacement of the Body (SDoB)

Criteria: extreme changes in the linear design of the body parts, wherein certain body parts are angled or extremely bent from their usual linear design, making them “stick out”.

Classical ballet: 5	Contemporary dance: 12
01:06-01:11; 01:24-01:26; 01:39-01:40; 01:49; 02:49.	00:23-00:25; 00:29-00:32; 00:35-00:38; 00:44-00:45; 00:51-01:05; 01:10; 01:17-01:19; 01:34-01:37; 01:45-01:47; 01:58-01:59; 02:08-02:12; 02:45-02:51.
Total = 13 sec.	Total = 52 sec.
7.3% (of all 177 sec.)	21.7% (of all 239 sec.)

3. Projectional Quality

Criteria: a movement was considered *abrupt* if the linear design of body parts changed unexpectedly, *ballistic* if the body appeared as if it was being pulled by some external force, and *sustained* in all other cases, i.e. cases in which the movement followed its generally established pattern in a smooth way.

In contemporary dance, the movement was ballistic, for instance, between 02:51-02:52 and it involved the head and arms. Since the movement continued for two seconds and it involved two different body parts, ballistic was marked four times (2x+2x).

Classical ballet			Contemporary dance		
00:12	Hands	Abrupt	00:16-00:17	Upper body and left arm	Ballistic (2x)+(2x)
00:15-00:16	Arms	Abrupt (2x)	00:28	Upper body, head and right arm	Ballistic (3x)
00:23	Hands & arms	Abrupt (2x)	00:43	Head	Abrupt
00:24	Hands	Abrupt	00:44-00:45	Head	Abrupt (2x)
00:29-00:30	Left hand	Abrupt (2x)	00:54-00:55	Hands	Abrupt (2x)
00:39	Head & arms	Abrupt (2x)	01:03	Hands	Abrupt

00:48	Head	Abrupt	01:09	Head	Abrupt
00:54	Hands	Abrupt	01:29	Upper body	Ballistic
01:00	Hands	Abrupt	01:39	Head	Abrupt
01:10	Hands	Abrupt	01:52-01:53	Right arm & head	Ballistic (2x)+(2x)
01:49	Hands	Abrupt		Upper body	Ballistic (2x)
01:53	Head	Abrupt	02:24-02:25	Head	Ballistic (2x)
01:59	Hands	Abrupt	02:49-02:50	Head & arms	Ballistic (2x)+(2x)
02:02	Hands & head	Abrupt (2x)	02:51-02:52	Right arm & hand	Abrupt (2x)+(2x)
02:14	Arms	Abrupt	02:59-03:00	Head	Abrupt
02:18	Left arm & hand	Abrupt (2x)	03:05	Head & Upper body	Ballistic (2x)
			03:16	Head	Abrupt
			03:20	Head	Abrupt
			03:21	Right arm	Abrupt
			03:25 03:27	Right arm & head	Ballistic (2x)
18 seconds	12 - hands 6 – arms 4 – head	22 – Abrupt 0 - ballistic 12.4% (of all 177 seconds)	28 seconds	5 – Hands > 5 abrupt 11- Arms >8 ballistic > 3 abrupt 17 – head > 9 ballistic > 8 abrupt 7 – Upper body >7 ballistic	16 – Abrupt 24 – ballistic 16.7% (of all 239 seconds)

Appendix C: Interview Analysis

This appendix presents the responses that the familiar and unfamiliar participants provided in the interviews. The responses involve (1) reported feelings and attitudes, (2) reported physical reactions; (3) reported evaluations of the dances and (4) reported evaluations of the dancer and her movements. For each participant, it is specified how they described their attitude towards the respective dance prior to the experiment (*tycker om, bryr sig inte om, etc.*) and in what order they viewed each dance (*1 or 2*). The descriptions provided by the participants are divided into three kinds: positive descriptions (+), negative descriptions (-) and neutral descriptions (>).

1. Introspective judgements about feelings and attitudes			
		Ballet	Contemporary
Unfamiliar	UF9	(2) Tycker om	(1) Tycker om
		Kände sig: +Inspirerad, (mer) avslappnad, bekväm, mer engagerad (än i den andra), mer tillfreds	Kände sig: +imponerad, inspirerad.
		Kände/Kände att: +Jag njöt mer av föreställningen, jag ville titta, gillade denna mer	Kände/Kände att:
	UF4	(1) Tycker om	(2) Bryr sig inte om
		Kände sig: +Glad, ganska avslappnad, lättad	Kände sig: +Engagerade, nyfiken, väldigt uppmärksam -lite obekväm.
		Kände/Kända att: +Tillfreds.	Kände/Kände att: +Följde hennes rörelser
	UF3	(1) Tycker om	(2) Bryr sig inte om
		Kände sig: +Imponerad (av teknik), fokuserad (på kroppsdelar), inne i dansen, fridsamhets lugn, lugn, harmonisk.	Kände sig: + nyfiken, imponerad, förvånad -Lite irriterad eller frustrerad, förtvivlad.
		Kände/Kände att:	Kände/Kände att: +Jag kom så mycket in i dansen att jag inte fick reflektera på min kroppsreaktion; -när hon såg så allvarligt ut, ville jag backa lite och avstå från henne; jag ville titta men ändå ville jag inte det.
	UF5	(1) Bryr sig inte om	(2) Tycker om
		Kände sig:	Kände sig:

