Comprovisation: Optimising Professional Classical Ballet Training for Adolescents

MAS Thesis

Master of Advanced Studies (MAS) in Dance Science

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Matriculation Number: 15-130-537

Bern 18.08.2018

ACKNOWLEDGEMENTS

First, I would like to thank my thesis advisor, Derrick D. Brown, M.Sc. (Hons) for his wisdom and unfailing support, guidance and encouragement. Also I would like to thank Dr. Andrea Schärli, my co-referee for this thesis, for her valuable input to my course work over the last two and a half years, and also for the superb organisation of the Dance Science program at the University of Bern. I am indebted to Dr. Rolf van de Langenberg who steered me in the right direction and expertly guided me towards my research question. I give thanks to the students that participated in the study and from whom I was able to learn so much. I also thank Jolantha Seyfried for her friendship and expertise, and Nikolaus Selimov for his understanding and generosity. I am very grateful to my friends Flore Benoit-Lesage and Christine Salmen for spurring me on and I thank my mother, Janet Tindle, for the amazing financial support, without which this educational journey would not have been possible. And last, but by no means least, I thank my two men, Wolfgang and Raphael for being so patient and proudly supporting.

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ABSTRACT

Although research has been carried out on the benefits of creativity and positive learning environments for young professional dance students, previous work has failed to address the area of comprovisation (improvisation within a given framework) in the field of professional dance education for students aged 11-13 years. Therefore, there exists a paucity of research. Using movement quality as a barometer for recording the effects of comprovisation on a group of female adolescent professional dance students, this study investigates the wide spectrum of benefits comprovisation adds to the classical ballet training of this cohort. Classical ballet exercises were filmed before and after a three minute intervention of either repetitive dance instruction or comprovisation. As a group, the participants rated the recordings in an interactive survey for the perceived movement quality, and to what extent the music supported this. An open (written) questionnaire on the participants' experiences with comprovisation was also completed on an individual basis. This study yielded answers and inspiration as to the optimisation of learning environments for young adolescents in professional dance education and in addition, contributed uniquely to the field with many points for discussion. It was found that in this particular invesigation, comprovisation supported basic psychological needs and a task involving environment plus encouraged aesthetic, creative and artistic development. Furthermore, comprovisation facilitated the optimal experience of Flow.

INTRODUCTION

Improvisation, creating movements spontaneously on the spur of the moment has always been present in dance and since the 1960´s has become increasingly prominent. Anecdotal observation has revealed that using dance improvisation for embodied learning in the structure of a classical ballet class with children aged 11-13 in a professional dance education setting, may optimise the understanding and execution of kinaesthetic- and artistic- learning goals while supporting a task-involving environment. This investigation queries whether these kinaesthetic and artistic learning goals can be discovered and understood more effectively through improvisation than through the traditional training method of using numerous repetitions or guided practice of classical ballet exercises or steps. Furthermore, how the young dancers experience improvisation on a personal level will be examined.

In order to guide the student to an artistic, creative and/or kinaesthetic learning goal, applying a structure or a theme to improvisation can be beneficial. In the world of music, using such a composition or framework together with improvisation may be termed "comprovisation". The Australian composer, keyboardist, and musicologist, Michael Hannan wrote how he employed the term "comprovisation" to "take account of composition that has strong improvisational elements [...] One comprovisation strategy is to work from a skeletal score and add the compositional details through improvising." (Hannan, 2011, p. 55). In dance literature and research only the term improvisation is used, although very often improvising on a given theme or within a framework is alluded to. In order to clarify that improvisation within a framework is being referred to, the term "comprovisation" will be used

in this study. A comprovisation task, for example, to support the understanding of focus with the whole body and location of ones-self and the other dancers in the room could be thus constructed; a number of points in the room are designated by the dancers and the teacher as focal points. While dancing, only these points can be looked at. When changing from one focal point to another, the dancers must clearly be able to visualise, in their minds-eye the location of the next point before they change their focus so that the transition is smoothly completed. The dancers need to be able to have an awareness of where the other dancers are in the room and also where they locate themselves within the room. It is the dancers` decision which movements they allow to materialise and these will probably be influenced by the dancers' moods, the music, and the framework of the task.

1.1. Comprovisation as part of a task involving environment

Research shows that some dance teachers are aware of the motor, perceptual/cognitive awareness, non-verbal communicative and emotive abilities that improvisation (and structured improvisation) offers students, Bailey & Pickard (2010), Chappell (2007), and Connell (2009), noted that improvisation supported the development of confidence and motivation. Tying in with this, Baily and Pickard also observed a learner-centred environment in improvisation classes which in accordance with other dance literature, e.g. Quin, Rafferty, & Tomlinson (2015) could produce a task-involving environment. In the traditional perspective of Achievement Goal Theory (AGT) from Nicholls, the achievement of goals is directed either through the ego or the task (Nicholls, 1984). Achievement Goal Theory defines reasons and sources of motivation for goals. Nicholls stated that, "When individuals are task involved, they see more effort as leading to more mastery and higher ability [...] When individuals are ego involved, their chances of demonstrating ability depend on the ability of others" (Nicholls, 1984, pp. 332-333). A task-involving environment places emphasis on individual effort, and self-referenced behaviour while regarding mistakes as a valuable part of the learning experience. An ego-involving environment uses comparison to measure progression while talent and ability are valued over effort, furthermore, mistakes are not acceptable (Quin, et al., 2015, pp. 159-160). The essence of comprovisation is individuality and discovery which rule out comparison and encourage experimentation which eradicates the concept of mistakes.

However, the individual's perceptions of ability, of self-esteem and the environment, are also highly important and play vital roles in forming the motivation. Therefore, through supporting the Basic Psychological Needs Theory (BPNT) of Autonomy, Belonging and Competence, it is possible to positively influence these perceptions and to produce a task-involving environment. BPNT is identified as a sub theory in Self Determination Theory (SDT) which is a large and ever-growing "framework for the study of human motivation and personality" (Ryan & Deci, 2018)

At the core of SDT, which has been developing since 2000, lies motivation, i.e., the reason for why people do things and how one motivates ones-self, or someone else, to accomplish something. The theory explains extrinsic and intrinsic motivation. Extrinsic motivation, being a motivation from outside of the person, such as a reward, recognition or a threat, and intrinsic motivation being a motivation from within the person, such as identity or

pure enjoyment. Ryan & Deci (2000a) wrote: “Human beings can be proactive and engaged or, alternatively, passive and alienated, largely as a function of the social conditions in which they develop and function.” (Ryan & Deci, 2000a, p. 68). Therefore, “social conditions” are identified as supporting or thwarting Autonomy, Belonging and Competence.

Beneficial social conditions can maybe be created through the use of improvisation. Watson, Nordin-Bates and Chappell (2012) found that working with improvisation was critical in helping to inspire and realise creativity in young people because this encouraged student dancers to “find their own voice” and boosted autonomy (Watson, et al., 2012, p. 163). This is significant in terms of BPNT which is said to cultivate high quality motivation and affects outcomes such as, persistence, quality of experience, creativity, and well-being. Moreover, the thwarting of these basic needs has been shown to have negative effects. This has been proven not just in lab situations but also venues such as schools, clinics and the workplace (Ryan & Deci, 2000b, p. 258)

Supporting Autonomy, Belonging and Competence through a task involving environment brings students benefits such as; better concentration, positive group dynamics, more creativity, openness for discovery, adherence, self-referenced behaviour, ownership of movement and more self-confidence. Part of creating a task-involving environment includes taking care how one sets goals, (Quin, et al., 2015, p. 162). Through using comprovisation, as opposed to improvisation, it might be possible to define learning goals for younger dancers more clearly. For example, many improvisation dance leaders feel that the motivation, rhythm and style that music offers, stops individuals from relying on their inner resources (Blom & Chaplin, 2000, p. 32) however, comprovisation consists of a given motivation/framework and music is a powerful means of creating a framework plus it plays a vital part in the dance education of children. Therefore, comprovisation using music and other sensorimotor stimuli may provide freedom of discovery through a framework. This in turn, could be highly productive for young dancers who psychologically need and look for support and nurture through structure.

1.2. Comprovisation and Flow

Benefits such as high levels of concentration, creativity and well-being that arise from a task involving environment where BPNT are supported are all components of Flow. The psychological scientist Mihály Csíkszentmihályi (2008) stated that when in Flow,

> Concentration is so intense that there is no attention left over to think about anything irrelevant, or to worry about problems. Self-consciousness disappears, and the sense of time becomes distorted. An activity that produces such experiences is so gratifying that people are willing to do it for its own sake with little concern for what they will get out of it, even when it is difficult, or dangerous. (Csíkszentmihályi, 2008, p. 71)

What makes an activity conductive to Flow is its structure. The activity has rules that require skills to be learned, goals are created, feedback is provided and control is made possible. Concentration and involvement are facilitated by making the activity as removed as possible from everyday life, (Csíkszentmihályi, 2008, pp. 53-67). Comprovisation in dance uses set goals where immediate feedback on different levels may be experienced, e.g. emotional and kinaesthetic feedback. Furthermore, the dancer has control and choice over their own actions which support Autonomy making comprovisation inductive to Flow.

