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# Where do people experience flow in the 21<sup>st</sup> century? Re-assessing activities and environments for flow

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## ABSTRACT

Flow supports psychological wellbeing. But where do optimal experiences of flow occur? Existing studies of flow activities are increasingly outdated and don't account for changing patterns of time use. Further, the physical environments where flow experiences happen have not been empirically examined. This research explores flow activities and environments within a UK-based (Study 1,  $n=4000$ ) and international (Study 2,  $n=839$ ) sample. Commonly reported flow activities were largely consistent with existing research, with activities such as work, sport, reading, arts, and contemplative practices being frequently mentioned. Flow environments were varied, but the home and nature were prominent themes. Whilst certain flow activities tended to be reported alongside certain flow environments (e.g. sports outdoors and computer in residential spaces), others (e.g. art, music, reading) were not associated with specific locations. Together, findings consolidate understandings of the common sites of flow and provide preliminary insights into the role physical environments might play in supporting flow.

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## Introduction

Flow experiences can help enhance individual wellbeing (Tse et al., 2021) and performance (Harris et al., 2023). But where exactly do these beneficial flow experiences occur? Despite Csikszentmihalyi's (1992) suggestion that any activity can theoretically be crafted to provide flow, research has tended to show that there are types of activity that are well suited to supporting the experience. These include work and leisure activities such as art and sports (Isham et al., 2019; Magyaródi & Oláh, 2015). Understanding the types of activities that are well-suited to flow is important because it allows for practical steps to encourage flow experiences and thus improve wellbeing. However, much of the existing work examining flow-conducive activities is now outdated. Considering how patterns of time use have changed over the last decade, it is important to gather an updated understanding of where people are experiencing flow. Further, in considering where flow occurs, most attention has been given to activities. The physical locations in which flow happens have not been properly examined. Whilst flow activities and environments are likely to be intertwined, it is crucial to determine how features of the physical environment may support or disrupt flow experiences to understand how processes such as urbanisation or rises in home working may influence opportunities for flow.

## What is flow?

Flow is a psychological state that has been proposed to represent an example of optimal experience (Csikszentmihalyi, 1992). When in flow, people feel completely immersed and concentrated on the activity they are engaged in. They are not thinking about their everyday worries, time, or other people's judgements (Jackson & Eklund, 2004). Instead, they are intensely involved in the present moment,

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experiencing a sense of control as their actions and awareness merge to give a sense of effortless movement (Csikszentmihalyi, 1975). Flow experiences are suggested to be autotelic in that the state of being in flow is inherently rewarding and enjoyable (Abuhamdeh, 2020), so much so that people will often choose to engage in an activity simply to try and enter the flow state.

In line with its description as a form of optimal experience, flow has been linked to numerous benefits. For the individual, frequent experiences of flow are associated with higher levels of both subjective (Tse et al., 2021) and eudaimonic (Asakawa, 2004) wellbeing, as well as enhanced performance in activities such as sports (Bakker et al., 2011), computer games (Ehrel & Jamet, 2019), and education (Sumaya & Darling, 2018). On a more collective level, the mutual experience of flow within groups can help to build feelings of unity and social integration (van den Hout, 2018; Zumeta et al., 2016). Some research has even suggested that flow could help to support ecological wellbeing by encouraging stronger concern for the environment (Isham & Jackson, 2025).

Given these benefits, scholars have aimed to understand the conditions that can support the creation of flow experiences. Csikszentmihalyi (1975) initially outlined several conditions that could support the experience of flow. These were that an individual needed to perceive clear goals alongside immediate feedback concerning their progress towards these. Further, the individual should be faced with some level of challenge that requires them to make use of their skills, whilst still being able to successfully engage with the task. More recent research has explored other individual-level and situational characteristics that are associated with a greater tendency to experience flow, such as greater self-control (Isham et al., 2021), low levels of perfectionism (Arslan & Altan-Atalay, 2023), and situational ambience (Ding & Hung, 2021).

### **Flow activities**

Although Csikszentmihalyi (1992) stated that theoretically any activity could be moulded to support flow, certain activities may be more likely to facilitate flow experiences given that their characteristics support the conditions of flow. For example, activities must be able to provide a sufficient level of challenge and require a high level of concentration whilst also having clear goals (Jackson & Eklund, 2004). Indeed, the literature has outlined several types of activities that people often report experiencing flow in.

For example, research has tended to show that people are more likely to experience flow during their work than leisure time (Csikszentmihalyi, 1997). This is perhaps unsurprising given that at work people typically have a specific job to do and therefore clear goals for the day. Outside of work, the leisure activities that have been found to often support the experience of flow tend to revolve around several themes. Isham et al. (2019) examined experience sampling data taken from the members of 500 US families and found that the type of leisure activities in which people were reporting the most high-quality experiences of flow fell into five categories: (1) romantic relationships (e.g. spending time with a partner, physical and sexual intimacy), (2) contemplative activities (e.g. prayer, meditation, yoga), (3) creative activities (e.g. arts and crafts, singing and dancing), (4) sports and physical exercise (e.g. cycling, aerobics), and (5) social engagement (e.g. playing with children and talking with neighbours). Other studies have supported these findings (Csikszentmihalyi, 1975; Phillips, 2005; Rogatko, 2009). For example, using a Hungarian sample, Magyaródi and Oláh (2015) found that the most frequently mentioned flow activities included work, reading, sports, and creative activities. Work by Pritikin and Schmidt (2022) distinguished between physical activities in terms of their propensity to support flow. They found that activities such as martial arts and climbing were better equipped to support flow than activities such as running or walking in their US-based sample. Exploring the flow experiences of Italian university students during the COVID-19 pandemic, Mangialavori et al. (2024) highlighted that productive activities such as learning tasks alongside leisure activities (predominantly sports, arts, and reading) were the most common flow activities. It is important to note that flow can be experienced in both solitary and social activities (Liu & Csikszentmihalyi, 2020; Magyaródi & Oláh, 2015).