	+Avslappnad (men mindre avslappnad än i den andra), imponerad -oengagerad, lite mindre intresserad av balett nu när jag har sett den.	+Mer avslappnad (än i baletten), mindre stelt, mer engagerad.
	Kände/Kände att: -Jag var inte så engagerad i dansen	
UF1	(1) Bryr sig inte om	(2) Tycker om
	Kände sig: +Lugn, avslappnad, väldigt intresserad av och fokuserad på dansen, nästan lite svävande, mindre stressad, avspänd. -inte känslomässigt påverkad,	Kände sig: - inte så indragen i själva dansen, lite besvärad. >Ganska neutral,
	Kände/Kände att: +Utan elektroder, kom jag mer in i dansen	Kände/Kände att:
UF6	(2) Bryr sig inte om	(1) Bryr sig inte om
	Kände sig: +Lätt – lättare i kroppen, mindre spänd och orolig än i den andra, oorolig, glad, positiv. -inte så engagerad men mer engagerad än i den andra dansen;	Kände sig: -Nästan obehagligt, onaturligt, lite nervös (när hon tittade rakt på mig) > neutral – nästan opåverkad,
	Kände/Kände att: -	Kände/Kände att: + lättnad (fysiskt och mentalt), -kunde inte koppla och komma i dansen, tvingade mig att fokusera på dansen
UF2	(1) Bryr sig inte om	(2) Bryr sig inte om
	Kände sig: + lugn (tillstånd) -Uttråkad ibland, lite irriterad, distanserad	Kände sig: +Lite mer engagerad (än i baletten), bara lugn, nyfiken.
	Kände/Kände att:	Kände/Kände att:
UF8	(2) Bryr sig inte om	(1) Bryr sig inte om
	Kände sig: + lite entertained, imponerad, måttligt intresserad och engagerad. -lite ofokuserad	Kände sig: +Lagom avslappnad, intresserad, måttligt fokuserad, imponerad, engagerad, nyfiken, ibland inbjuden (ibland icke inbjuden). - (ibland inbjuden) ibland icke inbjuden, inte så engagerad i dansen
	Kände/Kände att: -jag var inte så engagerad i dansen	Kände/Kände att: + ökade förmåga att intressera mig och fokusera på dansen.
UF7	(2) Bryr sig inte om	(1) Bryr sig inte om

		Kände sig: +mycket mer avslappnad, mer fokuserad (än i den andra), ostressad, lugn - lugnare, mer tillfreds (at ease), behagligt, >sårbar, ganska neutral.	Kände sig: +Intresserad, imponerad -lite ofokuserad, , inte helt fäst > ganska neutral
		Kände/Kände att: -mina tankar flöt iväg emellanåt; jag var så engagerad att jag inte alls tänkte på min omgivning men inte 100% engagerad	Kände/Kände att: +kopplade bort från yttre stress och fokuserade inåt -Jag flyttade iväg i tanken, jag var inte så engagerad i dansen,
	UF10	(1) Bryr sig inte om	(2) Tycker inte om
		Kände sig: +Måttligt road, lite inbjuden, fokuserad men inte 100% -inte så engagerad, inte så imponerad, inte besviken men någonstans i den linjen, inte engagerad men inte uttråkad,	Kände sig: -Lite mer uttråkad, lite irriterad, inte inbjuden, konfunderad (man förstår inte vad hon menar), irriterad (av att jag inte får vara med)
		Kände/Kände att: +Någon connection till dansaren, när hon visade ansiktet fick man lite kontakt, -jag flöt iväg i tankarna hela tiden; jag var inte så engagerad i dansen.	Kände/Kände att: -Jag var inte så engagerad i dansen, jag inte får vara med, började jag tänka "är hon inte klar än?"
More or less F	F2	(2) Älskar	(1) Älskar
		Kände sig: +Mer engagerad – nästan som passionerad, -passiv (för jag inte dansar med eller för det inte fanns musik)	Kände sig: +fokuserad, smittad (av hennes vackra rörelser), -Inte riktigt fullt avslappnad, inte totalt sjunken i den, förvirrad (pga det första ansiktsuttrycket), störd (av hennes ansiktsuttryck),
		Kände/Kände att: +något estetiskt som liknar det jag känner när jag ser natur, t.ex. träd, vinden eller blommorna; mer intensiva känslor, >jag ville stå utanför som vittne till dansen (...) och observera	Kände/Kände att:
	F3	(2) Bryr sig inte	(1) Tycker om
		Kände sig: +Imponerad, engagerad, fokuserad, harmonisk	Kände sig: +engagerad, imponerad, blev glad (att hon använde ansiktsuttryck); <u>-mindre fokuserad andra gång.</u>
		Kände/Kände att:	Kände/Kände att:

			+Jag söks in i dansen
	F1	(2) Bryr sig inte om 2.3	(1) Bryr sig inte om 0.5
		Kände sig: - <u>Lite ostimulerad</u>	Kände sig: +Avslappnad, -lite uttråkad, (primed – nu måste jag känna något);
		Kände/Kände att:	Kände/Kände att:
Moderately F	F5	(2) Tycker om 0 (1.8)	(1) Tycker om 0.2 (3.2)
		Kände sig: +lugn, avslappnad, ingen stress, inga negativa känslor	Kände sig: Lugn, drömig (dreamy), bra, komplett.
		Kände/Kände att: +Jag tänkte på naturen, balans,	Kände/Kände att: +det hjälpte mig att inte tänka på min vardag, schema och dåliga saker.
	F4	(1) Tycker om	(2) Tycker om
		Kände sig: +Bra, avslappnad, glad, ganska engagerad, intresserad, imponerad	Kände sig: +Engagerad, intresserad, glad, lugn.
		Kände/Kände att:	Kände/Kände att:
	F6	(2) Tycker om	(1) Bryr sig inte om
		Kände sig: +fascinerad, intresserad, lite mer inne (än i den andra dansen), fick inte lika mycket associationer; tankarna gick inte så mycket hit och dit. -besvärad, frustrerad	Kände sig +imponerad, nyfiken, öppen på något sätt, inspirerad; -Obekvämt, ”oj, hjälp, va?!” (i början), intimidated (mest i början), inte så engagerad;
		Kände/Kände att: -frustration	Kände/kände att: -Tankarna gick hit och dit ibland; fick mycket associationer
	F7	(1) Bryr sig inte om	(2) Älskar
		Kände sig: +lugn	Kände sig: +Lugn, intresserad, lite mer engagerad, jag följde vad som händer mer än i den andra. >analyserande (men inte lika mycket som i baletten),
		Kände/Kände att: >jag var mer i tankarna än i känslorna	Kände/Kände att: >jag tittade mycket på tekniken
	F8	(1) Bryr sig inte om	(2) Tycker om
		Kände sig: +Väldigt lugnt, avslappnade >tänkande.	Kände sig: +Lugn, -inte så engagerad

		Kände/Kände att:		Kände/Kände att: + tyngd – tung medan hon såg lätt ut; man slappnar av i hela kroppen	
Highly F	F9	(2)	Tycker om	(1)	Tycker om (mer än balett)
		Kände sig: + fokuserad, -Långsam, , lite kritisk - bedömande, nersaktad, sömnig – sjönk in och kom tillbaka; inte lika connected (som i modern dans), jag kände mig inte hemma i dansen – jag kunde inte möta i dansen på grund av reglerna och precisionen		Kände sig: +Ganska avslappnad, lite emotionellt, sensuell; berörd; nyfiken; positiv (mer än jag hade väntat mig); >avstängd att inte kunna vara med och dansa, det var inte tillräckligt för mig att bara sitta); lite uttråkad (efter ett tag för att jag ville dansa med;	
		Kände/Kände att: +stillhet, fick upplevelse av beundran, storslaghet - att något var magnifik.		Kände/Kände att: >lite sorg i hjärtat.	
	F10	(1)	Tycker inte om (nu)	(2)	Tycker mycket om
		Kände sig: -irriterad >dömande, Ifrågasättande, frågande, ledsen (pgå dansarens ansiktsuttryck), Sympatetisk mot dansaren: inte bekvämt för henne att dansa i ett litet rum; orättvist att se på henne och bedöma henne för hon repeterar		Kände sig: - inte så engagerad >Dömande, lite som en forskare	
		Kände/Kände att:			

2. Introspective judgements about bodily reactions			
		Ballet	Contemporary
Unfamiliar	UF1	1 Bryr sig inte om	2 tycker om
		Fick ryck i händerna och fötterna, vill rycka till i händerna och fötterna.	-
	UF10	1 Bryr sig inte om	2 Tycker inte om
		-	-
	UF9	2 Tycker om	1 Tycker om
		-	Viljan att röra mig, särskilt i armar och ben
	UF5	1 Bryr sig inte om ¹⁶	2 Tycker om
		-	-
	UF7	2 Bryr sig inte om	1 Bryr sig inte om
		Lite lättare i kroppen	-
	UF8	2 Bryr sig inte om	1 Bryr sig inte om
		-	-
	UF3	1 Tycker om	2 Bryr sig inte om
		Hjärtat slog snabbare när hon dansade snabbare, betraktade med hela ansiktet. Fokuserade på delarna och teknik. Då reflekterade jag på hur min kropp reagerade.	-
	UF2	1 Bryr sig inte om	2 Bryr sig inte om
		Viljan att sträcka ut mig, men inte dansa	Lite mer längtan att röra, att dansa
	UF6	2 Bryr sig inte om	1 Bryr sig inte om
		Som om jag skulle flyga, viljan att röra mig (tankemässigt)	Ryser i kroppen, gåshud (pga obehagliga rörelser)
	UF4	1 Tycker om	2 Bryr sig inte om
		Spring i benen, ville röra på mig i benen, mina ben ville stå on-pointe, det blev lite varm.	Ville röra i hela kroppen, (påminde mig om yoga som jag tycker om och) ville träna; följde hennes rörelser?
More or less Familiar	F1	2 Bryr sig inte om	1 Tycker om
		-	-
	F3	2 Bryr sig inte om	1 Tycker om
		Vet inte om pulsen höjdes men kände att hjärtat slog och i hjärtat kände jag mig engagerad; rysningar – i överkroppen, framför allt ryggen; aktiverade mina ben mer än den andra dansen. De var	En fysisk reaktion som rysningar; jag kände att jag ville röra mig, speciellt i fingrarna i högra handen; små muskelkramper överallt – men minimalt. Det spreter till:

¹⁶ Changed from *tycker om* to *bryr sig inte om* after watching the videos

		aktiva hela tiden medan jag tittade på baletten.	rörelserna fick (...) mina muskler att spreta till; (...) då kände jag mig engagerad nästan som om att jag kan göra rörelsen själv.
F2	2	Älskar	1 Älskar
	-		Min kropp rycker till, och att jag ville dansa lite med dansaren, ville röra mig - mest på ryggen – där man böjer kroppen – axlarna; eller spänna musklerna. Eftersom jag själv tycker om att dansa, jag vet hur det känns att röra sig på det viset – får utlopp på det jag känner igen. Någon typ av energi – smittad av hennes vackra rörelser. Muskelryckningar, ville hoppa upp och röra mig – man vill få ut någon fysisk, uttrycka sig på något sätt. Smittades mer fysiskt.
Moderately Familiar	F7	1 Bryr sig inte om	2 Älskar
		Resonerade lite med andning: när hon öppnade sina armar och tog andning då fick jag andetag också; när hon gick i spagat, påminde det mig om en skada – jag hade sträckt mig någon gång och tänkte ”oj! Det här hade gjort ont hos mig om jag hade gjort det”. Jag kände inte ont i benen men jag tänkte på skadan. Jag tänkte typ hur mycket ont det skulle göra hos mig om jag hade gjort samma. Minnet av smärtan kom tillbaka. Lite kände jag viljan att röra mig i takt med dansaren när hon öppnade sina armar (visar öppna armar i luften).	I vissa rörelser kände jag det hon gjorde. När hon gjorde det här (visar med axlarna och armarna) jag kan göra samma och jag kände dessa rörelser i kroppen – i ryggen, bålen och axlarna – kände jag viljan att röra mig i takt med henne. (...)Kula ansiktsuttryck och jag kände samma (visar med rörelser och kula ansiktsuttryck) det gjorde så att jag kände mig lite mer engagerad.
	F8	1 Bryr sig inte om	2 Tycker om
		Gåshud, fick rysningar – kände i hårbotten; kände viljan att röra mig – lite – armarna, uppdel	Gåshud, kände viljan att röra mig – lite i överkroppen men inte så mycket som i balett.
	F4	1 Tycker om	2 Tycker om
	-		Jag kände att jag ville dansa (jämfört med baletten), vissa rörelser som jag kände till

			kände jag dem i kroppen – låren framför allt, benen. Viljan att röra mig – definitivt! Benen framför allt, delvis armarna (pga att hon rörde så mycket i överkroppen).
F5	2	Tycker om	1 Tycker om
		Utan viljan att röra mig	Jag ville också röra mina händer på ett sådant sett (visar händerna som flyger som en fågel) och armar; jag ville röra huvudet enligt hennes rörelser; jag ville följa hennes rörelser.
F6	2	Tycker om	1 Bryr sig inte om
		medlidande: hon har det jobbigt så jag kände mig kanske medlidande	-
Highly Familiar	F9	2 Tycker om	1 Tycker om (mer än balett)
		Det var lätt att sitta i den här dansen.	behov att röra min kropp; längtan att dansa; ville delta > behov att röra min kropp – fanns energi i kroppen som behövde uttryckas; frustrerande att sitta; hade lust att delta i dansen; Högra armen rörde lite och vinklade huvudet på sidorna (för att se henne på ett nytt sätt?) – det var en känsla av rörelse i alla fall (en gång); mjukhet i bröst-hjärtat;
	F10	1 Tycker inte om	2 Tycker mycket om
		Sympati mot dansaren: inte bekvämt för henne att dansa i ett litet rum; orättvist att se på henne och bedöma henne för hon repeterar	-