Research from Nordin-Bates, Redding, and Walker, (2012) has shown that lack of enjoyment, lack of – or too much challenge, too intense an involvement in the beginning stages, critical evaluation of dance engagement, emphasis on technical skill acquisition which involves repetition, are what cause young, talented dancers to lose their motivation and terminate their involvement in training schemes (Nordin-Bates, Redding, & Walker, 2012, pp. 70-72).

Enjoyment plus equating challenge and skill are essential to the experience of Flow, which has itself been cited as a reason for why people do what they do (Csíkszentmihályi, 2008). Furthermore, Nordin-Bates et al. (2012) stated that, "it could be that the absence of emotional attachment to an activity lessens commitment" (Nordin-Bates, et al., 2012, p. 71). Anecdotal observation has shown that during comprovisation young dancers can be emotionally involved in the task and free from self-consciousness. This could indicate that comprovisation might encourage Flow which is experienced as motivating and can guard against loss of interest or passion which causes young dancers to drop out of training.

1.3. Comprovisation and aesthetics

According to Gentile (1998), the control of force generation for activities such as walking or dancing can only be negotiated through implicit processes and that "variability in force generation and feedback is a necessary and essential aspect of the implicit learning process." (Gentile, 1998). In regards to the dancer´s experience of force, the phenomenologist and long term dancer Sheets-Johnstone, finds that "tensional quality" captures the felt dynamics of the movement more finely than the blanket word "force," and wrote:

> Tensional quality specifies the felt intensity of a movement, an intensity that may well change in the course of the movement, as in kicking a ball, sawing a piece of wood, picking up a suitcase, and so on. The felt and commonly shifting intensities of the movement constitute what is commonly termed its force. (Sheets-Johnstone, 2012, p. 45)

Comprovisation tasks may offer freedom in choice of movement which results in variability of force generation or tensional quality, and therefore also feedback, creating an optimal situation in which implicit learning could, over time, take place. According to Blom and Chaplin (2000) "Direct experience [of the senses during improvisation] builds a fund of

tacit knowledge which becomes embedded in the body´s response system. Responses mix with perceptions, building on each other to form a complex system of knowing" (Blom & Chaplin, 2000, p. 16). Blom and Chaplin (2000) state how the more developed the response system is, the more "unique things will happen [in improvisation]" (Blom & Chaplin, 2000, p. 17) this being due to a resulting increase in one´s resource pool of movement.

With this self-awareness, this "complex system of knowing" that depends heavily on the proprioceptive self (which this thesis posits that comprovisation optimally trains), "The entire body can be significant-even when quiet" and "The entire organism should know about the fingers wiggling even if the intention is isolation or complete indifference" (Blom & Chaplin, 2000, p. 35). This awareness and involvement of the whole body, supported by force generation and tensional quality, is vital to expression and aesthetics in dance. I experience this fusion of whole body involvement with force generation and tensional quality, in combination with the resultant range of amplitude of movement as "Breadth of Movement".

Studies have shown that similar to fine art and design, dance has a set of (physical) aesthetic criteria. In research from Torrents, Castañer, Reverter, Morey and Jofre, (2015) it was found that the duration of a balance, the velocity of a turn and mostly the range or the amplitude of a movement in contemporary dance, influences the subjective aesthetic perception. Movements executed with these qualities, particularly a large range or amplitude of movement, were considered by experts to be more beautiful (Torrents, et al., 2015, p. 448). Torrents, Castañer, Jofre, Morey, and Reverter, (2013) had already found similar results when studying non-expert viewers (Torrents, et al., 2013, pp. 455-456).

Therefore, in summarising the ideas so far presented in this paper it is possible to conclude, when taking existing studies and literature into account, that; developing dancers with a sense of amplitude in movement is aesthetically desirable and training kinaesthetic awareness to produce a responsive body which performs such amplitude, or "Breadth of Movement" can potentially be achieved with the implementation of comprovisation. Furthermore, comprovisation supports BPNT which in turn leads to better concentration, positive group dynamics, more creativity, openness for discovery, adherence, self-referenced behaviour, ownership of movement and more self-confidence (Quin, Rafferty, & Tomlinson, 2015, pp. 159-165)

1.4. Aims of the study

Though literature and research on improvisation (with and without a framework) in dance do exist, the majority of the research has been conducted on adults in a contemporary dance setting. Also research on BPNT in the field of vocational dance in various genres plus Hip-Hop has been undertaken to reveal how dancers´ perceive their surrounding motivational climate, e.g. Quested and Duda (2009) and Quested and Duda (2010). However, these studies relate to older students with many more years of dance training. Therefore there remains a paucity of research that investigates the population being investigated in this study; young dancers aged 11-13 on a professional dance education scheme being introduced to comprovisation within the confines of classical ballet tradition.

The aim of this study is bi-fold: (a) to establish whether comprovisation, when integrated into classical ballet training benefits Breadth of Movement (BOM) more than guided practice, and (b) to shrink the gap in the existing literature and research by observing a much younger professional population.

The two key queries posed are whether, 1: the integration of comprovisation supports a task involving environment, and 2: if flow is experienced. Additional questions are; Does explicit learning through repetition and guided practice of steps always produce optimal results? Is the belief, "practice makes perfect" viable? How optimal to learning is the structure of traditional classical ballet training?

Therefore the hypothesis for this investigation is that: pre-professional dance students who are introduced to comprovisation as part of the classical ballet class can develop a more pronounced breadth of movement than when only implementing guided practice.

METHOD

The task of the research was to examine the effect that interventions of comprovisation and guided practice had on the BOM of students attending a daily classical ballet class. In order to achieve this, a mixed method research design was used: quantitative methods (using an eighteen-question survey to assess data recordings) and qualitative methods using an open-ended written questionnaire. The questionnaire was written in English and German and the students could reply using either language. The German text was translated by the researcher and the participants' were consulted if the translation lacked cohesion. In this way it was possible to measure the BOM while gaining unique insight into the lived experiences of the participants that had resulted directly from the experiment. The study was undertaken with absolute minimal risk to participants and the prospect and degree of harm or discomfort in the research was no greater than any ordinary routine ballet class.

2.1. Participants

Eight elite female dance students, (12.28 ± 1.3 years) from a vocational dance program with to date 1.5 years of daily training, participated in the study. The dancers were matriculated in a classical ballet class taught by the researcher. As the participants were underage, parents were briefed on the process of the study and provided written consent for participation. The parents were informed of the benefits of the study to the dance education of their child. Those being that the children could learn a lot from watching recordings of themselves in the ballet class and from actively evaluating their own movements, and those of their peers. Parents were able to withdraw their child from the study at any given time and participants were at liberty to stand in the line of the camera or not. Written consent was also obtained from the director of the dance department at the university where the dance program was situated. The participants were all acquainted with one another and enrolled in the same class in the dance program affiliated with the university. All participants engaged daily for 75 minutes in classical ballet, totalling 6.25 hours of classical ballet per week plus 3.75 hours of complimentary dance subjects which consisted of Modern Contemporary Dance, Rhythmical Studies, Acrobatics and Gymnastics.

2.2. Procedure

The study was integrated into the daily ballet class which took place Monday to Friday between 14:00 and 17:15 every afternoon following regular school education. Recordings were made after a warm-up of 10 minutes plus the classical ballet barre exercises of 25 to 30 minutes had taken place. The recordings took place depending on where the exercises to be observed were situated within the class structure. For example, one *Allegro* exercise showing *Chassé* was recorded at the end of the class and the *Grand Battement* was recorded towards the end of the centre practice.

The recorded exercises were chosen and choreographed so that a broad range of steps, typical for the training of the group, were shown. This ensured a wide spectrum of recording possibilities and was beneficial in that the participants could then observe and evaluate an extensive span of their known technique to date. Elements not included, were exercises at the barre, due to the lens of the camera not being able to sufficiently capture the entire scene when participants were at the barre, plus pirouettes and pointe work. The reason for the latter, being that concentrating on BOM in pirouettes and pointe work was not believed by the researcher to be safe when considering the level of present development reached by the group within these two areas of technique.

