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CONTENTS

SMART INDUSTRIES AND DIGITAL ECOSYSTEMS

PAPERS

Comparing the Importance of Dance Teams Interpersonal Synergy in Online and Live Environment

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Abstract - Interpersonal team synergy is defined as a higher-order control system formed by coupling movement system degrees of freedom of two (or more) actors, which is also present in dance teams. The basic hypothesis of this paper is that better results are achieved by dance teams that have stronger interpersonal synergy among team members. Based on the literature and an in-depth interview with the director of the dance studio Vindi from Varaždin, Croatia, the elements which can affect interpersonal synergy in dance teams were singled out: communication, playing, music, improvisation, choreography, performance, scenography, costume design, joint education with special emphasis on the difference in the importance of each element in relation to the online and living environment. The research was conducted through a survey in January 2022 on a sample of 47 dancers aged 12 to 21 at the Vindi dance studio in Varaždin, Croatia. The research results showed that dancers estimate joint live education (training, rehearsals) and performances with members of their dance team as the most important elements, while as the least important elements for their interpersonal team synergy they evaluate playing games via online platforms and publishing their performances on online platforms.

Keywords – Teamwork; Teamwork importance, Interpersonal synergy; Interpersonal synergy elements; Dance teams.

I. INTRODUCTION

Good teamwork creates synergy, and good team synergy enables better and faster results. Teamwork is one of the most important factors while working with more people, a group of people cooperates and uses their skills to achieve the best outcome. An important part of working in a team is synergy. Synergy creates better and faster results, and the word synergy comes from the Latin synergia, which was derived from the Greek word, synergos meaning "to work together" or "to collaborate" [1]. It can be created in many ways, such as communication, trust, collaboration, and setting group norms intentionally [1].

When the notion of synergy is applied in the context of interaction, it assumes "how multiple individuals can coordinate 'as if they were one'" [2]. Creating a synergy involves a task-constrained interdependent control of parts within wholes and in that process, elements from across individuals create a dynamical system by virtue of selective coupling and synchronization [2]. Interpersonal synergies can be defined as a "'collective property of a task-specific organization of individuals, such that the degrees of freedom of each are coupled, enabling [them] to co-regulate each other' [4], thus pointing to a system of mutual interdependencies" [2]. As stated by Kimmel, "almost everybody recognizes a good interpersonal synergy when they experience it", whether it is doing kitchen work or in some other private or business environment, via conversations or play or sports, and dancing is no exception [2]. Teamwork and especially team synergy is important in dance teams. A dance team is a group of usually 10 to 20 people that work together a few days a week. In this scientific paper, interpersonal synergy in dance teams will be evaluated in the context of the importance of elements that influence its increase, with special reference to the distinction between online and live environments.

II. DANCE TEAMS

Dance is a movement of the body in a rhythmic way, usually to music and within a given space, to express an idea or an emotion, release energy, or simply take delight in the movement itself [5]. Whether people are 80 years young or 8 years old, engaging in physical activities that involve dance changes them. From better physical and mental health to a boost in emotional and social well-being, moving your body to the sound of music can transform your life. Amateur dancers value their dancing not just as a hobby, but as an indelible component of their identity. Their participation, and willingness to pay to participate, fuels a thriving social economy, for example, instructors, studios, competition organizers, costume designers [6], etc. Professional dancers perform dance numbers on stage, in movies, on television, in music videos and so on, they usually have expertise in a particular type of dance, such as jazz, ballet, modern, ballroom, or tap, but some excel in more than one of these areas. Being a professional dancer is a physically demanding job that often takes a lot of hard work. Dancers must practice regularly and prepare for auditions and rehearsals. They also spend a great deal of time learning complicated routines and must be able to remember choreography [7]. Professional dancers usually dance in dance studios. A dance studio is a team of professional dancers and successful choreographers who are usually the owners of the studio. The studio travels and performs in theaters, festivals, and so on. Dance and dance teams are hard to keep up in an online environment; there are problems, such as conducting education and mastering new skills, from the fact that the dancer is not

accompanied by a coach or choreographer, who cannot correct his/her mistakes. Dancers must also be able to perform jumps, turns, and running during training and there are spatial problems, while in a live environment dancers have the opportunity to try and perform all skills from jumping to running because they have a dance hall that suits them. In periods when it is simply not possible to have live trainings, it helps dancers to have online dance education, so they can try skills and movements that are a little easier or do not need as much space to perform. They can also do strength exercises or flexibility exercises in an online environment.