3. Evaluative judgements about the dances			
		Ballet	Contemporary
Unfamiliar	UF9	2 Tycker om	1 Tycker om
		+Bekvämare att titta på, tillfredsställande, teknisk, vackert, professionellt, väldigt bra, behagligt att titta på. > sorglig, sorgset,	+Bra, intressant, kul, fint.
	UF4	1 Tycker om	2 Bryr sig inte om
		+Väldigt rogivande, behagligt, fint, trevligt, bra, lugnt, stillsamt, inte jobbigt att se på.	+Väldigt intressant, väldigt sensuell, energisk, kraftfull, spännande.
	UF3	1 Tycker om	2 Bryr sig inte om
		-Svårt att ta in helheten	+ imponerande, experimentell. - Förbryllande (confusing) > lite drömligt, <u>asymmetriskt</u>
	UF5	1 Bryr sig inte om	2 Tycker om
		-(...)inte mycket händer, lite inövat, inte lika kreativt, man vill att dansen ska sluta, man vill att det ska hända mer.	+Lättare att kolla på, klarade bättre utan musik än i den andra, (mer) spännande att kolla på, kändes bättre, <u>var svårare att bli uttråkad, lättare att njuta av</u> , bra, bättre än balett, naturligare.
	UF1	1 Bryr sig inte om	2 Tycker om
		+Det gav en lugnande effekt; väldigt lätt att titta på, avkopplande.	
	UF6	2 Bryr sig inte om	1 Bryr sig inte om
		+Lugnt tempo, lätt, mjuk, behaglig	- tomt , torrt. >Modernt,
	UF2	1 Bryr sig inte om	2 Bryr sig inte om
		+Lite intressant, lugnt, jämnt -lite tråkigt (ibland), gammaldags, stillastående.	+Skönt, jordnära, <u>utforskande</u> , spännande, mer som en resa, lite roligt, lugn, styrka
	UF8	2 Bryr sig inte om	1 Bryr sig inte om
		+Vackert, mer abstrakt, mindre mänskligt (än den andra), imponerande >mer svårt att tolka, såg svårt ut,	+Fint, intressant, bra, underhållande, vackert, känslomässigt omväxlande.
	UF7	2 Bryr sig inte om	1 Bryr sig inte om
		+Väldigt vackert, jag njöt av att titta på den.	+Spännande, dansen ledde mig att rikta blicken inåt, modernt, intressant och skön att titta på.
	UF10	1 Bryr sig inte om	2 Tycker inte om
		+Graciös, -inte det roligaste att titta på, inte tillräckligt engagerande.	-Ganska oengagerande, lite konstigt, ganska långsamt (tempot), inte tråkigt, man

				väntar att något ska hända men det är inte så mycket som händer, förvirrande, även med musik hade det inte funkat för mig
More or less Familiar	F2	2	älskar	1 älskar
			+Bra, ganska roligt, ännu roligare, väldigt/ganska intensiv, mer stolt och förödmjukad, bestämd, underhållande. > lite passiv, upplevde det mer som en föreställning; inte vemodigt – både vackert och sorgfullt; långt ifrån det lekfulla och barnsliga;	+mer naturlig (än baletten), roligt, långsamt -mer granskande (pga miljön> hemma är det lustfylld och inspirerande). > Fokuserade mer på detaljer än på helheten
	F3	2	Bryr sig inte om	1 Tycker om
			+harmoniskt, (först lite klumpigt) men sedan ganska elegant -först lite klumpigt (men sedan ganska elegant)	+bra, fin.
	F1	2	Bryr sig inte om	1 Bryr sig inte om
			+Häftigt att se, avslappnande <u>-uttråkande</u> . > ganska vanligt	+Fint och häftigt att se, avslappnande, inte tungt – lite lätt, fascinerande.
Moderately Familiar	F5	2	Tycker om	1 Tycker om
			+Det var lugnt, <u>trevligt</u> .	+(jätte)Intressant. Det hjälpte mig att inte tänka på min vardag, mitt schema eller dåliga saker; det var okej, det var professionellt; <u>Det hjälpte mig att slappna av</u> .
	F4	1	Tycker om	2 Tycker om
			+ <u>Vackert</u> , bra, kul. > det gör att jag saknar när jag brukade dansa. Nästan lite sorgligt till slut.	+Spännande, bra, engagerande, kul.
	F6	2	Tycker om	1 Bryr sig inte om
			+Intressant. -Lite mer jobbig, lite frustrerande (måste hon ha dessa skor? Kan hon inte slappna av?) Det kändes väldigt bestämd, kontrollerat, och att det inte fanns utrymme att ändra något. Det blev lite stelt /participant pretends to throttle themselves/.	Utmanande, sensuell, spännande -besvärande. > lite gränslös
	F7	1	Bryr sig inte om	2 Älskar

		+Kul ändå, >ganska lyriskt	+ <u>avslappnad</u> , bra, intressant (på ett koreografiskt sätt), kul. -För kontrollerad >lite mystiskt
	F8	1 Bryr sig inte om	2 Tycker om
		+ <u>Lugnande</u> >fick mig tänka	+Meditativt, <u>lugnande</u>
Highly Familiar	F9	2 Tycker om	1 Tycker om (mer än balett)
		+ det fanns mjukhet också -tillgjord, fånigt, mycket kontrollerad;	+(Dansen såg) sensuell (ut), levande, vacker; mjukhet i ett utforskande; omväxlande mellan sensuellt (97%) och sexuellt (3%); erotisk (hur hon rörde sin kropp ibland).
	F10	1 Tycker inte om (nu)	2 Tycker mycket om
		+ (tråkigt och irriterande) men lite spännande också. -tråkigt och irriterande (men lite spännande också). There was too much that got in the way and interrupted me from experiencing it. Jag hade förväntat mi gen föreställning vilket det inte var, så jag blev besviken.	