To begin with the participants were familiarised with the concept of, “Breadth of Movement” (BOM) which was explained in a previous class. It had been explained that this did not just include amplitude of movement but also the involvement of the whole body in the movements and having the body informed and informing at all times (being aware of feedback from the body/self). The participants were also given an image of a gong that vibrates long after the initial hit to help them understand how to direct their energy to attain BOM while dancing and when the body was still. This was explained in such a way that the children could clearly understand the concept.

In order to visually analyse BOM, various classical ballet classes, musically accompanied by either one of two pianists or recorded music, were filmed for 22 days over a period of six weeks. A Sony HDR-CX130 camera, placed in the centre, at the front of the dance studio was used for this purpose. Placement marks for the camera tripod were applied to the floor using sticky tape and the height of the tripod was fixed at a constant value throughout the recording time span.

In the interest of avoiding an exam-like situation which could alter the results of the test, and in an attempt to create an as normal as possible learning environment for the participants, the camera was placed in the dance studio on a regular basis one week prior to the beginning of data collection. In this way the young students were be able to become accustomed to the camera and to regard the recording as a routine procedure.

The procedure for the actual data collection was thus; firstly a recording of the participants executing a classical ballet exercise was made. Secondly, a three- minute (timed) intervention of either guided practice or comprovisation took place. In the appendix two examples of these comprovisation tasks can be found. It was observed during the piloting and construction of the protocol, that comprovisation and guided practice interventions needed three minutes for participants’ to immerse themselves in the task experiment. A longer time

appeared to cause fatigue and less time did not allow enough attention to be given in particular to the last phase of retention. In both interventions the focus was on obtaining BOM. Finally, a recording of the participants repeating the classical ballet exercise, with the emphasis on BOM, was made. All exercises were constructed to allow an amount of BOM to be identifiable, plus pianists were instructed to play the same music with the same rendition for both the first and second recordings of the same exercise so that the influence of the music on the dancers´ movements remained constant.

At the beginning of the six week period a small pilot survey using recorded data was successfully undertaken. After three weeks of data recording 12.5 hours of collected data had to be disregarded due to one participant being withdrawn from the study by her parents. A further 6.25 hours of recordings were discarded for reasons such as incorrect camera set-up or incorrect spatial planning on the part of the study organiser. Excerpts of six classes were extracted from the remaining 12.5 hours of data recordings and constructed into an interactive survey.

2.3. Survey

The interactive survey consisted of 18 questions (compiled in English) and was designed using the online survey development service, Survey Monkey. The participants were asked as a group to rate the observed BOM in the pre and post recordings of an exercise and then to rate how inductive to BOM they found the music for the exercise to be. The group rating was important as it removed an element of a test like experience, encouraged listening and an exchange of ideas, plus allowed the students to unitedly reach an opinion. All ratings were done using a slide-bar Borg Scale with the values set from zero to 100. An expert was also asked to rate BOM in the recordings and to rate how inductive to BOM they found the music to be. The expert, an ex-principle dancer of the national ballet company worked as a ballet teacher in the same university, but had no regular teaching interaction with the group.

The reason for rating the music was that this information could be helpful in finding out to what extent the music influenced the hypothesis. For example, in some cases it might seem that the music had supported and increased BOM. However, if a comprovisation intervention took place between the two rated exercises and an increase in BOM was apparent but the music was not rated as being inductive to BOM, this could be a clear indicator that the comprovisation alone successfully increased BOM.

Table 1 depicts the order, date and time span of the recordings, the attendance of the participants, exercise type and intervention type, plus musical accompaniment. The trial order of the intervention types was intentionally placed alternatively to later simplify the analysis procedure. The musical accompaniment was varied owing to the school schedule and absence through illness on the part of the pianist. Due to one drop-out and illness, the attendance of the participants was always under eight in the utilised data.

The survey was distributed to the participants as a group task and two weeks later it was given to the expert. In many situations, subjects are rated by experts who use some degree of external criteria for assessment. In this study, the goal was not to assess absolute

pedagogic agreement for the success or failure of BOM from a third-party. Rather, the significance in the data collected lay with that of the participants' collective experience as group, in keeping with how they learn. The data from the expert was ancillary, and will serve as a further generator of pedagogical discussion regarding comprovisation.

Table 1

Protocol of recordings used for interactive survey

Recording order	**Date of recording**	**Time-span**	**Attendance from 8**	**Exercise (centre work)**	**Intervention 3 minutes**	**Music**
Film 1 Film 2	14.05.2018	15:45-17:00	-3	*Rond de jambe*	Guided Practice	Recording
Film 3 Film 4	15.05.2018	16:00-17:15	-4	*Grand Battement*	Comprovisation	Pianist 1
Film 5 Film 6	26.04.2018	15:45-17:00	-1	*Adage*	Guided Practice	Pianist 1
Film 7 Film 8	02.05.2018	14:00-15:15	-1	*Tendu*	Comprovisation	Pianist 2
Film 9 Film 10	16.05.2018	14:00-15:15	-4	*Chassé*	Guided Practice	Pianist 2
Film 11 Film 12	04.05.2018	15:45-17:00	-1	*Allegro Echappé*	Comprovisation	Pianist 1

2.4. Questionnaire

In order to gain a deeper understanding of the participants personal experiences with comprovisation, the students were also asked individually to answer a written open questionnaire. This questionnaire is to be found in the appendix. The questions focused on how they perceived comprovisation, the challenges and benefits they felt it brought to their personal movement proprioception, plus, how it influenced their sense of well-being in the dance studio and how it related to their classical ballet training.

As mentioned previously, this study was integrated into the daily classical ballet classes and therefore automatically became part of a learning process for the students. Therefore, after the initial recording and survey rating, the students were encouraged to reflect upon the process that they had experienced. The participants were blinded in the first stage to the true purpose of the study. In the second stage, after the completion of the survey and the questionnaire, the intentions for the study were revealed to both participants and the expert. When the students were informed of the actual aim of the study and the reasons for the chosen structure it was explained that if they had been aware of the goal of the study that this may have brought out the "performer" in them and that it was important to maintain a normal class

atmosphere where more natural demonstrations of the exercises could be attained. This was understood and accepted by all participants. A recording protocol can be found in the appendix. In Figure 1, the two stages of the study are shown.