Today, much of the research on flow is focused on understanding the experience in specific contexts such as sport or education, effective measurement, and the conditions (especially in the workplace) of flow (Engeser et al., 2021). Apart from Magyaródi and Oláh (2015) and Mangialavori et al. (2024) surveys, we do not have an up-to-date examination of the different activities in which people commonly experience flow. Isham et al. (2019) work was based on experience sampling data that was collected between

1998 and 2000. In the last 20 years, we have observed changes in time-use patterns. For example, people now spend more time indoors and use a greater range of screen-based technologies (Mullan, 2019; Van Dam & Morath, 2016). Indeed, a large body of literature now explores how flow experiences can be facilitated within video game contexts (Cowley et al., 2008; Michailidis et al., 2018). In addition, the field of consumer psychology has focused on trying to promote flow within shopping environments (Ettis, 2017; Hsu et al., 2012). An updated understanding of the activities in which people are experiencing flow in the 21<sup>st</sup> century would therefore be valuable.

### ***Flow environments***

In comparison to individual and activity characteristics, the influence of physical environments on flow has received less attention. This is perhaps due to the difficulty in untangling the relative influence of activity and environment characteristics. Nevertheless, a scoping review by Cumming et al. (2025) highlighted that certain environmental features have been spoken about in relation to supporting flow experiences in different contexts. For instance, positive effects of contact with nature on flow have been observed across activities including running (Jackman et al., 2021), Qigong (Hung, Chou, et al., 2021), and adventure-based learning (Mackenzie et al., 2018). The same effect occurs with virtual reality environments depicting mountains and forests (Chirico & Gaggioli, 2018), which have been found to support high levels of flow. Natural soundscapes and birdsong have also been reported to help facilitate flow experiences (Boudreau et al., 2022).

Beyond supporting specific activities, certain types of environments or environmental features may therefore facilitate the characteristics of flow. For example, natural environments may promote a sense of 'being away' from daily life, contributing to the self-transcendent nature of flow (Wöran & Arnberger, 2012). Environments that are more familiar or private may foster feelings of safety, allowing individuals to focus entirely on the activity at hand and thus supporting the intense concentration required for flow (Dahan & Goldberg, 2025). It is important to determine whether certain types of environments are better equipped to support flow, as this raises questions around accessibility and opportunities for flow. With increasing urbanisation, are we losing opportunities for flow if natural environments support the experience according to existing research? Similarly, changes to the structure of our working lives, largely because of the COVID-19 pandemic, mean that more people are working from home. The impacts the locations where we undertake activities have on flow experiences will have consequences for people's ability to experience positive impacts on their wellbeing in those spaces.

### ***The present research***

The aims of this research are twofold. First, we aim to offer an updated understanding of the types of activities that commonly support the experience of flow. Second, we aim to offer new insights concerning the types of environment people report experiencing flow in, and how these might be associated with different types of flow activities. To achieve these aims, we used two surveys. The first (Study 1) was administered to a large, nationally representative sample of adults in the UK and focused solely on flow activities. The second (Study 2) was administered to an international sample and asked about flow activities and environments.

## ***Study 1***

Study 1 aimed to provide an updated understanding of the types of activities that commonly support the experience of flow, using a large UK-based sample.

### ***Method***

#### ***Participants***

A nationally representative sample of 4000 adults in the UK was recruited via an external market research company. We aimed for the largest possible sample size within our funding constraints to allow for

greater representativeness of flow activities. Quotas were implemented concerning age, gender, socio-economic status, and geographical region using the latest available government census data. Full details of the different categories and corresponding quotas are given in [Appendix A](#). Overall, 1937 members of the sample were male and 2063 female. The median age group was 45-54 years old. Thirty-seven per cent had completed a bachelor's degree or higher. The study passed an ethical assessment in line with the University of Surrey's ethical guidelines.

### Measures

The Flow Questionnaire (FQ: Csikszentmihalyi & Csikszentmihalyi, 1988) was the first proposed means of measuring flow. It starts by proposing three descriptions of the flow experience, based on the interviews conducted by Csikszentmihalyi (1975) across several domains. The three descriptions are:

'My mind isn't wandering. I am not thinking of something else. I am totally involved in what I am doing. My body feels good. I don't seem to hear anything. The world seems to be cut off from me. I am less aware of myself and my problems.'

'My concentration is like breathing, I never think of it. When I start, I really do shut out the world. I am really quite oblivious to my surroundings after I really get going. I think that the phone could ring, and the doorbell could ring or the house burn down or something like that. When I start I really do shut out the world. Once I stop I can let it back in again.'

