

The Effect of Social Interaction on Flow Experience

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Abstract

Background: Positive psychology aims to broaden positive subjective experiences to an interpersonal level. In order to the further studies on the dynamics of Csikszentmihalyi's flow experience in an interactive situation, we aimed to support a basic assumption through a well-controlled experiment: if flow in an interactive task is more intense than in a solitary activity.

Methods: 80 participants (age: $M = 24.06$, $SD = 6.74$) were tested in an experiment with a repeated-measures design. They were unfamiliar with each other, and took part in a solitary and a social creativity test as flow induction activities. The effect of the context was tested in this experiment on flow experience measured by a self-reported survey.

Results: According to the results, significant difference was found in the intensity of flow: the absorption in the task ($t(79) = 4.90$, $p < .001$, $d = .57$) and the total flow score as flow intensity ($t(79) = 3.51$, $p = .001$, $d = .38$) was higher in the social situation.

Conclusion: In this study we supported that flow in a shared, cooperative activity can be more intense than in solitary situations. We assume that partners can provide feedback for the person because of the person-environment interaction, therefore they can influence the intensity of absorption to the flow zone.

Introduction

Positive psychology aims to study positive subjective experiences, traits and institutes [1] in order to enhance well-functioning and flourishing [2]. According to the summary of the first decade of this approach, it was expected to broaden positive psychological studies into interpersonal levels [3]. The present article relates to one of the core concepts of positive psychology: flow experience [4] related to interpersonal activities [5].

Flow is a subjective experience [4], when the person is totally immersing in an activity, attention is absorbed in the challenges which are in balance with the person's skills. There are the proximal conditions of flow, we need them to enter the flow channel (high balance between the perceived skills and challenges, clear goal, immediate feedback), and those factors which can provide information about the nature of flow (focusing attention, loss of self-consciousness, merging the action and awareness, sense of control, altered sense of time, autotelic activity) [6,7]. Flow can provide some positive consequences, like the enhanced level of positive affectivity [8,9].

Although flow is a subjective experience, according to studies based on interview or experience sampling method suggest that social interactions can be the sources of optimal experience, for example a conversation or sport activity [10,11]. These interactions can contain the components of this subjective experience. In a cross-sectional survey study ($N = 1709$) only the 2% of the participants reported no flow in social situations [12].

There have been different concepts to describe flow in social contexts. They highlight mainly the dynamics of optimal experience (Table 1): the focus is on the specific contexts which allow the study of flow in social interactions, the conditions of entering the flow zone, the different ways of the reciprocal effect of the partners, the comprehensive quality of the experience which suggests more value of the situation on flow [9].

Theories which aims to confirm flow in social interactions – for example emotional contagion [23], crossover of states/experiences [24], or social coordination [25] – emphasize the automatic

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synchronization of emotional, behavioral and psychophysiological patterns and the increased value of interpersonal experiences. Coordination between partners in these patterns can contribute to the convergence of mental states also [19].

Automatic social synchronization is the summary of those concepts which support the increase in the resemblance of the social partners (the partner can be unfamiliar until the first interaction, familiarity is not a condition of synchronization) [26]. Coordination effect of interactional functioning was highlighted in the studies of group flow [27]. Based on the descriptions of flow in social interactions, we suggest that partners' optimal experience can be synchronized with each other through a cooperative, challenging activity.

In case of optimal experience, as the result of the dynamic interaction between the person and the environment [28], [29], the individual and the context compose a dynamic system [6]. The person develops the skills as the reaction on the growing challenges of the task, in order to reach the clear goal, supported by the continuous feedback. Based on this psychological mechanism, we suggest, that this dynamic system of the individual and the environment can be broadened by another person, who will become the part of the environment, and may support the individual's flow experience through the interaction [17]. As during flow, attention is totally focused on the activity itself, the person excludes those factors of the context and the self which are not relevant in doing the activity [6], this mechanism can promote the higher level of functioning [30]: the individual might be able to reach a more intense optimal experience in order to reach the common goal with the partner through the interactive activity, with the exclusive focus on the task [27].