III. ELEMENTS OF INTERPERSONAL SYNERGY

A. Literature on interpersonal synergy

The synergy can be defined as "the whole is greater than the sum of its parts." [8]. When synergy is happening, there is an inherently higher level of efficiency in production, creativity, and in producing results overall [8]. Interpersonal synergy is defined as a higher-order control system formed by coupling movement system degrees of freedom of two (or more) actors [9]. The scientific study of interpersonal synergy has been advancing steadily since the 1990s. It owes much of its progress to sports science approaches and quantitative tools developed in this context [2].

The first important element of building interpersonal team synergy is COMMUNICATION. When team members feel comfortable expressing their thoughts and opinions, they are more likely to build good team synergy. Good communication skills can be built by prioritizing two-way communication, establishing where the team should communicate, and about what, and differentiating between facts and stories [1]. The team needs to communicate so each player knows what his or her teammates need from each other. Naturally, most of the communication happens in the planning phases, whether it's a sports team or a business team [10]. Clear and effective communication can boost engagement and a sense of belonging, increase productivity, and most importantly, build a healthy workplace and organizational culture [11].

The next element for building interpersonal synergy in a team is PLAY. While there is very little research on playing being directly connected to interpersonal synergy, it is well known that children develop essential motor skills, develop cognitive concepts, enhance memory skills, enrich language skills and learn to interact and negotiate with people through playing [13].

It is important that children master these elements at a young age because they are the basis for them to be able to build good synergy in a team in the future. According to the Montessori preschool education philosophy, kids don't need to be taught. Rather, they need appropriate spaces, where they can follow their innate learning capacity. The role of playing shouldn't be either underestimated or separated from the learning process. As kids play in a stimulating, supportive environment, they move on to higher levels of thought and make their way through the world [13].

To expand the scope of these elements, an in-depth interview was conducted, which follows.

B. In-depth Interview

For the purpose of this scientific paper, an interview was conducted with the director of the dance studio Vindi Davorka Čorko Rodeš in January 2022. She has been practicing contemporary dance and dance pedagogy for 30 years. Since 1995, she has been working independently and running a dance studio with 120 members. She has participated in numerous workshops in Croatia and Slovenia and is a member of the UPUH association, an association of Croatian dance artists.

The respondent was asked to single out and explain in some detail, for this research, based on her experience and knowledge, elements that she believes affect the increase of interpersonal synergy in dance teams, and these elements are as follows:

1. INVOLVEMENT OF DANCERS IN THE CHOICE OF MUSIC – music connects dancers through choreography, melody, and rhythm, and music is tested during warm-ups, exercises, and improvisations. There is always a choice of several types of musical backgrounds and already during this first phase, the dancers declare how they experience which music. In this atmosphere, by showing different interpretations of music, by moving and commenting on what is seen, it is then decided jointly how music be realized will the, and which musical number will be chosen.

2. IMPROVISING IN A GROUP – Improvisation is a way of working in which dancers create dance sequences on the proposed associations through a creative process (dance sequence - a series of movements connected into one whole). In addition to individual solutions, dancers also work in pairs or larger groups. On given topics or associations, dancers create and build their vision of a solution that may or may not be used in choreography, but the creative process and making solutions create a relationship of deeper acquaintance, trust, cooperation, and respect for other people's proposals. Members usually pair up with the same person, and this is where members should be asked to pair with someone they haven't worked with and to connect more deeply with those with whom they have not been so far.