'I am so involved in what I am doing. I don't see myself as separate from what I am doing.'

Participants were asked to read the quotes and to answer (yes or no) if they have felt similar experiences. We instructed participants to reflect upon the last year, in particular. This binary question distinguishes between those people who do and do not experience flow in their lives. Following this, those individuals who had reported experiencing flow were asked one further question. That is, they were asked to list the activities that they were engaged in when they were having their flow experiences. There were no limits to the number of different activities that participants could name. This allowed us to see all the activities in which flow experiences were taking place.

### Results and discussion

Of the 4000 respondents, 1820 stated that they had had an experience like that being described in the quotes. Of the 1820 people who agreed that they had had a flow-like experience, 1517 listed at least one activity that this experience occurred during. Across all 1517 individuals, 2121 individual activities were noted, but many of these overlapped. Overall, 99 different types of activity were covered in the 2121 individual activity reports. We first sorted the activity items in four broad categories, in line with previous work on flow activities (Delle Fave et al., 2011). These were productive activities, free time, interactions, and introspection. Two independent coders assigned all 99 activity items into these four categories. The two coders demonstrated 97% agreement in their classifications. Discrepancies mainly concerned whether activities such as decorating were productive or free time. Both coders also agreed that within the four broader themes there were certain salient groups of activity types. For example, lots of activities were examples of sport or engagement with music. All 99 activity types and their classifications into one of the four broader categories are shown in [Figure 1](#). For each activity type, we note the corresponding frequency for the number of times that it was mentioned as a flow activity by participants. The activity sub-groups noted by the two coders are also highlighted by boxes.

Work, sports, and reading were by far the most common flow activities. They were followed by several creative (e.g. arts and crafts, writing), technical (e.g. building, computer), and contemplative (e.g. meditation and mindfulness) activities. A couple of more passive leisure activities, which are not typically considered to be supportive of flow (e.g. watching television or film), were also frequently mentioned. Overall, it was the free time category that included the most mentions of flow activities (n=1389) followed by the productive activity category (n=562). The interactions (n=73) and introspection (n=97) categories received fewer mentions overall.

Productive Activities		Free Time				Interactions		Introspection				
Work	325	Sports and exercise	358	Reading	252	Writing (inc. blogging)	70	Socialising with family and friends	43	Meditation and mindfulness	71	
Studying and learning	99			Exercise	67	Gardening	56	Sex	23	Thinking about future plans	13	
Building	62	Walking	57	Arts and crafts		116	Cooking and baking	34	Walking dog/looking after pets	7	Day dreaming	6
		Sports (unspecified)	49	Painting	32	Knitting/crochet/sew	29	Holistic/alternative practices (e.g., Reiki)	4	Prayer	3	
		Running	45	Crafting	27	Hobbies (unspecified)	29					
		Football	34	Art (unspecified)	19	Puzzles, quizzes and surveys	29					
		Yoga	22	Digital art	12	Dancing	24					
		Swimming	14	Drawing	11	Relaxing	18					
		Golf	13	Arts and crafts (unspecified)	10	Photography	14					
		Fishing	10	Colouring	4	Driving	14					
		Cycling	5	Clay modelling	1	Singing	11					
		Horse riding	5	Music		107	Board games					9
		Rock climbing	5	Listening to music	55	Concerts/festivals/museums/attractions	9					
Cricket	3	Playing a musical instrument	38	Performing arts	8	Substance use	6	Genealogy	5			
Badminton	3	Composing music	14	Nature watching	7							
Snorkelling/diving	3	Computer		80	Shopping					7		
Bungee jump/skydive	3	Watching TV or film	82	Board games	9							
Table tennis	2	Computer and video games	41	Concerts/festivals/museums/attractions	9							
Tennis	2	Computer programming	14	Performing arts	8							
Skiing	2	Internet	9	Nature watching	7							
Boxing	2	Computer (general, no specified)	8	Shopping	7							
Sailing/boating	2	Spreadsheets	6	Substance use	6							
Rugby	1	Online chatrooms	2	Genealogy	5							
Lawn green bowling	1	Computer		80	Giving birth					5		
Kayaking	1	Computer and video games	41	Eating	4							
Fencing	1	Computer programming	14	Camping	3							
Karate	1	Internet	9	Masturbation	2							
Snooker	1	Computer (general, no specified)	8	Gambling	1							
Race car driving	1	Spreadsheets	6									
Archery	1	Online chatrooms	2									
Shooting	1											
Rowing	1											

**Figure 1.** All flow activities noted by participants in Study 1, with associated frequencies and categorisation.

## Study 2

Study 2 aimed to provide an additional assessment of flow activities, this time using an international sample. It also sought to document the different environments in which people experience flow.

## Method

### Participants

An international sample of 839 adults was recruited through the website Prolific. This sample size was selected based on the chi-square analysis we planned to use to test for associations between flow activities and flow environments. G\*Power (Faul et al., 2007) determined that a sample size of 820 was required to detect an effect size of 0.20, with statistical power being 95% and the Type 1 error probability being 0.05. The survey was distributed to maximise spread of participants across age groups, gender, and geographical region. Overall, 50% of participants were male, 48% female, and 2% non-binary/third gender. The median age group was 35–44 years old. Sixty-two per cent of participants had completed a bachelor's degree or higher. Sixty-six per cent were employed (fulltime, part-time, or self-employed). In terms of the continents where participants were based, 17% were in Europe, 17% in Africa, 9% in North America, 24% in South America, 16% in Asia, and 16% in Australasia. Participants were asked to rate their social status using the MacArthur Scale of Subjective Social Status (Adler et al., 2000). On the ladder ranging from 1 (people who are the worst off in their country) to 10 (people who are the best off in their country), the median response was 5. The study was granted ethical approval following an assessment by the Swansea University Faculty of Medicine, Health, and Life Sciences' ethics committee (approval number: 1 2023 6038 5169).