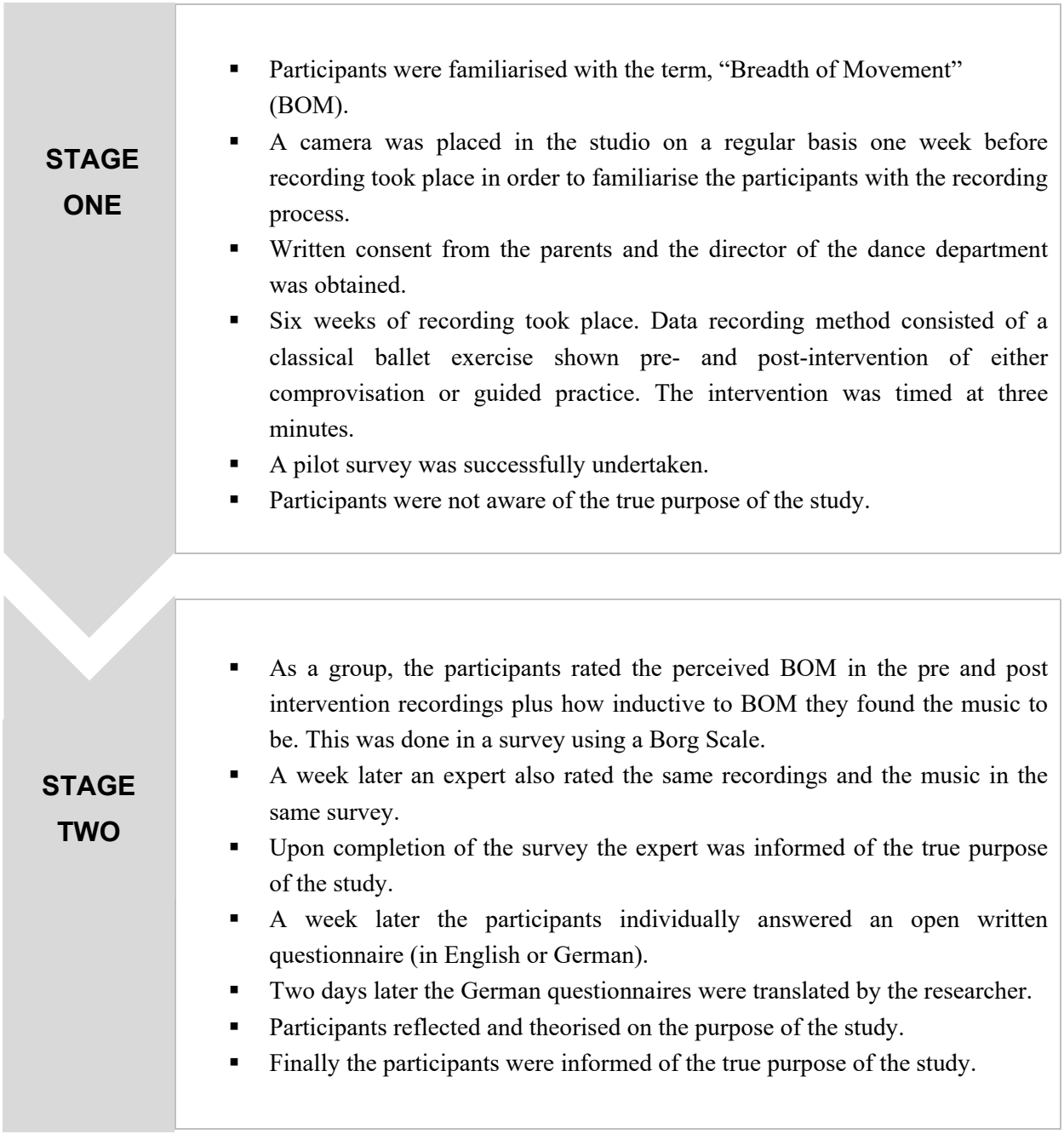

Figure 1
Stage one and two in the study on BOM

2.5. Data Analysis

Results of the survey were dealt with as follows; for each group, participants and expert, the difference in the ratings for BOM from the first and second recording of each classical ballet

exercise was observed. Following this the total difference in BOM for each exercise, from both groups was calculated. From this it was possible to find the overall ratings for the interventions. Finally ICC estimates and their 95% confident intervals for average agreement were calculated using SPSS statistical package version 25.

RESULTS

3.1. Quantitative results: BOM

The first aim of this study was to detect the possible impact that a three-minute intervention of comprovisation or guided practice had on the quality of BOM of young dancers (12.28 ± 1.3 years) in the execution of classical ballet technique. This was achieved by collecting quantitative data through an interactive survey undertaken with the participants, as a group, and an expert.

Table 2 depicts the numbering of the recordings, the intervention type implemented between the recordings (GP = Guided practice, Comp = Comprovisation), BOM observed by the Participants, BOM observed by the Expert, the calculated observed increase in BOM from the pre to the post recordings from the participants, and likewise for the expert. The last column shows the sum of the total increases in BOM for the participants and the expert.

Table 2

Participant and expert ratings, calculated difference between pre- and post-recordings, plus calculated total difference for BOM

Recording	Classical ballet exercise	Intervention type	Participant rating of BOM	Expert rating of BOM	Calculation of difference for BOM in pre & post recordings Participants	Calculation of difference for BOM in pre & post recordings Expert	Total sum difference
1	*Rond de jambe*	GP [a]	25	75	3	5	8
2		GP	28	80			
3	*Grand Battement*	Comp[b]	40	85	5	-10	-5
4		Comp	45	75			
5	*Adage*	GP	40	75	0	10	10
6		GP	40	85			
7	*Tendu*	Comp	30	85	20	10	30
8		Comp	50	95			
9	*Chassé*	GP	35	70	3	8	11
10		GP	38	78			
11	*Allegro Echappé*	Comp	15	70	25	20	45
12		Comp	40	90			

[a] Guided practice intervention of three minutes

[b] Comprovisation intervention of three minutes

When rating the *Grand Battement,* recordings 3 and 4, the expert stated that recording 4 exhibited so much BOM that a possibility of rating 120 points was needed- which the Borg Scale did not allow. The resulting score for recording 4 was then rated at 75, ten points less than the pre-intervention, recording 3. The reason given for this, in personal correspondence, was that there was so much BOM in the post intervention recording that the control of the movements was lost, and the expert felt it necessary in this case to give a lower rating. This raises an interesting pedagogical point which shall be examined further in the discussion section of this thesis.

From the results in Table 2 it is possible to understand that overall the comprovisation interventions (Comp) had a greater effect on BOM than the guided practice (GP) interventions had, despite the negative rating from the expert for the *Grand Battement* exercise.

Interrater agreement for the BOM ratings was checked using the intraclass correlation coefficient (ICC). In a two-way mixed effects test for consistency, a moderate degree of reliability was found between the average measurements. The average measure ICC was .714 with a 95% confidence interval from .007 to .918 ($F(11,11)= 3.499$, $p< .05$). This is shown in Table 3.

Table 3

Interrater agreement for BOM

Intraclass Correlation Coefficient

	Intraclass Correlation	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.555[a]	.004	.848	3.499	11	11	.024
Average Measures	.714[c]	.007	.918	3.499	11	11	.024

3.2. Quantitative Results: Music

Because music plays a vital part in the education of the population being observed in this study and strongly supports the implementation of comprovisation, the students and the expert were asked to rate on a Borg-Scale how inductive to BOM they found the music for each exercise. Results indicate that the participants and the expert were in agreement for recordings one and two on how inductive they found the music for the exercise to be. Music that the expert found very inductive to BOM was not highly rated by the participants, and vice-versa. Where the highest increase for BOM was calculated from the participant's data, a low rating of 55 points was shown to be awarded to the music. This was for recordings 11 &12, the *Echappé* exercise that had been combined with a comprovisation intervention. Table 4

presents the observed BOM and the perceived supporting quality of the music as discerned by the participants and the expert.

Table 4

Observed BOM and perceived supporting quality of the music

Recording	Intervention Type	Participant calculated increase for BOM	Participant rating-music inductive to BOM	Expert calculated increase for BOM	Expert rating-music inductive to BOM
1	GP [a]	3	50	5	50
2	GP				
3	Comp[b]	5	90	-10	40
4	Comp				
5	GP	0	75	10	90
6	GP				
7	Comp	20	60	10	65
8	Comp				
9	GP	3	50	8	60
10	GP				
11	Comp	25	55	20	85
12	Comp				

[a] Guided practice intervention of three minutes

[b] Comprovisation intervention of three minutes

3.3. Qualitative results: Concepts resulting from the questionnaire

The questionnaire was presented to the participants after completion of the survey with the aim of discovering more about the young dancers personal experiences with comprovisation. The questionnaire was written in English and German and could be responded to in either language. The questions were open and could be answered using as much or as little information that the participants felt free to share with the researcher. The open questions can be viewed in Table 5.

As mentioned in the introduction, the second aim of this study was to shrink the gap in the existing literature and research by observing a young population being introduced to comprovisation within the confines of classical ballet tradition. A thorough examination of the written data revealed the importance of comprovisation for the positive development of the group with regards to the learning environment plus discovery and affirmation of the self. Concepts consistently shown throughout the data point towards the three basic needs construct in SDT, Autonomy, Belonging and Competence. In addition, Creativity, Flow, and Music were defined.

The concept of Autonomy was often revealed, particularly through the use of the

words “freedom” and” free” and the idea of “feeling free”. The word “feeling” was also widely used, as a noun or as a verb, i.e. as an emotion and /or sensation, or as perceiving. These phrases seemed to play an almost overwhelming part in the lived experiences of the participants. Expected and mentioned was freedom of ideas and movement: “I like it because I feel so free! Then I can just do any movements” (Clara, 2018), or, “Because you can do free movements and you can also invent new movements and try things out.” (Theodora, 2018). However, some participants described a freedom from worries, one wrote: “Because you feel free and can let go of your worries and you can do whatever you want.” (Anna, 2018) while another explained, “I feel free and happy then. It sets me free and without improvisation [comprovisation] I could not handle the stress at [academic] school.” (Lisa, 2018).

Furthermore, participants showed Autonomy through being able to utilise comprovisation for well-being: “Sometimes on a bad day comprovisation helps to find inner peace and I feel better right away.” (Julie, 2018). Autonomy was also revealed in the participants’ sense of self. For example a quote from Julie on why she enjoyed comprovisation: “Because it is a different way to express myself with a theme and in my own style.” (Julie, 2018).

Belonging was clearly defined in how the participants used terms such as “we”, “us” and “they”. When questioned on how they thought or saw that the group felt after having completed a comprovisation task, the participants made statements that showed Belonging through clear observations showing strong empathy. Clara stated: “I believe that many children forget their worries during improvisation and can then concentrate more on the lesson.” (Clara, 2018) and, “I think the group feels lighter after the improvisation. And also freer and happier.” (Theodora, 2018).

Competence was identified as a concept particularly in statements concerning the connection between comprovisation and ballet: “when we get a [comprovisation] theme like big it helps with the jumps” (Lena, 2018), and Anna reflected that, “Because you can transfer what you have learned in the comprovisation into the exercises, and then everything is much easier.” (Anna, 2018). It was clear that the participants felt supported by comprovisation in their learning of classical ballet and that their sense of motor, perceptual/cognitive awareness was encouraged.