4. Evaluative judgements about the dancer and her movements			
		Ballet	Contemporary
Unfamiliar	UF9	2 Tycker om	1 Tycker om
		Väldigt duktig. Bättre i denna dans.	Fokuserad. Poker-face. Hon tog det på allvar – att det var en seriös situation. Imponerad av hennes fysik. Duktig, stark, vig. Hon fick mig att vilja titta. Hon kände som om hon levde sig in i det.
	UF3	1 Tycker om	2 Bryr sig inte om
		Rörelserna såg lättare/enklare ut	Rörelser: onaturliga, extrema. Övergången mellan rörelserna – fin. Den såg svårare ut. Den såg smärtsam ut. Kändes obekvämt. Allvarligt (ansiktsuttryck) – lite mer avslappnat till slut.
	UF4	1 Tycker om balett	2 Bryr sig inte om
		Ansiktsuttryck – seriös.	Mycket kraft i hennes kropp.
	UF1	1 Bryr sig inte om	2 Tycker om
		Leendet kändes tillgjort. Rörelser flytande. Inte hackigt.	Besvärade uttryck ibland. Hon hade en tyngd i kroppen; mer abstrakt.
	UF5	1 Bryr sig inte om balett	2 Tycker om
		Fokuserad. Mycket öppna rörelser. Jag kan förstå att hon är duktig men...	Mer närvarande (p.g.a. ansiktsuttryck). Naturligare rörelser.
	UF7	2 Bryr sig inte om	1 Bryr sig inte om
		Ansiktsuttryck – tillintetsägande.	Hennes rörelser – sensuella. Några rörelser – oväntade. De fick mig fokuserad igen. Imponerad av rörelserna. Fokuserade på rörelserna. Kände som om att hon var naken i sitt uttryck.
	UF8	2 Bryr sig inte om	1 Bryr sig inte om
		Imponerad av skickligheten. Lite tomt, uttryckslös.	-
	UF2	1 Bryr sig inte om	2 Bryr sig inte om
		Rörelser – trånande, som havsanemon. Stark, undergiven, framtvingad. Hon var ledsen.	Styrka, naturligare. Inte ledsen.
	UF6	2 Bryr sig inte om	1 Bryr sig inte om
		Mjuka rörelser.	Hennes rörelser (rullande armar) – onaturliga, obehagliga. Ansiktsuttryck – lite hårt

	UF10	1	Bryr sig inte om	2	Tycker inte om
			Rörelser – böljande (naturliga vågrörelser). Dansade för sig själv.		Dansar för sig själv. Fick inte kontakt med henne.
More or less Familiar	F1	2	Bryr sig inte om	1	Bryr sig inte om
			Duktig, flygande och svävande, såg ganska plågade ut och skör, hon hade tränat väldigt mycket, ansiktsuttryck – besvärat, flygrörelser (visar med armarna), det växlade mellan lätt och tungt.		Vilken atletisk person, vilken kroppskontroll, ansiktsuttryck – (lite) plågat, smärtan – i hennes rörelser (lidelse), kontrollerad < vad jag tänkte hennes rörelser kommunicerade, väldigt konventionellt, in a box liksom, som hon dansade.
	F3	2	Bryr sig inte om	1	Tycker om
			Dansade engagerat, imponerad av hennes kontroll, flytande armar och händer, stela ben (på ett fint sätt), i motsats till mjuka armar; sträckte ut armarna, stannade där och fortsatte sträcka ut dem – det var väldigt snyggt; standard ansiktsuttryck, elegant – när hon sitter på sidan, böjer ryggen bakåt och sträcker ut benet.		Hennes huvud och armar går lite fullt på sidorna, sedan öppnade hon armarna i första position och det var väldigt elegant. Imponerad av hur hon sträckte ut benet. Imponerad av dansarens förmåga; välutförda rörelser; vissa rörelser sparkade intresse in mig; armarna uppe, vänster fot glider väldigt kontrollerad; väldigt elegant; fulla och sedan eleganta, normala ansiktsuttryck.
	F2	2	Älskar	1	Älskar
			Ville observera mest hennes armar och ben – så fina, kändes uttrycksfullt och lite stolt som flamingo. hon – lite mer teatralisk, fick titta mycket på armarna; tänkte på flamingo, mer stolt och förödmjukad, hon – bestämd, lite passiv; hon följer sin egen sträng och viljan pga att hon står så rakt; hon går på en tunn linje så man blir rädd att hon ska trippa – lite strängd, avtrubbad, stolt, kanske för stolt; jag upplevde henne inte som glad eller någon som är livfull. Hon är så sträng att hon inte tillåter sig själv att känna, hon ser lidande ut.		Mest hon rörde på armarna – de såg väldigt flytande ut; långsam och snabb rörelse. Hon-duktig, vacker att titta på; vackra rörelser; hon följer någon annan som inte finns. Ansiktsuttryck – mer passande; hennes ansiktsuttryck – konstlagda, medan kroppen kändes mer professionell och naturligt – något som flyter som vatten; duktig. Ansiktsuttryck – väldigt självsäker, utmanande kanske; såg inte ut att hon var i sig själv; verkade uppträda för publiken; hon gick inte så