## Measures

The same measures were employed as in Study 1. The only difference was that, as well as being asked to list the activities that they were engaged in when they were having their flow experiences, those participants who indicated having flow experiences were also asked to openly report the physical environments they were in when having those experiences.

## Results and discussion

Of the 839 respondents, 442 (52.7%) stated that they had had an experience like that being described in the quotes. From these 442 people, 793 individual activities were noted, but, as in Study 1, many of these overlapped. Overall, 64 different types of activity were covered in the 442 individual activity reports. We followed the same process of sorting the activity items as in Study 1, first organising the items into four broad categories (Delle Fave et al., 2011) and then identifying salient groups of activities amongst these. All 64 activity types and their classifications into one of the four broader categories are shown in Figure 2, plus activity sub-groups noted by the two coders.

Work, sports, and reading were the most common flow activities, replicating the most frequent types of flow activities from Study 1. They were followed by several creative, computer-based, and contemplative activities. The free time category, again, included the most mentions of flow activities ( $n=543$ ) followed by the productive activities ( $n=180$ ), introspection ( $n=48$ ), and interactions ( $n=22$ ) categories. The main changes from the results of Study 1 to Study 2 included the narrower range of sports reported, largely accounted for by the exclusion of several sports that are symbolically British such as rowing, cricket, and shooting. Attending events such as concerts, festivals, and other attractions did not feature in the international sample, nor did looking after pets. Several flow activities that have been highlighted as potentially problematic by scholars, such as gambling, shopping, and extreme sports like skydiving and skiing were also no longer reported amongst the international sample.

From the 442 people who identified as having flow experiences, a vast number of environments were noted. Sixty-five different locations were identified across 694 environment reports by participants, which were categorised into one of six categories by the two coders: residential ( $n=343$ ), outdoors ( $n=146$ ), workplace ( $n=85$ ), education ( $n=37$ ), non-residential ( $n=68$ ), and transit ( $n=15$ ) (see Figure 3). People's homes and some specific rooms within them were the most prominent flow environments, whilst being outdoors in nature was also frequently noted. The open-ended nature of the question meant that there was variation in which aspects of the environment participants identified as important. Whilst most

Productive Activities		Free Time				Interactions		Introspection			
Work	83	Sports and exercise 88		Arts and crafts 74		Nature watching	15	Socialising with family and friends	15	Meditation and mindfulness	35
Studying and learning	62	Walking/hiking	21	Crafting	29	Hobbies (unspecified)	14	Sex	7	Prayer	5
Taking exams	10	Exercise	18	Painting	20	Cooking and baking	13			Thinking about future plans	3
				Drawing	20	Relaxing	12			Day dreaming	3
Building	8	Running	7	Digital art	5	Gardening	12			Holistic/alternative practices (e.g. Reiki)	2
Building (unspecified)	4	Yoga	7	Computer 70		Puzzles, quizzes and surveys	11				
Mechanics	1	Swimming	7	Computer and video games	46	Driving	10				
Repairing broken items	1	Cycling	6	Computer programming	18	Dancing	6				
Building electronics	2	Sports (unspecified)	6	Computer (general, no specified)	6	Board games	4				
		Snorkelling/diving	3			Photography	4				
Housework/cleaning	7	Football	3	Music 53		Knitting/crochet/sew	4				
Dealing with personal problems	3	Horse riding	2	Listening to music	22	Substance use	3				
Data analysis	4	Powerlifting	2	Playing a musical instrument	21	Genealogy	3				
Personal care	2	Tennis	2	Composing music	10	Singing	3				
Job applications	1	Fishing	1			Performing arts	2				
		Volleyball	1			Camping	2				
		Snowboarding	1			Giving birth	1				
		Surfing	1	Writing (inc. blogging)	35						
				Watching TV or film	24						
		Reading	80								

Figure 2. All flow activities noted by participants in Study 2, with associated frequencies and categorisation.

participants identified the overall setting in their response, some noted specific environmental features or their subjective experience of the environment. Environmental features are often centred on the presence (or lack of) certain sounds such as nature or music, and the presence of light. Temperature was also occasionally noted, but with variation in whether participants experienced flow in warm, cold, or their 'optimal' temperature. Subjective experiences considered important were that participants felt relaxed, safe, comfortable, and that they had privacy. Additionally, 34 participants noted that the physical environment was not important for their flow experiences, and that flow could occur anywhere for them or was solely dependent on the activity.