Competence was shown to be challenged when the participants expressed their difficulties with comprovisation. The participants sometimes had difficulty interpreting the given theme for the comprovisation. Also, not liking the music, or not being able to, “think of anything that suits the music” (Theodora, 2018) made the task harder. Lisa concluded: “There are things which I find very hard and where I have no ideas. Or where I cannot imagine anything to do with it. But there are also impros [comprovisation tasks] which I find easy.” (Lisa, 2018).

In addition to BPNT, other concepts were observed, these being Creativity, Flow and Music. Creativity occupied the thoughts of the participants in that having “ideas” and accomplishing something ”new” was given importance as was discovery and learning through creativity. This was often tied-in with Competence: “Because I can learn something new and see all the things one [I] can do” (Lena, 2018) and, “Because there are always great new things to find out and there are often great topics” (Lisa, 2018) or, “Because you can do free

movements and you can also invent new movements and try things out (Theodora, 2018).

That the participants experienced Flow while performing comprovisation was apparent when reading statements such as from Anna, “sometimes you can let yourself drift in the movement and then everything happens on its own” (Anna, 2018). Theodora was most articulate in her contemplations that revealed her achieved state of Flow, “When I dance, I feel free and as if I were floating. In that moment, I forget all my worries and just dance.” and “you can let your feelings run wild” or “so if it's a sad music, then I live it and then feel sad (Theodora, 2018).

This last quote is an example of how much influence the music had on the experience of the participants. Indeed, the theme of Music played a vital role in the outcome of the comprovisation experience for some participants. For instance, “Sometimes you just do not know which movements to do, for example, if you do not like the music” (Anna, 2018) and, “Because sometimes you have to dance to a difficult topic and you cannot think of anything that suits the music.” (Theodora, 2018).

3.4. Qualitative results: Concept distribution within responses

All participants confirmed that they enjoyed taking part in comprovisation. The reasons for this were found in Autonomy, Belonging, Competence, Creativity and Flow.

When questioned as to whether they sometimes found comprovisation difficult, all participants confirmed. The apparent concepts were then, Autonomy, Belonging, Competence, Creativity and Music. However two of the participants wrote that they also sometimes found comprovisation easy which seemed to be connected to Competence, Creativity and Flow. One participant stated with confidence that she sometimes did not find comprovisation difficult, “Because it´s easy” (Martha, 2018). While another claimed that, “You already have a topic and then you just have to feel into the dance. (Lena, 2018).

When posed the question if they sometimes found comprovisation easy, all but one participant confirmed. In this case, Autonomy, Competence, Creativity, Flow, and Music were identified as important. The participant who stated that she never found comprovisation easy expressed herself thus: “Sometimes there are simpler topics, but it's never that I think, "man this is boring now!"” Furthermore, concerning this question, two additional participants stated that they also sometimes did not find comprovisation easy. Lena wrote, “No, it's never really easy, you always have to get into the movement or whatever you have and you have to feel it.” (Lena 2018). This example shows the concepts Autonomy, Creativity and Flow. Autonomy being in, “you always have to get into the movement” and Creativity and Flow in, “you have to feel it”.

All participants, when asked “Is comprovisation helpful to classical ballet?” replied with the affirmative with their argumentation connected to Autonomy, Belonging, and Competence.

When queried on feelings and emotions personally associated with comprovisation all themes were observed, Autonomy, Belonging, Competence, Creativity, Flow and Music. This quote from Lena shows Autonomy by describing how strongly she experienced her emotions

during comprovisation, and also that she was open not just to easy emotions such as cheerfulness but that she was also prepared to face feeling and being sad while dancing, "I think it expresses feelings. If I have light for example, it's not just light, it feels also nice, cheerful, sad" (Lena, 2018).

All concepts apart from Music were present in the answers to the last question which asked how they thought or saw that the group felt after having concluded the comprovisation task. As stated earlier there was a strong sense of empathy in the answers to this question showing solid feelings of Belonging in the group. Table 5 shows how the identified concepts were distributed throughout the answers to the open questions.

Table 5

Revealed concept distribution throughout the questionnaire responses

	Concepts					
Open Questions	Autonomy	Belonging	Competency	Creativity	Flow	Music
Do you like taking part in comprovisation? If "Yes", why?	■	■	■	■	■	
Do you like taking part in comprovisation? If "No", why?						
Do you sometimes find comprovisation difficult? If "Yes", why?	■	■	■	■		■
Do you sometimes find comprovisation difficult? If "No", why?			■	■	■	
Do you sometimes find comprovisation easy? If "Yes", why?	■		■	■	■	■
Do you sometimes find comprovisation easy? If "No", why?	■		■	■	■	
Is comprovisation helpful to classical ballet? If "Yes", why?	■	■	■			
Is comprovisation helpful to classical ballet? If "No", why?						
What feelings and emotions do you personally associate with comprovisation?	■	■	■	■	■	■
How do you think or see the group (all the children in the ballet class) feels after having done comprovisation?	■	■	■	■	■	

DISCUSSION

The aims of the current study were to characterize and investigate the effects of comprovisation on BOM quality, in a group of pre-professional classical ballet students and moreover, to to shrink the gap in the existing literature and research by observing a much younger professional population. Two key queries were, 1: whether the integration of comprovisation would support a task involving environment, and 2: if Flow could be experienced. Additional questions were: does explicit learning through repetition and guided practice of steps produces optimal results? Is the belief, "practice makes perfect" viable? And, how optimal to learning is the structure of traditional classical ballet training?

4.1. A task involving environment and the experience of Flow

The results of the current study offer some possible answers and many points for discussion. The two key queries shall now be reviewed, beginning with the effects that comprovisation had on the learning environment. Following this, comprovisation as a vehicle for the participants to experience Flow will be discussed.

4.1.1. A task involving environment

The results reveal a positive impact of comprovisation on BOM in this group. That the interrater agreement for the BOM ratings was moderate was maybe due to the difference in age and dance (and life) experience between the participants and the expert. During the participants evaluation of BOM it was observed by the researcher that for the participants, being able to watch recordings of themselves and their classmates was fascinating for them. The participants had some experience with observing recordings of themselves dancing, however, watching a greater amount of material than usual and in addition being required to rate what they saw was noticeably exciting for them. They thoroughly enjoyed their group task of carrying out the interactive survey, and using a slide-bar Borg-Scale, was of particular pleasure to the participants

The results from the participants showed them to be seemingly more critical of their dancing than the expert was; the participants awarded much lower scores for the perceived BOM than the expert. On two occasions, for the *Echappé* and *Battement Téndu* exercises, they found BOM to have increased quite drastically and this was mirrored in the awarded points. Perhaps the high ratings are reflected in a more pronounced kinaesthetic BOM experienced when travelling as opposed to ' *sur place* ballet exercises' and the participants were maybe taken by surprise at the amount of BOM that was apparent for them in the recordings since both exercises did not travel much. However, their BOM scores for both these exercises in post intervention recordings were much lower than those of the expert's pre intervention ratings. A reason for this strong self-critical approach of the participants may be that, "In a dance context, where one's ability is frequently on public display, the functional significance of competence is likely to be higher than that of the needs for autonomy and

relatedness" (Quested & Duda, 2009, p. 17). Another reason – either connected to, or independent of the quote from Quested and Duda is that of perfectionism.

According to Frost, Marten, Lahart, and Rosenblate, (as cited in, Krasnow, Mainwaring, & Kerr, 1999) perfectionism is, "the setting of excessively high standards of performance in conjunction with a tendency to make overly critical self-evaluations" (Krasnow, et al., 1999, p. 52). Perfectionism is often part of a young dancers personality profile, as stated by Aujla, Nordin-Bates, Redding, Cumming and Hill (2014), "Perfectionism is typically considered to be a personality trait or disposition that exerts its influence in domains of personal significance (such as dance)" (Aujla, et al., 2014, p. 382). Research from Aujla et al. (2014) found that, "promoting a task-involving climate in dance may have the benefit of encouraging the pursuit of excellence and perfection without promoting excessive concerns regarding their attainment." (Aujla, et al., 2014, p. 388). Thus, perfectionistic tendencies might still be present in a task involving environment but can be lessened and perhaps used constructively. Furthermore, by implementing comprovisation it could perhaps be possible to augment perfectionism in dancers. The presence and value of such a task involving environment was certainly revealed when analysing the written data of the current study Perhaps one reason why comprovisation was so beneficial for the participants was not only that it encouraged Autonomy, Belonging and Competency but allowed them respite from their perfectionism.