				mycket in i sig själv, yttrefokuserad.
Moderately Familiar	F6	2	Tycker om	1 Bryr sig inte om
			Lite mer kontrollerad – inte lika fri; det kändes lite frustrerande – ”måste hon ha dessa skor?”, ”Kan hon inte slappna av?”; (...) verkade hon tvingande; ”Kan du inte andas?”; Hon var mycket mjuk i armarna men ben och kroppen var (...) ställ; Såg ut som en fågel; såg lite plågad ut; hon har det jobbigt; såg lite glad ut också när hon flaxade.	Mer i harmoni (än i baletten), utmanade, väldigt duktig och stark; rörelser som är svåra såg lätta ut; ansiktsuttryck: lite obekvämt; hon utmanade publiken – mest i början, sedan lugnade hon sig.
	F5	2	Tycker om	1 Tycker om
			Hennes handrörelser påverkade mig mer än fötterna; jag gillade att hon gick från en sida till en annan med <i>Cou de Pied</i> . Hennes mjuka rörelser hjälpte mig att känna mig trevlig och lugn (lite mer än den andra); Struktur på hennes fötter, kontroll, mjuka rörelser på händerna; (...) när hon dansade på tårna var hon mycket strukturerad för mig på fötterna. Överkroppen var mjuk, nedre delar var strukturerade och starka för hon litade på sina tår. Hon kunde undvika grimaser och konstiga uttryck på kroppsspråket. Balans – mjuka rörelser.	Hon var balanserad, hon visste vad hon gjorde, hon kontrollerade. Hennes fokus på sina rörelser gav mig en bra känsla (jag tänkte på naturen, balans). Hon fokuserade på dansen. Det fanns inget negativt på kroppsspråk. Ögonen – inga grimaser. Om hon upplevde stress undvek hon grimaser på sin mun.
	F4	1	Tycker om	2 Tycker om
			-	(...) hon rörde så mycket i överkroppen. Självsäker, nöjd. Det gjorde mig glad och lugn.
	F8	1	Byr sig inte om	2 Tycker om
			Glad och välkomnande. Armarna som vingar och så flög hon.	Mer fokuserad. Inte så mycket känsla i ansiktet utan neutralt. Inkräktande. Hon stängde ut världen. Inte så välkomnande. Kontrollerad. Fri. Såg lätt ut.
	F7	1	Byr sig inte om	2 Älskar!
			Tänkte mest på tekniken. (...) och (...) rörelserna. Hon – stark, välskolad, behärskar dessa rörelser, men ibland för kontrollerad; jag hade givit andetag – hade sagt till henne att	Tittade mycket på tekniken. Kul, lite mystiskt, avslappnad, kula ansiktsuttryck. Jag ville ha lite mer luftiga okontrollerade stora rörelser – Ta upp mycket plats, öppna.

		andas lite mer; övergångarna var lite hackiga (jag såg sådana saker jämfört med proffs som jag har sett). Duktig, jag saknade lite mer känslor.		
Highly Familiar	F9	2 Tycker om	2	Tycker om (mer än balett)
		hon andades i den kontrollerade formen; repetitiva fottrampet, ingen frihet – frihet inom en ram; hon lärde sig att man ska göra det så här för att bli godkänd; beundrade hennes precision och kontroll i kroppen; hennes rörelser – för strikta, för mycket precision; det var tråkigt att hon dansade så sakta; Hennes ansiktsuttryck - organiserad, putsad, strikt – hennes hår och huvud också		mjuka rörelser
	F10	1 Tycker inte om (nu)	2	Tycker mycket om
		lite naken; hon fick inte balansera sig så bra, hennes ben åkte fram och tillbaka när hon satte sig på golvet; gillade inte rörelserna – blev nästan lite irriterad; hon var lite bättre än i träningsvideon – där tränade hon men här dansade hon lite mer; hennes rörelser ser spända ut.		stereotypiska rörelser – bryta(bryter) linjer, kröka (kröker) ryggen

Appendix D: Classification of introspective judgements about feelings and attitudes

I grouped the introspective judgements on feelings as well as attitudinal judgements into positive and negative ones for both the familiar and unfamiliar participants. I further identified rough categories (e.g. *relaxed*) to which the provided descriptions could belong. Lastly, I counted the occurrences of respective descriptions in response to both classical ballet (B) and contemporary dance (C).

Categories	Unfamiliar	Familiar
Calm	8: 7B, 1C tillfreds (3B), lugn (4B, 1C).	7: 3B, 4C Lugn (3B, 4C),
Relaxed	14: 10B, 4C mindre stressad (1B), ostressad (1B), oorolig (1B), avspänd (1B), mindre spänd (1B), avslappnad (5B, 2C), mindre stelt (1C), kopplade bort från yttre stress (1C).	7: 4B, 3C avslappnad (3B, 2C), ingen stress (1B), det hjälpte mig att inte tänka på min vardag, schema och dåliga saker (1C).
Harmonious	1: 1B harmonisk (1B)	7:4B, 3C harmonisk (1B), stillhet (1B), något estetiskt (1B), jag tänkte på naturen och balans (1B), drömig (1C), komplett (1C), öppen på något sätt (1C).
Glad	6: 5B, 1C. (6) lätt (i kroppen) (1B), lättad (1B), svävande (1B), glad (2B), lättnad (fysiskt och mentalt) (1C).	3: 1B, 2C. glad (1B, 2C),

