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Self-Directed Learning and Psychological Flow Regarding the Differences Among Athletes, Musicians, and Researchers

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Article

Self-Directed Learning and Psychological Flow Regarding the Differences Among Athletes, Musicians, and Researchers

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Abstract: The ability to learn independently—self-directed learning (SDL)—most appropriately is learning individuals personally select based on what they value in contrast to solitary learning from the lack of a teacher or being encouraged to engage in it by educators or parents considering it a necessary educational strategy. Value-guided SDL has the potential to achieve psychological flow in a way that other independent learning does not. Flow is an outcome identified and investigated by psychologist Mihaly Csikszentmihalyi. Among those whose flow he studied were individuals who engaged in self-directed activities—athletes, musicians, and researchers. As its aim, this study compares the reports of athletes, musicians, and researchers of Csikszentmihalyi through a qualitative narrative analysis of his relevant forty-seven-year publication record. The results reveal a significant difference between those who experience flow from a performance of their achieved skills and those who experience flow while learning. This examination of Csikszentmihalyi's studies of athletes and musicians reveals that they are most likely to experience flow during performances of their mastered skills, unlike researchers, whose flow depends on the process of learning—a distinction unmentioned by Csikszentmihalyi. Although athletes and musicians may self-direct their careers, only the flow of researchers corresponds with SDL. This result meaningfully extends the literature on SDL and flow, offering direction for future empirical studies and educational opportunities.

Keywords: self-directed learning; SDL; psychological flow; Csikszentmihalyi; athletes; musicians; researchers

1. Introduction

Self-directed learning (SDL) is a psychological theory formulated in the 1970s (Knowles 1975) of an internally regulated learning process (Amir and Bernstein 2022) guided by what the learner values (Sun et al. 2023) occurring without a pre-determined schedule (Hartkamp-Bakker and Bradford 2024) and undertaken for intrinsic rewards alone (Priyadarshini et al. 2024). Learners determine when learning has been achieved at the preferred level of expertise because learners take responsibility for evaluating their learning outcomes (Morris 2024; Hamlin 2022). If selecting a mentor, they have something unique that the learner desires or needs to understand for learning to proceed (Charokar and Dulloo 2022)—making the age and formal qualifications of the mentor irrelevant (Lawrence et al. 2021). SDL differs from solitary learning (Mathana and Galdolage 2023; Hamlin 2022) undertaken because the learner lacks access to a teacher or because teachers or parents consider self-directed learning a necessary strategy to acquire (Tlili et al. 2022). In both cases, the SDL does not result from learner values—it is an unwanted requirement given the learning circumstances presented (Tlili et al. 2022). A free choice of self-directed learning is necessary for it to be more than solitary learning or a curriculum-desired technique, as it provides a sense of ownership (Kalla et al. 2022). Self-directed

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learners require awareness of their approaches to learning, suitability for strategies for SDL, and satisfaction with SDL (Nash 2020). Dissatisfaction with SDL is counterproductive to the habits of mind required for SDL (Ginzburg, Santen, and Schwartzstein 2021). To be effective, SDL requires a strong desire for both learning and self-direction, necessitating self-management skills (Kunjukunju, Ahmad, and Yusof 2022) and a firmness of purpose to continue to abide by these values in times of boredom, indecision, or conflict (Hamlin 2022). SDL also requires a similar acceptance of others as self-directed learners and acknowledging that others provide unique points of view such that understanding their values is necessary for a clear understanding of reality (Van Woezik et al. 2021).

Flow is a desired experience extending a person's mind to its limits in a voluntary effort to accomplish something valued as challenging and worthwhile such that a sense of time and place is lost (Csikszentmihalyi 2021). Flow and SDL are not identical (Shao, Hong, and Zhao 2022). It is possible to be in flow while participating in games (Mahimna Vyas 2021) or appreciating art (Vrooman et al. 2022) rather than learning. Furthermore, a person may be a self-directed learner and still be completely aware of time and place in their self-management (Nash 2022a; Zhu 2021) and, consequently, not in flow. Yet, according to Csikszentmihalyi, flow is inherently related to learning (Shernoff and Csikszentmihalyi 2009). Furthermore, SDL is the preferred method of learning—"if the child becomes self-motivated, autonomous, then you have done the greatest service you can do; you have really achieved what teaching can be about, which is to set the child on a course of lifelong learning" (Csikszentmihalyi 2014).