3. INVOLVEMENT OF DANCERS IN THE PREPARATION OF CHOREOGRAPHY – there are different modalities of choreography, the most common way is for the leader or choreographer to choose a theme, devise a movement, and convey it to the dancers. But there is a different way of working in which movement, dance sequences, and choreography come from the dancers, and the leader or choreographer fits their solutions into the final form of the choreography. This way, in addition to the dancers being involved in the design of the choreography, they also connect, because they jointly decide how and which parts to combine into the final performance.

4. JOINT PERFORMANCE – for each dancer, the performance is the final product and presentation of what has been learned, designed, and practiced. The

performance is a time of extremely high emotional reactions and the dancers, in addition to trying to do their best and show themselves in the best light, take care of the stage harmony with other team members, but also the safety of all present. Spatial dimensions as the space in which dancers practice are usually different than the space in which they perform, so you need to know how to spatially "navigate" which includes awareness of where, besides "myself", other dancers are. After each new performance, the dancers have more information about each other (intellectually and emotionally), and are more deeply connected than before and when leaving the stage.

5. INVOLVEMENT OF DANCERS IN THE SELECTION OF SCENOGRAPHY – in dance performances simple forms of scenography are used. For example, tables, chairs, benches, and so on. However, in contemporary dance, the scenography can also be made of light if there are no objects on the stage. When creating choreography, each dancer understands his/her role in individual parts and gives suggestions on how certain parts could be realized scenographically, also concerning the theme of choreography, the choice of music and costumes, and what lighting should be on stage are discussed (black and white, in color, with spots). This is another item that increases the efficiency of interaction between team members because in reflection and conversation they come to how everyone sees themselves and others on stage while dancing.

6. INVOLVEMENT OF DANCERS IN COSTUME DESIGN – The first stage in choosing a costume design is jointly deciding which colors would best suit the chosen choreographic theme and the chosen music. After that, dancers think and discuss what kind of cut the costume should have. When the first sample of costumes is made, most dancers in the group try it out to see what it is like to dance in it, and how it works visually. Corrections (colors, cuts, types of costumes, and accessories) are made through conversation, so the opinion and experiences of each member of the dance team are sought and respected.

7. JOINT EDUCATION – joint education includes regular weekly rehearsals throughout the year, but also dance seminars and dance workshops by visiting educators. Since there would be no dance without dance rehearsals, this is the most important factor in dance teams, provided that the dancers are as regular as possible at rehearsals. In the first part of the rehearsal, technique, and warm-up are done, so when there is new material, most dancers feel lost and alone. The director of the team must draw their attention to the fact that this is new to everyone and that they should not feel lonely and unsuccessful in learning new tasks because everyone needs some time to adapt to what they have not done so far. Their statements about it should be supported because it creates an atmosphere of trust in which everyone admits that something is bothering them and thus the tension in the whole group of new and "difficult" elements is reduced. Even more intense experiences are in workshops with visiting pedagogues and choreographers, where the material often differs significantly from what is usually done in rehearsals.

To investigate the extent to which members of dance teams consider each of these elements important, and given the difference between live and online environments, the following research was conducted.

IV. THE RESEARCH METHODOLOGY

A. Research Design

To investigate the importance of interpersonal synergy in dance teams in an online and live environment, a survey was conducted with dancers of the dance studio Vindi in January 2022. The survey was voluntary and anonymous, and the total number of respondents to all survey questions was N = 47.

B. Research Sample

The survey was conducted on a sample of 47 dancers from the Vindi dance studio, Varaždin, Croatia aged from 12 to 21. All participants were female. 21 dancers have been dancing for more than 10 years, 18 dancers between 6 to 10 years, 6 dancers between 1 to 5 years, and 2 dancers have been dancing for a couple of months.