Good	3: 3B bekväm (1B), behagligt (1B), positiv (1B)	4:2B, 2C inga negative känslor (1B), bra (1B, 1C), positiv (1C)
Engaged	11: 5B, 6C inne i dansen (1B), någon connection till dansaren (1B), engagerad (2B, 4C), inbjuden(1B, 1C), kom så mycket in i dansen att.. (1C).	8: 4B, 4C inne (1B), engagerad (3B, 3C), jag söks in i dansen (1C).
Intense feelings	2: 1B, 1C inspirerad (1B, 1C)	4: 2B, 2C passionerad (1B), smittad (1C), intensiva känslor (1B), inspirerad (1C).
Emotional	1: 1B sårbar (1B)	4: 4C emotionellt (1C), sensuell (1C), berörd (1C), sorg (1C).
Entertained	2: 2B entertained (1B), road (1B)	-
Sympathetic	-	1: 1B sympatetisk mot dansaren (1B): inte bekvämt för henne att dansa i ett litet rum; orättvist att se på henne och bedöma henne för hon repeterar
Interested	9: 2B, 7C	6: 2B, 4C

<p>Impressed</p> <p>Focused</p>	<p>intresserad (2B, 2C), nyfiken (4C), ökade förmåga att intressera mig...(1C)</p> <p>8: 3B, 5C förvånad (1C), imponerad (3B, 4C)</p> <p>7: 3B, 4C fokuserad (3B, 1C), uppmärksam (1C), fokuserade inåt (1C), ökade förmåga att (...) fokusera på dansen (1C).</p>	<p>intresserad (2B, 2C), nyfiken (2C).</p> <p>6: 4B, 2C fascinerad (1B), fick upplevelse av beundran (1B), imponerad (2B, 2C).</p> <p>3: 2B, 1C fokuserad (2B, 1C).</p>
<p>Unrelaxed</p> <p>Disengaged</p>	<p>1: 1C kunde inte koppla (C)</p> <p>17: 7B, 10C oengagerad (B), jag var inte så engagerad i dansen (3B), inte 100% engagerad (B), distanserad (B), inte så engagerad i dansen (3C), inte så indragen i själva dansen (C), inte så engagerad men mer engagerad än i den andra dansen (B), kunde inte komma i dansen (C), icke inbjuden (2C), inte helt fäst (attached, hooked) (C) ...jag inte får vara med (C)</p>	<p>1: 1C Inte riktigt fullt avslappnad (C)</p> <p>7: 2B, 5C inte lika connected (som i modern dans) (B), jag kände mig inte hemma i dansen – jag kunde inte möta i dansen på grund av reglerna och precisionen (B), inte totalt sjunken i den (C), inte så engagerad (3C), avstängd pga att inte kunna vara med och dansa, det var inte tillräckligt för mig att bara sitta (C);</p>
<p>Unstimulated</p>	<p>0</p>	<p>5B, 0C</p>

<p>Strong negative feelings</p>	<p>15: 3B, 12C</p> <p>uttråkad (B), inte besviken men någonstans i den linjen (B), irriterad (B), uttråkad (C), började jag tänka ”är hon inte klar än?” (C), obekväm (C), obehagligt (C), onaturligt (C), konfunderad (man förstår inte vad hon menar)(C), besvrad (C), irriterad (2C), frustrerad (C), nervös när hon tittade rakt på mig (C), när hon såg så allvarligt ut, ville jag backa lite och avstå från henne; jag ville titta men ändå ville jag inte det (C).</p>	<p>passiv (för jag inte dansar med eller för det inte fanns musik (B), ostimulerad (B), långsam (B), nedsaktad (B), sömnig – sjönk in och kom tillbaka (B);</p> <p>4B, 5C</p> <p>besvrad (B), störd (B), irriterad (B), frustrerad (B), uttråkad (2C), obekväm (C), förvirrad (C),”oj, hjälp, va?!” (i början) - intimidated (mest i början) (C).</p>
<p>Unfocused</p>	<p>6: 3B, 3C</p> <p>lite ofokuserad (B), lite ofokuserad, mina tankar flöt iväg emellanåt (B), jag flöt iväg i tankarna hela tiden (B), tvingade mig att fokusera på dansen (C), Jag flyttade iväg i tanken (C), fokuserad men inte 100%(C)</p>	<p>1: 1C</p> <p>Tankarna gick hit och dit ibland (C)</p>
<p>Uninterested</p>		

Unimpressed	1: 1B mindre intresserad av balett nu när jag har sett den (B)	-
Critical	1: 1B inte så imponerad (B)	-
	-	4: 2B, 2C lite kritisk – bedömande (B), dömande/Ifrågasättande/frågande (B), Dömande, lite som en forskare (C), analyserande (men inte lika mycket som i baletten) (C).
Other ¹⁷	1: 1C förtvivlad (C)	2: 1B, 1C ledsen (pågå dansarens ansiktsuttryck) (B), tung medan hon såg lätt ut (C).

¹⁷ These feelings are not necessarily negative. They can, for example, be expressive of feeling sympathetic towards the dancer. Thus they were excluded from the analysis.