To gather preliminary insights concerning the interdependence of flow activities and environments, a chi-square test of independence was run (see Table 1). For this, we created two categorical variables. The first corresponded to flow environments and had five levels corresponding to the five main location types (residential, outdoors, workplace, education, and non-residential). Transit was not included due to the smaller frequency of responses. The second variable corresponded to flow activities and had seven levels. Appreciating that the four overarching activity categories would miss critical nuance, especially in relation to the free time category, the different levels corresponded to the activity sub-categories with frequencies over 50: sports, art, computer, music, reading, work, and study. A significant association between environments and activities was found,  $\chi^2(24, N=569) = 234.19, p < .001$ . A post-hoc z-test on the adjusted residuals with Bonferroni correction was run to establish which cells differed significantly from their expected value. The significance level was adjusted to 0.0014 (0.05/35), which corresponds to a critical z-value of  $\pm 3.19$ . Examination of the adjusted standardised residuals demonstrated that sport activities were more likely to be reported alongside outdoor environments ( $p < 0.001$ ), and less likely to be reported in residential environments ( $p < 0.001$ ). Computer-based activities was less likely to be reported alongside outdoor environments ( $p < 0.05$ ), and more likely within residential environments ( $p < 0.001$ ). Unsurprisingly, work activities were more likely to be reported in workplace environments ( $p < 0.001$ ) and study activities in education environments ( $p < 0.001$ ). Study activities were less likely to be reported alongside outdoor environments ( $p < 0.01$ ). For art, music, and reading activities, there were no significant associations with environmental locations.

**Table 1.** Chi-square test of independence between flow activity and environment.

Activity		Environment					Total
		Residential	Outdoors	Workplace	Education	Non-residential	
Sport	Count	11	66	6	5	17	105
	Expected count	45.40	25.47	14.76	8.49	10.89	
	Adjusted standardised residuals	<b>-7.50</b>	<b>10.22</b>	-2.72	-1.38	2.17	
Art	Count	11	6	2	4	3	26
	Expected count	11.24	6.31	3.66	2.10	2.70	
	Adjusted standardised residuals	-0.10	-0.14	-0.96	1.40	0.20	
Computer	Count	72	13	15	5	6	111
	Expected count	47.99	26.92	15.61	8.97	11.51	
	Adjusted standardised residuals	<b>5.13</b>	<b>-3.44</b>	-0.19	-1.54	-1.91	
Music	Count	35	16	1	1	12	65
	Expected count	28.10	15.76	9.14	5.26	6.74	
	Adjusted standardised residuals	1.84	0.07	-3.09	-2.06	2.27	
Reading	Count	52	22	13	9	6	102
	Expected count	44.10	24.74	14.34	8.25	10.58	
	Adjusted standardised residuals	1.74	-0.70	-0.42	0.30	-1.64	
Work	Count	29	10	36	6	4	85
	Expected count	36.75	20.62	11.95	6.87	8.81	
	Adjusted standardised residuals	-1.84	-2.91	<b>8.14</b>	-0.38	-1.86	
Study	Count	36	5	7	16	11	75
	Expected count	32.43	18.19	10.55	6.06	7.78	
	Adjusted standardised residuals	0.89	<b>-3.81</b>	-1.26	<b>4.52</b>	1.31	

Note. Values in bold significantly deviate from the expected count if no relationship exists between flow activity and environment categories.



Locations													Perceived features		
Residential		Outdoors		Workplace		Education		Non-residential		Transit		Other		Quiet/silence	27
Home	206	Nature/natural environment	35	At work	48	School	14	Library	16	Car	8	Activity not environment	18	Sounds of nature/music	15
My room/bedroom	74	Outdoors (unspec)	28	At the office	26	University/college	12	Gym	10	Train	3	Any environment/anywhere	16	Relaxing, calm, peaceful	8
Home office/desk	31	In (or by) water inc. ocean/sea, lake, river	20	Office desk	6	Classroom studio	4	Workshop	7	Public transport	2		Privacy/own space	6	
Other people's home	13	Forest/woodland	13	Research room	2	Campus hall	2	Theatre	7	Airport	1		Safe	5	
Living room	7	Garden/allotment	12	Commercial kitchen	2	Exam hall	1	Café	3	Bus	1		Comfortable	5	
My kitchen	4	Beach	9	Workstation/lab	1	Music practice room	1	Yoga studio	3				No disturbance	5	
Home studio	4	Mountains	7			Computer lab	1	Hospital	3			Open window/view from window	4		
Bathtub	1	Park	7			Student office	1	Hotel	2			Well-lit	3		
Garage	1	On the street	4			University study room	1	Garage	2			Views of nature	3		
Shed	1	City	3					Cinema	2			Plants	3		
Childhood home	1	Outdoor festival	2					Dance studio	2			Known/familiar	2		
		Sports field	2					Music studio	2			Background noise	2		
		Rainforest	1					Store (retail)	2			Spacious	2		
		Theme park	1					Sports centre	2			Warm	2		
		Farm	1					Pub/bar	2			New place	2		
		Tennis court	1					Pool	1			Spiritual/sacred	2		
								Church	1			Intimate	1		
								Pharmacy	1			Chatty	1		
											Airy	1			
												Optimal temperature	1		
												Cold	1		
												Hostile	1		
												Burning incense	1		
												Not busy	1		

**Figure 3.** Environments highlighted as facilitating flow experiences in Study 2.

## Overall discussion

This research sought to explore people's flow experiences in the 21<sup>st</sup> century, focusing on the activities and environments which commonly support flow. Using both a UK-based and international sample, the findings show that, overall, the types of activities that commonly support flow are consistent with those found in older research studies. Further, whilst flow environments appear to be varied, the home and natural spaces tend to be the most frequently reported. Certain flow activities do appear to be associated with specific flow environments, such as flow during sports occurring outside and flow during studying occurring in education setting. However, other types of activities, including art and music, were not associated with specific flow environments. The implications of these findings are discussed below.