C. Data Collection and Analysis

The questionnaire was developed for the dancers of the Vindi dance studio and was shared via a link to the online Google questionnaire form. The questionnaire contained a total of 21 questions, 3 of which were related to demographic data (age, gender, dance experience), 9 questions about elements of interpersonal synergy in dance teams in the live environment, and the remaining 9 questions about elements of interpersonal synergy in dance teams in an online environment. The questions were closed-ended with pre-offered answers of 5 degrees on a Likert scale of importance. The analysis was quantitative, and the results are presented descriptively below.

V. THE RESEARCH RESULTS

Elements influencing interpersonal synergy in dance teams:

1. element: **Communication**

Respondents' answers showed that 93.6% of respondents *consider* that "communication" *in* the live *environment* is an important element of interpersonal synergy in the dance team, but it can be seen that in the online environment, this element is important *to* 63.8% of respondents; and regardless of the environment, no respondent considers this element unimportant (0%).

TABLE 1 DANCERS' RESPONSES ON THE IMPORTANCE OF ELEMENT 1 - COMMUNICATION (N = 47)

Communication	**LIVE**	**ONLINE**
Not important at all	0 %	0 %
Slightly important	0 %	8.5 %
Neither important nor unimportant	6.4 %	36.2 %
Very important	36.2 %	53.2 %
Extremely important	57.4 %	2.1 %

2. element: **Joint education**

In the live environment, 100 % of respondents evaluate “Joint education”, as important; more precisely 74.5 % as extremely important and 25.5 % as very important (Table 2). In an online environment, 0 % of dancers evaluate “Joint education” as extremely important, and only 27.7 % that it is very important (Table 2).

TABLE 2 DANCERS' RESPONSES TO THE IMPORTANCE OF ELEMENT 2 – JOINT EDUCATION (N = 47)

Joint education	LIVE	ONLINE
Not important at all	0 %	20 %
Slightly important	0 %	24 %
Neither important nor unimportant	0 %	26 %
Very important	25.5 %	27.7 %
Extremely important	74.5 %	0 %

3. element: **Playing**

The element “Playing” in a live environment” was rated as an important element by a total of 68 % of respondents and by 0 % as not important at all, while in an online environment, only 10.6 % of respondents evaluate “Playing” as very important, and for 25.5 % it is not important at all or just slightly important (34%) in contrast to the live environment where no respondent opted for that answer.

TABLE 3 DANCERS' RESPONSES TO THE IMPORTANCE OF ELEMENT 3 - PLAYING (N = 47)

Play	LIVE	ONLINE
Not important at all	0 %	25.5 %
Slightly important	6.4 %	34 %
Neither important nor unimportant	25.5 %	29.8 %
Very important	48.9 %	10.6 %
Extremely important	19.1 %	0 %

4. element: **Improvisation**

In the live environment, the element “Improvising in a group” is important for a total of 87.2 % of respondents, and in an online environment, “Improvising in a group” 63.8 % of dancers estimate it as very important or extremely important (Table 4). 0 % of respondents, in both environments, answered that it is not important at all.

TABLE 4 DANCERS' RESPONSES TO THE IMPORTANCE OF ELEMENT 4 – IMPROVISING IN A GROUP (N = 47)

Improvisation in a group	LIVE	ONLINE
Not important at all	0 %	0 %
Slightly important	0 %	8.5 %
Neither important nor unimportant	12.8 %	27.7 %
Very important	48.9 %	53.2 %
Extremely important	38.3 %	10.6 %

5. element: **Choreography**

A total of 97.9 % of respondents evaluate “Involvement of dancers in the preparation of choreography” as important, in the live environment, while in an online environment, that element is important for 55.4 % (Table 5). 0 % of respondents answered that it is not important in both environments.