There was a strong sense of Belonging within the group of participants. When asked about how they thought – or saw- how the other participants experienced comprovisation the responses showed a feeling of togetherness, understanding and concern. The quotes, high in empathy, from the participants clearly show positive group dynamics stemming possibly from the task-involving environment created through the implementation of comprovisation. Perhaps the structure of the study additionally supported a positive learning environment and encouraged Belonging in that the participants collaborated with one another to complete the survey.

Competency was greatly supported by the empowering effect of comprovisation. The participants felt that: "Because it [comprovisation] helps us to get the feeling of how we should do our [ballet] exercises" (Julie, 2018) and "Because I can learn something new and see all the things one [I] can do (Lena, 2018). These quotes show clearly how the participants felt that comprovisation facilitated ballet. Clara concluded, "I think certain improvisations [comprovisation tasks] help a lot with ballet exercises! I get the feeling for a topic during the improvisation [comprovisation] and can, after the improvisation, use this feeling much better in the exercise than before the improvisation" (Clara, 2018) while Anna observed, "Because you can transfer what you have learned in the comprovisation into the exercises, and then everything is much easier" (Anna 2018).

These quotes show reflection and understanding for the comprovisation tasks. Whittier (2006) advocated for a "pedagogy that encourages dancers to engage in self-reflection, personal expression, and creative investigation" stating further that, "If ballet dancers are trained with the idea that they are contributors to the learning process, they will be more apt to engage critically and creatively in their own development" (Whittier, 2006, p. 132). Integrating comprovisation tasks into the ballet class can encourage self-reflection, personal

expression, and creative investigation. Therefore, the participants` revealed ability for reflection could be a learning effect resulting from comprovisation.

Some participants felt that their Competency was challenged: “There are things which I find very hard and where I have no ideas. Or where I cannot imagine anything to do with it. But there are also impros [comprovisation tasks] which I find easy” (Lisa, 2018). When regarding this quote from Lisa, and other questionnaire responses in connection to literature on task-involving environments and goal setting, it is apparent that the challenges that comprovisation brought to their Competence were important for maintaining motivation. When explaining competency in relation to tasks given in the dance studio, Quin et al. (2015) wrote that, “Where possible the exercises and movement material that the participants are expected to complete should be varied, personally challenging and, with hard work and effort, achievable”, (Quin, et al., p. 162), while research from Aujla, Nordin-Bates and Redding (2014) revealed that (in line with AGT from Nicholls) course content in dance training has an influencing factor on commitment to dance and that it should be well structured and challenging. The balance between skill level and challenge is important for enjoyment and motivation, (Aujla, et al., 2014, p. 155) therefore, tasks should not be too easy or too difficult. That the comprovisation tasks had the correct amount of challenge was evident in the statement from Clara when answering if comprovisation was sometimes easy, “Not really. Sometimes there are simpler topics, but it's never that I think, "man this is boring now!"” (Clara, 2018). Clara seemed to regard the challenges that the comprovisation task gave, as interesting and motivating. High interest can cause to the dancer to become totally absorbed in the task at hand, thus experiencing Flow.

4.1.2. Flow

The analysis of the questionnaire responses provided a detailed picture of the lived experiences of the participants. The results revealed that the participants experienced strong emotions and sensations while undertaking comprovisation. Some had experiences such as, “I feel free and as if I were floating” (Theodora, 2018) or “drifting in the movement” (Anna, 2018). Theodora explained further that, “I […] just dance. [...] So if it's a sad music, then I live it and then feel sad (Theodora, 2018). In her paper, “From movement to dance”, Sheets Johnston (2012) reflects on the connection between movement quality and kinesthetically experienced movement, showing how deeply involved in the movement the dancer can become,

> The constellation of qualities inherent in movement imbues any movement with an overall readily apparent qualitative dynamic: its intensity, expansiveness, rigidity, unswervingness, suddenness, and so on are all variables—“observable parameters” of movement. Furthermore, and most importantly, the qualitative variables are not simply *observable* parameters but variables that are *kinesthetically felt by the individual who is moving*. (Sheets-Johnstone, 2012) (emphasis in original)

This argument shows how inseparable movement and the kinesthetic experience of the movement are for the dancer and, combined with the participants` statements gives insight into how intense the involvement with the task (the dance) at hand can become. The participants were able to be emotionally and physically moved during the comprovisation tasks. Their described feelings and sensations point to how deeply they were immersed in the task and are similar to those found in literature on Flow. The dance psychologist Linda Hamilton describes flow in a dance performance situation thus,

> you are both concentrated and relaxed, even though you are facing a rather awesome technical feat. During these times, your mind begins to float in an effortless, unselfconscious way that`s accompanied by feelings of ecstasy, harmony, and oneness with the universe. (Hamilton, 1998, p. 145)

When quoting a dancer on the experience of Flow, Csíkszentmihályi (2008) wrote, “Your concentration is very complete. Your mind isn´t wandering, you are not thinking of something else; you are totally involved in what you are doing ... Your energy is flowing very smoothly. You feel relaxed, comfortable, and energetic.” (Csíkszentmihályi, 2008, p. 53). The psychological state of flow, (which could result from the effects of a task involving environment supported by comprovisation) is, according to Csíkszentmihályi (as cited in, McGill & Nordin, 2009), “a desired state for dancers because while in flow, movements are performed naturally and with ease” (McGill & Nordin, 2009, p. 5) and that, “When dancing is at its best, dancers lose themselves in the moment, becoming one with the sensation and experience.” (McGill & Nordin, 2009, p. 5). Anna´s description of her experience of comprovisation reveals that she was able to attain Flow, “you come up with so many ideas because of the music and […] sometimes you can let yourself drift in the movement and then everything happens on its own” (Anna, 2018). In order to achieve the state of flow as mentioned, Csíkszentmihályi stated that:

> “the experience [Flow] usually occurs when we confront tasks we have a chance of completing. […] we must be able to concentrate on what we are doing. […] the concentration is usually possible because the task undertaken has clear goals and provides immediate feedback. […] one acts with a deep but effortless involvement that removes from awareness the worries and frustrations of everyday life. […] enjoyable experiences allow people to exercise a sense of control over their actions. […] concern for the self disappears, yet paradoxically the sense of self emerges stronger after the flow experience is over” (Csíkszentmihályi, 2008, p. 49).

When examining the responses to the questionnaire it is apparent that comprovisation was a vehicle for the participants to experience Flow. Comprovisation was always constructed so that it was possible for each participant to successfully complete the task. The goals of the

comprovisation task were clear, and immediate feedback was provided on kinaesthetic and emotional levels. Participants wrote about how they were able to forget their "worries", which shows how removed from everyday life they became during the task. Autonomy was strengthened because they were able to enjoy a sense of control over their actions; they had complete freedom within the structure of the task to do whatever movements they so wished. The phrase which often appeared in the responses "I feel free", reveals how their concern of the self disappeared for the duration of the task, while observations of peers reported how calm, relaxed and at ease they felt after the comprovisation, and the experience of Flow had come to an end. Moreover, Lena observed that, "it [comprovisation] helps me to forget everything and concentrate better" which could be understood as the sense of self emerging strongly after Flow or even that the experience of Flow triggered by comprovisation is then sustained for the continuation of the ballet class.

The importance of the psychological state of flow lies not just in the optimal experience of enjoyment, although this maybe should be paramount. Through the combination of concentration and enjoyment, newer levels of physical achievement can be reached. Csíkszentmihályi (as cited in, McGill & Nordin, 2009) stated, "by focusing on psychological factors that underlie excellence in performance, such as flow and creativity, instructors may be able to help their students reach higher levels of achievement" (McGill & Nordin, 2009, p. 4). Psychologically, higher levels of achievement will, in most cases strengthen the self-confidence, which in turn will help to reach even higher physical achievement. This is also due to the repetition of, and thus reinforcing of, optimal motor patterns.