## Theoretical and practical implications

The most frequently mentioned flow activities in this research are largely consistent with those previously reported. Past research (e.g. Isham et al., 2019; Magyaródi & Oláh, 2015; Phillips, 2005) has listed arts, sports, reading, writing and meditation amongst the activities that are highly conducive to flow. All of these can be found within our own list of the most frequently mentioned flow activities in both studies. It has been suggested that people are more likely to experience flow during their work than leisure time (Csikszentmihalyi, 1997). We did find work to be amongst the most frequently mentioned flow activities. However, it was not the case that work was mentioned more often than all the leisure activities. Sports, in particular, were mentioned more often than work, and the free time category had the most mentions overall. Accordingly, it appears that leisure time in the 21<sup>st</sup> century provides as many opportunities for flow as work does.

In their analysis of the flow propensity of different physical activities, Pritikin and Schmidt (2022) noted that activities such as martial arts, climbing, skiing and golf were amongst the most flow supportive activities, whilst activities such as walking and running were less supportive. These existing findings somewhat conflict with the present research, which finds running and walking to be mentioned far more frequently within the 'sports and exercise' subcategory than the activities suggested to be more flow prone by Pritikin and Schmidt. The discrepancy between these two sets of findings may be due to methodological differences. Pritikin and Schmidt employed a pair-comparison technique whereby respondents indicated which activity within a pair better fulfilled certain conditions of flow, for example, indicating which out of Activity A and Activity B required more skill. In contrast, we asked participants to openly report where they experience flow, without any direct comparison between activities for each participant or indication of the strength of the typical flow experience in each activity. Hence, our measure tells what proportion of people are experiencing flow within a particular activity, whilst Pritikin and Schmidt are ranking how well different activities facilitate the different characteristics and conditions of flow. Accordingly, activities such as running and walking may be supporting flow in a great proportion of people (in line with our results), but they may also be providing less intense experiences of flow than when people are engaged in activities such as martial arts and climbing (in line with Pritikin and Schmidt's results).

One surprising finding from the current research was that watching television or films and listening to music were frequently mentioned as a flow activity. Previous work has suggested that these activities should be less supportive of flow (Csikszentmihalyi, 1997; Delle Fave & Bassi, 2000) in that they are passive and do not require large investments of attention or skill. An optimal matching of a high level of challenge and skill is often noted as an antecedent to the flow state (Csikszentmihalyi, 1992), but it is worth noting that the statements included within the Flow Questionnaire (Csikszentmihalyi & Csikszentmihalyi, 1988) do not make explicit reference to this. Instead, the statements mainly focus on the phenomenological aspects of flow such as the total immersion, loss of self-consciousness and blurring of the boundaries between the self and the activity. It could therefore be that the lack of reference to feeling challenged during the activity has led to these typically less skilful activities being highlighted as providing flow in the current research. The robustness of a challenge-skill balance as an antecedent to flow has also been questioned and suggested to be moderated by several factors such as age, culture, and the activity domain (Fong et al., 2015). It may therefore be that high challenges are not necessary for experiencing flow and thus activities such as watching television and listening to music can support flow experiences.

Relatedly, given the proposed autotelic nature of flow (Csikszentmihalyi, 1975), it is unsurprising that most previous research has outlined examples of flow activities that we would consider to be positively valenced (e.g. sports, music etc.) and this theme largely holds true for our results. However, what is notable is the inclusion of activities that we would not typically consider as enjoyable, such as 'dealing with personal problems', in our sample. Common Likert-style measures of flow include items such as '*I found the experience extremely rewarding*' (Jackson & Eklund, 2004) and '*...what you do feels extremely enjoyable to do?*' (Ullén et al., 2012). In comparison, the statements in the Flow Questionnaire (Csikszentmihalyi & Csikszentmihalyi, 1988) are less explicit about a positive emotional response during the experience itself, with positive affect only noted in relation to '*my body feels good*'. Our results therefore suggest that experiences of deep immersion can be fostered across a range of activity contexts and including those that we might intuitively consider as difficult or unpleasant to be in. Indeed, research into the experience of flow during childbirth (Dahan & Goldberg, 2025) would support this point and was mentioned by a few respondents in both of our studies. This research therefore shows that we need to remain open to the sites of flow and further explore how it may transform mundane or difficult activities into those that are fulfilling.

We noted in the introduction that patterns of time use may have changed over the last few decades, leading to different ways of achieving flow. An increasingly large body of research has been focused on exploring how to support flow within video games and human-computer interactions (Cowley et al., 2008; Michailidis et al., 2018). In this research, video game and computer-based activities were highlighted as a key leisure category in both studies. It hence appears that digital technologies do have the ability to provide opportunities for flow. Marketers and consumer psychologists are trying to promote flow within shopping environments (Ettis, 2017; Hsu et al., 2012). However, in this research, shopping was

only mentioned as a flow activity 7 times out of the 2120 activity reports received (0.3% of total activity reports) in Study 1 and were not mentioned at all in Study 2. It therefore appears that shopping is not currently an activity that frequently supports experiences of flow.