TABLE 5 DANCERS' RESPONSES TO IMPORTANCE OF ELEMENT 5 – INVOLVEMENT OF DANCERS IN PREPARATION OF CHOREOGRAPHY (N = 47)

Involvement of dancers in preparation of choreography	LIVE	ONLINE
Not important at all	0 %	0 %
Slightly important	0 %	0 %
Neither important nor unimportant	2.1 %	44.7 %
Very important	38.3 %	42.6 %
Extremely important	59.6 %	12.8 %

6. element: **Music**

A total of 93.8 % of dancers evaluated that the "Involvement of dancers in the choice of music” is important in the live environment and an online environment 89.4 % (Table 6). In both live and online environments, no respondent rated this element as not important at all.

TABLE 6 DANCERS' RESPONSES TO THE IMPORTANCE OF ELEMENT 6 – INVOLVEMENT OF DANCERS IN THE CHOICE OF MUSIC (N = 47)

Involvement of dancers in the choice of music	LIVE	ONLINE
Not important at all	0 %	0 %
Slightly important	0 %	2.1 %
Neither important nor unimportant	6.4 %	8.5 %
Very important	36.2 %	36.2 %
Extremely important	57.4 %	53.2 %

7. element: **Scenography**

The element “Involvement of dancers in the selection of scenography” in the live environment is considered important by 93.6 % of respondents, and in an online environment, it is important for 89.4 % f respondents (Table 7). In both environments, this element is rated by 0 % of respondents as not important at all.

TABLE 7 DANCERS' RESPONSES TO THE IMPORTANCE OF ELEMENT 7 – INVOLVEMENT OF DANCERS IN THE SELECTION OF SCENOGRAPHY (N = 47)

Involvement of dancers in the selection of scenography	LIVE	ONLINE
Not important at all	0 %	0 %
Slightly important	4.3 %	12.8 %
Neither important nor unimportant	19.1 %	40.4 %
Very important	53.2 %	42.6 %
Extremely important	23.4 %	4.1 %

8. element: **Costume design**

The element “Involvement of dancers in costume design” in the live environment as an element of real interpersonal synergy in dance teams respondents rated 38.3 % as extremely important and 53.3 % as very important, in the online environment respondents rated the element of costume design as 6.4% as extremely important (Table 8).

TABLE 8 DANCERS' RESPONSES TO IMPORTANCE OF ELEMENT 8 – INVOLVEMENT OF DANCERS IN COSTUME DESIGN (N = 47)

Involvement of dancers in costume design	LIVE	ONLINE
Not important at all	0 %	0 %
Slightly important	0 %	8.5 %
Neither important nor unimportant	8.5 %	31.9 %
Very important	53.3 %	53.2 %
Extremely important	38.3 %	6.4 %

9. element: **Joint performance**

In the live environment, “Joint performance” is important for a total of 100 % of respondents in great contrast to 17 % in an online environment. Also, in the online environment for 14.9 %, that element is not important at all, while in the live environment no respondent rated it so (Table 9).

TABLE 9 DANCERS' RESPONSES TO THE IMPORTANCE OF ELEMENT 9 – JOINT PERFORMANCE (N = 47)

Joint performance	LIVE	ONLINE
Not important at all	0 %	14.9 %
Slightly important	0 %	25.5 %
Neither important nor unimportant	0 %	42.6 %
Very important	36.2 %	10.6 %
Extremely important	63.8 %	6.4 %

VI. DISCUSSION

To review the research results in more detail, a summary tables of elements that, according to respondents, increase interpersonal synergy in dance teams, are following, both in the live environment (Table 10) and in the online environment (Table 11). Elements are presented according to responses frequency in percentages (%) and arithmetic mean of element rating (M) and ranked from most important to least important.

A. Live environment

In a live environment, elements “Joint education” and “Joint performance” are rated as the most important dance teams’ interpersonal synergy elements by 100 % of respondents, while elements “Involvement of dancers in the selection of scenography” (76.6. %) and “Play” (68 %) are at least important, however, more than half of the respondents still consider them important. It can be noticed that of all the above elements, the element of "Communication" in terms of importance for the dance team's interpersonal synergy is medium ranked.