4.2. Explicit learning, repetition and guided practice: practice makes perfect?

Returning to the topic of perfectionism, the phrase "practice makes perfect" is one often heard in dance, particularly in dance education. Anecdotal observation and experience has shown that repetition of movements and taking part in numerous extra dance classes is typical for most perfectionistic young dancers who are then liable to over-train because of their attainment desires and perfectionistic standards and/or concerns. However, the training environment also has an influence on the type and amount of practice that young dancers undergo. According to Southwick and Crupi, "In students pursuing intense dance training there is often little to no periodization provided for minimal rest time [...] young dancers of today are now keeping schedules that are similar to those of their professional adult counterparts." (Solomon, R.; Solomon, J.; Micheli, L. J. (Eds.), 2017, pp. 67-68). Repetition is a major cause of fatigue/over-work and injury. Solomon, R, stated that:

> the specifics of overuse have seldom been spelled out; all too often the term is blithely used and passed over as simply referring to the fact that the development of dance technique inevitably requires endless repetition of the same movements, class after class. (Solomon, R., 2017, pp. 217-218)

Anecdotal observation has shown that simply repeating movements to improve them is not always successful. Not only does it cause fatigue which can result in injury but in simply practicing steps over and over again there lies the danger of reinforcing motor patterns and reinforcing mistakes. Nordin and Cumming (2006) quoted a dancer in their research,

> As a student... we were advised to do that mental practice thing of—especially with pirouettes, I used to have a terrible time with pirouettes—and my teacher used to say, 'Go away and think about it. Don't just keep physically practicing it, just think about it, visualise it in your head, seeing yourself doing a pirouette.' And that used to really help me. (Nordin & Cumming, 2006, p. 24)

Imagery, also known as mental practice, offers an alternative to repetition and guided practice. Research reviewed by Suin (1997) found that "Mental practice also has proven value for novices as well as experienced athletes learning diverse new skills and for diverse goals". (Suinn, 1997, p. 204). Comprovisation often consists of not only physical tasks but also incorporates imagery exercises, plus through the freedom of choice and expression that it offers, imagery is encouraged-indeed imagery is almost unavoidable when working with comprovisation. On the basis of the literature and research mentioned, comprovisation could be seen to be an optimal training exercise and a feasible alternative to guided practice when nurturing young dancers in their professional training.

4.3. Optimising classical ballet training: topics for pedagogical discussion

In addition to the queries discussed above, other topics for pedagogical discussion were revealed: Firstly, implicit learning and it´s possible connect to comprovisation will be examined. Secondly, points that came to light concerning the choice of tasks and music within the recording phase of the study will be considered. Conclusively, the effectiveness of standard, traditional classical ballet education concerning creativity and artistry shall be discussed.

4.3.1. Implicit learning

Anecdotal observation of young dancers during comprovisation reveals that they frequently perform movements that are highly creative and complex, even daring, yet far too rapid to be consciously thought-out; Worthen-Chaudhari (2011) explained that:

> Some fundamental processes of motor learning and action performance rely on neural pathways that can excite/inhibit muscle activity more quickly than conscious thought allows. These super fast, hyper-responsive neural processes are most often referred to as 'implicit processes'. […] the learner/performer has mastered a complex skill or

> concept by literally feeling his or her way through the process in an incidental, as opposed to an intentional, way. (Worthen-Chaudhari, 2011, p. 478)

Participants seemed to feel that comprovisation caused more security, or a sense thereof, in motor abilities: “it [comprovisation] helps us to get the feeling of how we should do our [ballet] exercises” (Julie, 2018), and from Clara, “I get the feeling for a topic during the improvisation and can, after the improvisation, use this feeling much better in the [ballet] exercise than before the improvisation” (Clara, 2018). On reading the passage from Worthen-Chaudhari on implicit learning and the statements from the participants, it is possible to make an interesting connection between the two and the question that arises is; does comprovisation induce implicit learning?

Perhaps over time, with regular interventions of comprovisation, implicit learning is possible. An argument for this being that, variability in movement and force generation, which are needed to provide a better estimation of the peripheral system´s inertial characteristics, Jordan (as cited in, Gentile, 1998, p. 10) and to simplify the estimation of degrees of freedom (formulated by the neurophysiologist Nikolai Bernstein) are an integral part of comprovisation. Simplifying the estimation of the degrees of freedom ensures efficiency in the movement (Whiting, 1984, p. xx). The benefit of this being that efficient movements are often secure and remain constant in quality when under duress. Studies, for example from Masters, Poolton, Maxwell, and Raab (2008) have compared the effectiveness of implicit and explicit motor learning: It was demonstrated that explicit motor behaviour depends on the working memory, and the demands that result from multiple task requirements are likely to overload the performer and disrupt performance. However, skills acquired implicitly are less vulnerable to disruption in situations of high psychological stress, anxiety or physiological fatigue (Masters, et al., 2008, p. 71). Masters, et.al (2008) concluded that “implicit motor learning encourages cognitively efficient motor control more than does explicit motor learning, which allows performance to remain stable when time constraints call for a complex decision in tandem with a motor action”, (Masters, et al., 2008, p. 71).

Comprovisation tasks offer freedom in choice of movement and encourage experimentation and discovery, which result in variability of movement. Therefore, comprovisation may, over time, optimally support implicit learning thus developing in the dancer, stable motor skills that are constantly available and not vulnerable to external disturbances.

4.3.2. Choice of task and music

The rating from the expert of the *Grand Battement* (with a comprovisation intervention) brought an unexpected result. The post intervention recording was awarded 10 points less than the pre intervention recording. In personal correspondence, the expert explained that on the post recording there was so much BOM perceived that the Borg Scale would have had to have been larger in order to accommodate the resulting score. However, the expert felt that

the BOM shown was not, in this case, a benefit to the participants and therefore undertook the rating not just from an observer´s point of view, but also from a teacher´s. The expert found that the large increase in BOM threw the participants off balance and disturbed their control of the movements. In losing control the participants could be in danger of injuring themselves and would also be sending less than optimal messages to their nervous systems. Quin et al. (2015) quoting from Welsh (2009) supports this:

> In motor learning repetition of the specific skill reinforces the mastery of that skill. If the skill is incorrectly taught or misunderstood, this version will then be more familiar to the student´s body. The resulting inefficient patterns will then have to be unlearned at some point." (Quin, et al., 2015, p. 111)

Cleverly, the body learns what, and how we teach it-whether right or wrong. Perhaps the structure of the comprovisation intervention between the two recordings of the *Grand Battement* exercise needed to be adjusted so that the verbal cues given helped deliberately to maintain control despite supporting BOM. Or perhaps, in the case of this particular group of participants, working to combine BOM with the *Grand battement* was not appropriate at this stage in their dancing development. Another aspect that could be questioned is the choice of music for the comprovisation intervention, since this would also influence the learning effect. On referring to the protocol it can be observed that the music used was "*Reve de L`Enfant*" from the artist Yom. This music could be interpreted as possessing a strong hypnotic, stirring quality and in retrospect does not necessarily support a sense of control, which would have been beneficial for achieving BOM before attempting the *Grand Battement*.

It is anecdotally accepted in the dance world that music can help or hinder our movements. Therefore it was deemed important in this study to take the perception of the influence of the music on BOM into account. For this reason the pianists were requested to play the same music with the same rendition for the pre and post intervention recordings in order to give the same amount of support for BOM in both recordings of all exercises. In as far as this is possible (since the music was being played live in the studio) the pianists achieved this admirably.

It was to be expected that the expert and the participants were not in total agreement on the rating of the music. However, the actual difference in the perception of the music, particularly in the case of the *Echappé* exercise, brought unexpected questions concerning who should choose the music for tasks. The *Echappé* exercise that had been combined with a comprovisation intervention was rated by the participants with a calculated increase for BOM of 25 (Table 2). This was the largest increase score from all ratings. Yet, a low rating of 55 points was shown to be awarded to the music for how inductive it was to BOM (Table 2). From this result we can assume that the music had not particularly supported BOM and that perhaps it was the implementation of comprovisation alone that had caused the increase in BOM. Perhaps the increase of BOM in this case would have been even larger if the pianist had played music the participants regarded as more supportive to their BOM. However, the

expert also registered a large increase in BOM in the *Echappé* recording, but in contrast to the participants, the expert rated the music as being highly inductive to BOM.

Therefore the unexpected questions that arose were; do the dancers really know which music supports their movements? Or does the teacher (expert) know? In this case, collaborating and communicating with dancers- giving Autonomy; known as a sense of "voice and choice" could be a beneficial strategy. Literature from Niemiec and Ryan (2009) supports this idea:

> Students' autonomy can be supported by teachers' minimizing the salience of evaluative pressure and any sense of coercion in the classroom, as well as by maximizing students' perceptions of having a voice and choice in those [...] activities in which they are engaged. (Niemiec & Ryan, 2009, p. 139)

Such a collaboration in the dance studio could bring about an optimal choice of music which in turn could perhaps bring overall optimal results- both physical and psychological.