Across the two studies, the types of flow activities and proportions with which they were reported were remarkably similar. Existing work within Europe, focusing on Hungarian (Magyaródi & Oláh, 2015) and Italian (Mangialavori et al., 2024) samples has also shown commonalities in the most frequently reported flow activities to our samples. Several of the less frequently mentioned activities from Study 1, e.g. gambling, shopping, and extreme sports, did not appear in the international sample. This may reflect that Western societies such as the UK place a greater emphasis on trying to facilitate flow in commercial contexts under the drive of consumer capitalism. Csikszentmihalyi and Asakawa (2016) highlighted that in Western societies, flow has typically been facilitated through engagement with external stimuli and hence reliant on activities being provided that present suitable challenges, feedback, and goals. Eastern cultures, in comparison, are suggested to have developed ways of experiencing flow through mental activities such as different forms of meditation. We find no evidence of contemplative activities being mentioned more frequently in the international sample (making up 4% of responses in comparison to 3% in the UK sample). Research has suggested that demographic factors such as education and socioeconomic status may impact people's tendency to experience flow in specific types of activity (Isham & Jackson, 2023) and should continue to explore how other individual difference factors may impact where people experience flow.

Given that most research considering flow in relation to physical environments has focused on specific activity contexts, we believe this is one of the first pieces of research to record the range of environments that can facilitate flow. A recent scoping review (Cumming et al., 2025) demonstrated that much of the existing work into how environmental features impact flow has focused on natural environments. Whilst natural environments were frequently reported by our sample, the theme of being at home was the most prominent. This raises questions around whether natural environments are those that best support flow but there are issues around access which mean that many people are confined to finding flow within the homes. Alternatively, our homes could be the optimal flow environment, and academic work has disproportionately focused on nature given that research demonstrates a beneficial effect of nature on other aspects of wellbeing and mental health (Silva et al., 2024). Future work will determine the means through which different types of environments can support or hinder flow. Responses from our participants suggest that it may be the subjective experiences that environmental features can support, such as those of safety, privacy, and comfort. This would align with emerging findings from Dahan and Goldberg (2025), who found that women reported higher levels of flow during childbirth when giving birth at home compared to the hospital and suggested this may be partly due to the greater privacy, familiarity, and comfort that the home environment affords. The fit between activity and environment could also be more important than any objective environmental feature. With some activities fitting with specific environments (e.g. sports in outdoor locations) and others compatible with a broader range of spaces (e.g. reading, contemplative practices).

Our results have several practical implications and should be of interest to local governments and lay people alike. Firstly, given that sports, reading, and arts and crafts are common flow activities, a trend consistent across previous research studies, it is important that everyone irrespective of wealth, status, gender, or age has opportunities to engage in these. This could be through the provision of free local clubs and libraries. Access to these types of activities would also give people alternative activity options to things like shopping, which although readily available online and in most urban areas, this research suggests is not often supportive of flow. Work on environments for flow is still in its infancy and thus we are hesitant to suggest access to any specific type of location be facilitated. However, examination of how residential spaces support flow could inform interior design practice and future research into how natural spaces support flow could initiate wider implementation of initiatives such as forest schools and urban rewilding.

### **Limitations and future research**

Our research focused on adults and thus we cannot say that the same activities will support flow in children or adolescents who use their time in different ways. Older generations may be less mobile and

thus more likely to be confined to finding flow within their homes, which is consistent with findings showing people aged 65+ are more likely to experience flow in household chores than those aged 18–24 (Isham & Jackson, 2023). Similarly, research with adolescents highlights that the most common flow activities for this age group tends to be learning, sports, and interpersonal relationships (Bassi et al., 2022), reflective of the greater time spent in school, physical mobility, and importance of forming new relationships in this age group. Future studies should expand their focus to include younger populations.

One further methodological limitation of our research is that it employed a cross-sectional survey. Participants were asked to recall if they had flow experiences in a retrospective manner, which leaves open the risk of memory errors and biases. An alternative method to employ would have been experience sampling, whereby individuals complete self-reports of their current feelings and activities when signalled to (via an electronic pager) at random times, usually over a one-two-week period (Larson & Csikszentmihalyi, 2014). This removes the risk of memory biases, but we decided experience sampling was not appropriate for use in the present study because it is very demanding on participants and hence harder to get high levels of participation and commitment. We also wished to recruit large, representative samples and were interested in whether people had experienced flow over longer time frames than a few weeks.

The cross-sectional nature of the research also means that we are only talking about associations between flow activities and environments. Experimental work that instructs participants to undertake the same flow activity in different environments would help to determine how environmental features may directly facilitate flow in specific types of activities. An existing study has explored flow experiences across outdoor and indoor rock-climbing contexts (Boudreau et al., 2022), which seemed to suggest a preference for outdoor environments. However, the insights were reliant on responses to an interview question and thus there is scope for standardised, quantitative measurement in future work.