TABLE 10 SUMMARY OF DANCERS' RESPONSES ON THE IMPORTANCE OF INTERPERSONAL SINERGY ELEMENTS IN A LIVE ENVIRONMENT (N = 47)

DANCE TEAMS INTERPERSONAL SINERGY ELEMENTS LIVE	Responses frequency in percentages (%)	Arithmetic mean of element rating (M)
Joint education	100 %	4.74
Joint performance	100 %	4.63
Choreography	97.9 %	4.57
Music	93.8 %	4.51
Communication	93.6 %	4.51
Costume design	91.6 %	4.3
Improvisation	87.2 %	4.25
Scenography	76.6 %	3.95
Play	68 %	3.8

B. Online environment

In the online environment, elements “Music” (89.4 %), “Communication” and “Improvisation” (both 63.8 %) are rated as the most important dance teams’ interpersonal synergy elements, but none of the elements was marked as the most important by 100% of the respondents. As least important elements “Joint improvisation” and “Play” were rated, but it is also significant to note that less than a fifth of the respondents actually marked them as important.

The element “Communication” is ranked as the second most important dance team's interpersonal synergy element in accordance with other elements, but in fact, it can be noticed that almost a third of respondents less rated it important compared to the live environment. Also, communication is considered more important than most elements in the online environment (except music), while when they meet live, they do not consider this element more important than joint education, joint performance, and not either more important than joint involvement in choreography preparation or choice of music.

TABLE 11 SUMMARY OF DANCERS' RESPONSES ON THE IMPORTANCE OF INTERPERSONAL SINERGY ELEMENTS IN AN ONLINE ENVIRONMENT (N = 47)

DANCE TEAMS INTERPERSONAL SINERGY ELEMENTS ONLINE	Responses frequency in percentages (%)	Arithmetic mean of element rating (M)
Music	89.4 %	4.4
Communication	63.8 %	3.49
Improvisation	63.8 %	3.65
Costume design	59.6 %	3.57
Choreography	55.4 %	3.68
Scenography	46.7 %	3.37
Joint education	27.7 %	2,56
Joint performance	17 %	2.68
Play	10.6 %	2.25

VII. CONCLUSION

The purpose of this paper was to investigate important elements that influence the interpersonal synergy in dance teams and determine their importance in the online and live environment, according to the dancers of the dance studio Vindi from Varaždin, Croatia. The elements were determined based on literature and an in-depth interview was conducted with the head of the dance studio. The following elements were identified: joint education, participation of dancers in choreography, participation of dancers in costume design, participation of dancers in choice of scenography, participation of dancers in selection music, joint performance, and improvisation in a group, communication and play.

To investigate the importance of each element, a survey was conducted among 47 dancers aged from 12 to 21, all of whom are female. The dancers rated joint education (for example, training and exercise) and joint performance as the most important elements of interpersonal synergy in dance teams when they have the opportunity to meet live. For dancers, without joint education, or group dance training, there would be no dance. Through joint education and joint performance, they learn and master new skills, practice choreography, and connect with team members. The most important element of interpersonal synergy in dance teams in an online environment is the use of online platforms, such as YouTube or Google, to find music. Nowadays, almost no one uses CDs or cassettes anymore, all music is found through online platforms that contain music, and without such platforms, there would be no musical background for dance choreography.

The most unimportant element when they meet live, as rated by the dancers, is playing before/during/after training. Playing during training is most important to the younger members, it is a way to shake off the excess energy they have, while the older members of the dance team may consider themselves as "too old" for playing. Also, the most unimportant element of interpersonal synergy in dance teams in an online environment is playing (for example video games) with team members through online platforms and publishing their performances on online platforms.

To conclude, every person who participates in a dance team learns how to cooperate with people and how to connect with them, how to stay motivated when it is most difficult, and how to express themselves creatively. Being part of a dance team has great benefits later in life, especially if the person is part of a dance team from a young age and matures through and with their dance team because they can learn teamwork skills and realize the power of synergistic effects of teamwork.

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