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Flow is a subjective mental state [4], which can be broadened into a social context, based on the system theory of the dynamical social psychology [31], and as a result the dynamics of the experience can be widened. As positive psychology aims to establish evidence-based results [1], our task is to support the basic hypothesis which suggests that those cooperative activities [15], [16], which meet the conditions of flow for all of the participants, can enhance higher optimal experience, not just higher positive emotional consequences like joy and enjoyment [9], than solitary situations. Based on the synchronization tendency of human interaction, we assume that this coordination can be observed in case of flow as a subjective experience [32], during a cooperative activity [33].

Methods

Participants

80 adult (age: $M = 24.06$, $SD = 6.74$) participants (Table 2) took part in this laboratory experiment with a repeated-measures design. Participation was voluntary, we used convenient sampling. Participants were randomly paired by the registration order on the experiment.

	Sample (%)
<i>Sex</i>	
Men	33.75
Women	66.25
<i>Residency</i>	
Capital city	71.30
Town	11.30
Village	16.30
Abroad	1.30
<i>Relationship status</i>	
Single	35.00
In a relationship	65.00
<i>Education level</i>	
Elementary	.00
Secondary	65.00
Higher education	35.00

Table 2: Demographic characteristics of the sample.

Dynamics	Findings/Hypothesis	Related Constructs
Context	1. flow was studied in more social contexts: sport [9]; work [13], [14]; group cooperation: learning groups [15], [16]	<ul style="list-style-type: none"> social flow [9] collective flow [14] relational flow [13] networked flow [16] group flow [15]
Condition	2. flow can be experienced in a creative cooperative activity [15], [16], interdependence of the partners [9]	<ul style="list-style-type: none"> networked flow [16] group flow [15] social flow [9]
	3. flow conditions are needed [9], [15]	<ul style="list-style-type: none"> group flow [15] social flow [9]
	4. autonomy, competence and relatedness can be experienced [15], they facilitate flow	<ul style="list-style-type: none"> group flow [15]
Quality of the interaction	5. partners can be the agent of each other's flow in the shared context [9] o can be the source of the challenge [17] o can provide feedback for each other [9], [17]	<ul style="list-style-type: none"> social flow [9] shared flow [17]
	6. the person's flow can be affected by the partner's experience through perception [18]	<ul style="list-style-type: none"> contagious flow [18]
	7. reciprocal interaction [9], [18]	<ul style="list-style-type: none"> contagious flow [18] social flow [9]
	8. intrinsic motivation of the partners are related [19]; the emphasis of motivation [14]	<ul style="list-style-type: none"> crossover of flow [19] collective flow [14]
Consequence: performance	9. related to positive affects: joy [9], [14], [16]; more enjoyable than in solitary activities [9], contributes to the enjoyment of the experience [20], [21]	<ul style="list-style-type: none"> networked flow [16] collective flow [14] social flow [9] game flow [20], [21]
	10. higher performance is resulted [15], [16], [22]	<ul style="list-style-type: none"> networked flow [16] group flow [15]
Quality of the experience	11. the quality of flow is different because of the effect of the social context [9]	<ul style="list-style-type: none"> social flow [9]

Table 1: Systematic review of the main findings and assumptions of the concepts related to flow in social interactions.

The partners were unfamiliar, therefore we could exclude the possible effect of the previous relationship [34], therefore we could observe the possible effect of the contexts on flow [26].

Measures

As flow is a subjective state, the different factors of optimal experience were tested with a self-reported survey after each condition of the experiment. *The Flow State Questionnaire*¹ (PPL-FSQ) [35] aims to measure the basic flow dimensions related to a specific situation. Participants answer on a 5-point Likert Scale (1: Strongly disagree; 2: Disagree; 3: Neutral; 4: Agree; 5: Strongly agree). The questionnaire has two scales: (1) The balance between challenges and skills ($\alpha = .92$) as the conditions, and (2) Absorption in the activity (9 items) ($\alpha = .91$) as the dynamics of flow experience.

Procedure

The study was in accordance with the local ethical committee at Eötvös Loránd University. Written informed consent was obtained prior to the experiment.