The results of the present study prompt a couple of avenues for further research. One would be to conduct a study which asks people to rate how intense their experiences of flow tend to be in the different flow activities and environments identified by the present research. Here, we used a binary (yes/no) type of measure to classify whether people experience flow in an activity. As noted by Moneta (2021), this has the advantage of not imposing flow upon respondents, which can be done if they score highly on only a couple of the flow characteristics (e.g. concentration, effortless movement) in common Likert-style measures of flow (e.g. Jackson & Eklund, 2004). However, as touched upon when discussing the findings of Pritikin and Schmidt (2022) previously, some activities may provide more intense experiences of flow than others, even if they are supporting the experience less frequently across the population. Our measure could not assess flow intensity, just its presence versus absence. This may account for why certain types of activities that we do not typically consider as flow conducive, such as watching television and listening to music, have been reported by our sample. Such activities may be supporting weaker flow experiences than others such as sports or painting. Supplementing the present data with Likert-style measures that rate the intensity of flow in different activity and environment contexts will create a more holistic picture of the frequent and best quality sites of flow.

Another, related area for exploration is whether there are, perhaps, different types of flow. This research demonstrated that a broad variety of activities can support flow experiences, but it may be naïve to assume that the experience of flow is the same across activity contexts. For example, the experience of being immersed in a television programme would, intuitively, seem to be very different from being fully involved in playing sports. But currently, they are both considered as flow experiences. Research such as that by Lavoie and Main (2019) is beginning to distinguish between intense and long flow states that occur in complex activities (so-called deepflow) from less intense, often shorter flow states that can be elicited in simple tasks (so-called microflow). Similarly, Nakamura and Csikszentmihalyi (2003) outlined ‘vital engagement’ as an experience of deep engagement that occurs alongside high levels of meaning. This may be different to flow that is experienced in activities that are less meaningful. A detailed, phenomenological analysis of the flow experience across different types of activities and how they may represent instances of deepflow versus microflow, or vital engagement, would therefore be valuable.

## Conclusions

Flow experiences are a well-recognised contributor to personal wellbeing. In this research we have explored the types of activities and environments in which people commonly experience beneficial flow states. Results demonstrate that work, reading, creative and physical activities are well suited to support flow experiences. Residential and natural environments were most reported as supporting flow, and types of activities differ in the extent to which they are associated with specific flow environments. Our findings have important implications surrounding the specific types of activities that need to be readily available for people to engage in to provide pathways towards higher wellbeing through flow and prompt further investigation of how features of physical environments may directly impact flow.

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## Open scholarship



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## Data availability statement

The data that support the findings of this study are openly available on the Open Science Framework at <https://osf.io/vecya/>.



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## Appendix A.

### Sample demographics for study 1 Table A1. Demographic details of sample.

Gender		Percentage	Counts
Females		51.6	2063
Males		48.42	1937
Age (from)	Age (to)	Percentage	Counts
18	24	11.0	438
25	34	16.9	675
35	44	17.8	712
45	54	18.4	735
55	64	15.5	619
65	75+	20.5	821
Region		Percentage	Counts
East Anglia		9.0	362
East Midlands		7.4	294
London		12.7	506
North East		4.3	170
North West		11.4	455
Northern Ireland		1.8	73
Scotland		7.9	314
South East		14.2	568
South West		9.0	361
Wales		4.9	195
West Midlands		9.1	364
Yorkshire and Humberside		8.5	338
Socioeconomic group*		Percentage	Counts
AB		26.0	1039
C1		26.2	1046
C2		23.3	931
DE		24.6	984

To determine socioeconomic group the following question was asked 'what is/was the profession of the Chief Income Earner in your household before they retired? As a reminder the Chief Income Earner is the person with the largest income, whether from employment, pensions, state benefits, investments or any other source'.

- Higher managerial/professional/administrative (e.g. Established doctor, Solicitor, Board Director in a large organisation (200+ employees, top level civil servant/public service employee) [CODE AS SOCIAL GRADE A].
- Intermediate managerial/professional/administrative (e.g. Newly qualified (under 3 years) doctor, Solicitor, Board director small organisation, middle manager in large organisation, principal officer in civil service/local government) [CODE AS SOCIAL GRADE B].
- Supervisory or clerical/junior managerial/professional/administrative (e.g. Office worker, Student Doctor, Foreman with 25+ employees, salesperson, etc) [CODE AS SOCIAL GRADE C1].
- Student [CODE AS SOCIAL GRADE C1].
- Skilled manual worker (e.g. Skilled Bricklayer, Carpenter, Plumber, Painter, Bus/Ambulance Driver, HGV driver, AA patrolman, pub/bar worker, etc) [CODE AS SOCIAL GRADE C2].
- Semi or unskilled manual work (e.g. Manual workers, all apprentices to be skilled trades, Caretaker, Park keeper, non-HGV driver, shop assistant) [CODE AS SOCIAL GRADE D].
- Casual worker – not in permanent employment [CODE AS SOCIAL GRADE E].
- Housewife/Homemaker [CODE AS SOCIAL GRADE E].
- Retired and living on state pension [CODE AS SOCIAL GRADE E].
- Unemployed or not working due to long-term sickness [CODE AS SOCIAL GRADE E].
- Full-time carer or other household member [CODE AS SOCIAL GRADE E].

No quotas were implemented regarding educational attainment. Participants were asked the following: What is the highest qualification you have completed/finished?

- No qualifications
- GCSE/O-Level
- A-Level or equivalent
- Bachelor's degree or equivalent
- Post-graduate qualification
- Doctorate