4.3.3. Effective classical ballet training

How effective are the didactical methods of traditional classical ballet training? In her paper "Problems with Ballet: steps, style and training" Morris (2003) stated that standard classical ballet training is traditionally, "almost entirely teacher led and gives the student little opportunity for dialogue or dissension." (Morris, 2003, p. 17). Morris goes on to write that she believes that the traditional teaching methods are, "leading to a loss of creativity in both the dancing and the making of dances." (Morris, 2003, p. 17). The findings from Watson, Nordin-Bates and Chappell (2012) in the investigation into how creativity was nurtured and facilitated in the UK Centres for Advanced Training showed that there was a great need for creativity in dance educational methods and goals. They stated that recent research from Susanne Burns, an independent development consultant with 25 years of senior management and leadership experience in the arts and dance world showed,

> the realities for dancers leaving higher education to enter the profession, specifically the low number of performance opportunities and the high likelihood of students becoming teachers or independent dance artists. As greater numbers of dancers graduate to fewer performing contracts, it is imperative that the skills of performance and technique are balanced with the development of creative and choreographic skills and the knowledge of how to facilitate and nurture creativity in others. (Watson, et al., 2012, p. 153)

In a professional training program it is the teacher´s aim and responsibility to prepare young dancers for their future career field. Watson, et.al (2012) pointed out that findings from dance and creativity research have reinforced the view of the early social systems theorists such as Feldman, Csíkszentmihályi and Gardner and education researchers e.g. Woods and Jeffrey in that,

> the role of the environment is critical to the development of creativity in the individual. Significantly their research along with that of more recent voices […] suggests that creativity is less linked to talent and giftedness, but is more likely to be helped or hindered by the social or learning environment an individual is exposed to." (Watson, et al., 2012, p. 155)

The teacher is responsible, for the greater part, of ensuring that the learning environment nurtures creativity, makes learning enjoyable and stimulating, plus prepares dancers for a professional work climate. Butterworth (2004) cited Mark Murphy, the artistic director of V-TOL Dance Company as saying:

> I would like across the board a re-appraisal of dance training. Sadly, I see fewer and fewer appropriate candidates who are equipped with the right qualities needed for a career in dance. I feel much more emphasis should be placed on educating the mind rather than almost fetishistic concentration on the body. (Butterworth, 2004, p. 64)

This opinion is supported by Morris (2003),

> Training dominates the programme of most professional schools, with little time and attention given to the dance movement requirements of choreographers. The rationale for this is rarely, if ever, discussed but, as a result, students are less conscious of the expressive elements of dances. I believe that this is a major concern which, if not addressed, could affect ballet's significance in the future. (Morris, 2003, p. 17)

The creative abilities of dancers entering the professional working environment appeared to be less than optimal. Both of the above quotes are more than ten years old and change in ballet education is now slowly, in some areas becoming visible. However, the environment that teachers are preparing student dancers for continues to develop – as does its demands. This statement from Butterworth (2004) rings true also for the present:

> In current choreographic practice the variety of dance languages, modes of structuring dance material and degrees of social interaction required in the studio are

> extensive. Dancer/performers often work in essentially short-term and challenging environments and are required to engage in a range of dance-making situations in a variety of contexts. (Butterworth, 2004, pp. 64-65)

Literature and research mentioned in this study point to comprovisation as being an ideal tool with which to train young dancers in preparation for these challenging environments.

The working environments which teachers are preparing students for are not the only challenging ones. It must not be forgotten that young dancers in professional training are also simultaneously under duress to complete their academic education. Taking part in professional training does not guarantee a future in dance. Sadly, many young dancers will have to give up their dream of becoming a dancer due to various complications, (e.g. insufficient development or injury). Having a solid academic education will be of great importance when the time perhaps comes for reorientation. Supporting students by acknowledging their situation outside of the dance world and finding ways in which to foster BPN can be beneficial. The quote from Lisa is an argument for the implementation of comprovisation in dance education, “I feel free and happy then. It sets me free and without improvisation [comprovisation] I could not handle the stress at [academic] school.” (Lisa, 2018).

Alongside of the academic pressure experienced, the environment for training dancers for the professional work place is physically highly taxing. In the educational environment, demands for technical prowess and a physique that fits aesthetic requirements grow with every generation. According to Parviainen, (as cited in, Whittier, 2006), this can mean that when dance technique methodologies focus on training dancers for the professional world, the education of the whole person is often neglected. This results in "the training becoming an end in itself" (Whittier, 2006, p. 124). While the body´s movement skills are often finely honed, the mind´s creative and enquiring talents are often neglected. This can produce fine technical automatons that are compliant, disciplined, hard-working and resilient, but will not nurture artists.

The personality profile of creative people that researchers have complied shows they are “disposed to be independent, nonconformist, unconventional, even bohemian, and they are likely to have wide interests, greater openness to new experiences, a more conspicuous behavioural and cognitive flexibility, and more risk-taking boldness.” (Simonton, 2000, p. 153). Through using comprovisation to create a learning environment where self-reflection, interaction, enquiry, experimentation and discovery are integral, the dancer can maybe be encouraged to discover themselves as an artist and as a person. The dancer can perhaps learn to be more open and inquisitive regarding new kinesthetic, creative and artistic experiences, they can develop a greater cognitive flexibility and expand their motor ability. They can learn, through the mental and physical demands of comprovisation, to take risks. Thus the dancer can take control of their education and their personal path towards becoming a professional dancer and an artist. Implementing comprovisation can possibly empower dancers with the knowledge that they themselves are beneficially contributing to their own technical and artistic development. Furthermore, comprovisation, through supporting BPNT, can help the

young dancer to cope with the demands of their environment within and outside of the dance world.

4.4. Limitations of the study

Finding an optimal position in the room to place the camera, was found to be more complicated that at first expected. The angle of the camera was not wide enough to capture the whole room. This meant that recording of the barre exercises could not be optimally undertaken which resulted in this whole section of the classical training not being utilized for recording.

There was one drop-out that normally would not have brought complications. However, the decision of the parents to remove their child from the study was made half way through the filming phase which meant that much recorded data became obsolete.

Group dynamic problems sometimes needed to be addressed, but were always smoothly and successfully resolved through dialogue. That the group was made up of only adolescent female participants maybe influenced the group dynamics. Having a heterogenic distribution of male and female participants may have had a positive influence on the group.

Due to illness, attendance from participants was not always 100%. This meant that selecting data for the survey was afflicted. It was necessary that both interventions showed recordings that were equal in structure. Therefore, for recordings where comprovisation had taken place and only five participants were shown, there had to be a counterpart in recordings where guided practice had taken place. Therefore, the minimum participation count had to be lowered from six (planned in the study proposal) to four.

Some movements proved much more useful for showing breadth of movement than others and it was therefore important to make sure that the type of movements better inductive to BOM were spread evenly between all exercises.

It would have been an advantage to undertake an in-depth focus-group interview with the participants. However, the timespan available for the study did not accommodate this idea.

Finally, in this mixed methods study of such a small cohort statistical power was not the goal. Thus the results here are specific to this cohort and not as yet generalisable to other populations – therefore, further research is needed to build upon the data gained in this study.

4.5. Future research

For future research, accomplishing the study over a longer period of time could be beneficial for producing more data from which further analysis on comprovisation could be made. Optimal, would be a longitudinal study undertaken for the whole training period of the dancers and ideally until employment (or not). It would then be maybe possible to not only to decipher how effective comprovisation was, but also if the effects thereof were long term, i.e., retainable. Having a control group where no comprovisation took place could bring some interesting comparisons. Another suggestion would be to carry-out an amount of longitudinal case studies with in-depth interviews for the duration of the dancers´ education period.

Using comprovisation to observe developments in motor learning of this cohort could perhaps shed light on a possible connection between comprovisation and implicit learning. Since learning takes part over time, this would need to be undertaken in a longitudinal study. Designs for this study could include motor caption and analysis using video analysis software. This could yield scientific evidence that would greatly support the argument for comprovisation interventions and perhaps be seen as an impetus for new structures within classical ballet training.

Examining further the effect of music on comprovisation tasks could bring insight into how to utilise music more effectively for motivation, teaching and training. As stated earlier the pianists were requested to play the same music with the same rendition for the pre and post intervention recordings for all exercises. Yet, if they had invested different emotions and/or speeds in the pre and post intervention performances the results for perceived BOM may well have been different. However- this remains to be seen and could be a point for further research.

CONCLUSION

With BOM being used as a barometer to observe the benefits of comprovisation for a group of adolescent professional dance students, it was revealed that comprovisation offered the young dancers who took part in this study, a wide spectrum of benefits for their classical ballet training. Comprovisation supported a task involving environment which boosted BPN; Autonomy, Belonging and Competency. Positive group dynamics are encouraged, negative perfectionism can be lessened, kinaesthetic and aesthetic qualities are trained, creativity is awakened and flow is experienced. Furthermore, self-discovery as a future young artist and a person can be made- which brings positive impulses for life within and outside of the dance world. And finally, this novel study was able to lessen the paucity of research in the area of young dancers aged 11-13 on a professional dance education scheme being introduced to comprovisation within the confines of classical ballet tradition.

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