We recruited adult people via online pages and university courses. Every participant took part in an experiment of a repeated-measures design: one solitary and one dyadic activity. The starting situation was random to consider the order effect [36]. Based on the previous results on flow and creativity [17], participants solved creativity tasks [15], [16]. These activities might have met the conditions of flow [37], as they could provide a clear aim (more results in 5 minutes/exercise), continuous feedback and the balance between challenges and skills.

We used two different creativity tasks to avoid attentional habituation [38]. In the solitary situation Guilford's Alternative Uses Task [39] in separate rooms, in the dyadic situation the Torrance Tests of Creative Thinking [40] in a common room were used as flow induction tools.

At the end of each situation, participants reported their experiences in a survey, and at the end of the experiment in an interview.

Results and Discussion

Table 3 presents the descriptive statistics of the scales we used in this study.

Context	Scale	M	SD	α	W	df
Solitary situation	Balance of challenges and skills factor	3.81	.66	.90	.98	80
	Absorption in the task factor	3.23	.68	.80	.97	80
	PPL-FSQ: total score (flow intensity)	3.52	.60	.89	.99	80
Social situation	Balance of challenges and skills factor	3.88	.74	.85	.98	80
	Absorption in the task factor	3.45	.56	.77	.96*	80
	PPL-FSQ: total score (flow intensity)	3.67	.54	.84	.98	80

Table 3: Flow in solitary and social situations: descriptive statistics.

Notes: M = Mean, SD = standard deviation, α = Cronbach's α , W = Shapiro-Wilk test, df = degree of freedom, * = $p < .05$.

After confirming the similarities related to the balance between challenges in the two situations ($t(79) = .10, p = .922$), we tested our hypothesis. As we had a sample of 80, paired sample t-test is appropriate, even if our data does not always follow normal distribution [41].

According to the results, there is a significant difference between solitary and social flow experience, related to the absorption in the task ($t(79) = 4.90, p < .001, d = .57$) and the total flow score as flow intensity ($t(79) = 3.51, p = .001, d = .38$), without any difference in the balance between the challenges and skills. The significant differences are described with moderate effect size [42], [43].

This study made an important contribution: we supported that flow in a shared, cooperative activity can be more intense than in solitary situations [27], not even related to the positive emotional consequences [9], but the experience itself. According to our most important finding in this study, we emphasize the increased value of social interactions on flow as a subjective experience. In social activities flow can be more intense, the common tasks result in deeper absorption, during the possible synchronization of the experience of the dyad members. It is important, that there is no difference between challenges and skills in the two situations: the conditions of flow are in both.

Related to Bandura's idea on collective efficacy [14], [44], to the zone of proximal development [45] and to the concept of dynamic interactionism [28], we suggest that the partners as parts of the environment (because of the person-environment interaction) can provide feedback for each other, therefore they can influence the intensity of absorption to the flow zone [9], [17].

As mostly the young adult age group participated in our study, recruited through convenient sampling, our results can be distorted, the effect sizes can be reduced. Demographic variables like sex may have affected on flow experience [46]. In the laboratory, the intensity of flow may have been reduced [47], and we have not filtered the preferences of the exercises. In future studies we aim to exclude these possible distorting effects.

It is important to broaden the social interactions with studying even close partners, groups or different organizational levels [15], [16]. This may help us to widen our results about flow during social cooperative activities, and to reveal the details of the possible synchronization tendency during the experience.

Conclusions

According to our research, the quality of flow experience in a social interaction is more intense, than in a solitary activity. From this result we may infer the synchronization of the partners' optimal experiences during their common work, some further studies are needed to support this assumption.

Additionally, the experience of flow in a shared, cooperative activity may contribute to the fulfillment of the basic human needs [48]–[50], as it can support the person in competence development, to use social skills, whether to improve the quality of the relationships, or promote the flourishing of the individuals [51].

Competing Interests

The authors declare that they have no competing interests.

Author Contributions

Tímea Magyaródi: establishment of the theoretical and research concept, statistical analysis, interpretation of the results, writing the manuscript (she executed this study as part of the PhD dissertation).

Attila Oláh: supporting the research as the supervisor of Tímea Magyaródi during her PhD studies.

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