Csikszentmihalyi did not investigate the point in the flow process when SDL becomes a feature. Identifying the moment matters because a provision for educational support of self-directed learners who experience flow during the stage they engage in SDL becomes possible (Sun et al. 2023; A. Chen et al. 2023; Andrews and Sokolowski 2023). If they are not SDL, such support might be irrelevant or detrimental (Leahy and Smith 2021). An investigation to examine this matter is regarding the studies of Csikszentmihalyi of three types who experience flow: athletes, musicians, and researchers. Although Csikszentmihalyi studied flow in others, these are selected because they are known to engage in SDL in their self-directed careers (Chukwunemerem 2023; A. Chen et al. 2023; Leahy and Smith 2021). This work is novel in considering whether psychological flow is concomitant with SDL. The finding is that this is true only for researchers experiencing flow.

2. Materials and Methods

The method to investigate the flow experienced by athletes, musicians, and researchers in studies Csikszentmihalyi authored is qualitative narrative inquiry in which the stories related of the participants become the data for analysis (Bleakley 2005) to bridge these experiences (Weiss and Johnson-Koenke 2023). There is a division of possible relevant publications from the complete life-work of the psychologist into those concerning the stories of athletes, musicians, and research scholars to access those publications of Csikszentmihalyi that provide such stories. For those publications that mention more than one of these occupations, the category placement chosen regards the aspect on which the stories concentrate. To be considered, the study had to include a mention of flow. Those publications focused on athletes ranged from 1984-2022 and numbered 18. The works on musicians were from 1976-2022 and equaled 16. Those studies concerning researchers—ranging from students to full-time researchers—numbered 16, published from 1988-2022. With the identification of potential studies for inclusion, the author read each article to determine if the mention of flow was about the stories of athletes, musicians, or researchers. Lacking a discussion of flow in telling the stories excluded a publication. Furthermore, the article had to provide information that added to the literature on the topic rather than being a review of previous work for a popular magazine or a chapter in a survey book on a topic. A list of all works considered for inclusion is in Appendix A, permitting their examination to mitigate the potential cognitive bias of one researcher conducting this study (Soprano et al. 2024; Fernández Pinto 2023; Neal et al. 2022).

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3. Results

Two tables provide the results of this examination. The first, Table 1, presents the information on the relevant works listed in order of the publication dates determined by reading the content and conducting a narrative analysis (Josselson and Hammack 2021) of each work. The publication type mentioned is because books and chapters differ in style and rigor from those published in psychology journals. Also included in Table 1 is the division focus of this study—athletes, musicians, or researchers. The final result of those included is six out of 18 potential papers regarding athletes, four works from 16 possible ones for musicians, and four publications of 16 for researchers.

Table 1. Citation, title and type of publication, the category of the subjects of the publication regarding flow-mention.

Citation	Title	Type	Subjects
(Csikszentmihalyi 1975)	Beyond Boredom and Anxiety	Book	Athletes
(Chalip et al. 1984)	Variations of Experience in Formal and Informal Sport	Article	Athletes
(Csikszentmihalyi 1988)	Motivation and creativity: Toward a synthesis of structural and energistic approaches to cognition	Article	Researchers
(Wong and Csikszentmihalyi 1991)	Motivation and Academic Achievement: The Effects of Personality Traits and the duality of Experience	Article	Researchers
(Csikszentmihalyi and Schiefele 1992)	Chapter VIII: Arts Education, Human Development, and the Quality of Experience	Article	Musicians
(Csikszentmihalyi and Gilbert 1995)	Singing and the Self: Choral Music as "Active Leisure"	Article	Musicians
(Jackson and Csikszentmihalyi 1999)	Flow in Sports	Book	Athletes
(Hunter and Csikszentmihalyi 2000)	The Phenomenology of Body-Mind: The Contrasting Cases of Flow in Sports and Contemplation	Article	Athletes
(Nakamura and Csikszentmihalyi 2001)	Catalytic creativity: The case of Linus Pauling.	Article	Researchers
(Csikszentmihalyi and Wolfe 2014)	New Conceptions and Research Approaches to Creativity: Implications of a Systems Perspective for Creativity in Education	Chapter	Researchers
(Gute, Gute, and Csikszentmihalyi 2016)	Assessing Psychological Complexity in Highly Creative Persons: The Case of Jazz Pianist and Composer Oscar Peterson	Article	Musicians
(Csikszentmihalyi, Latter, and Duranso 2017)	Running Flow	Book	Athletes
(Csikszentmihalyi, Montijo, and Mouton 2018)	Flow Theory: Optimizing Elite Performance in the Creative Realm.	Chapter	Athletes

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(Vrooman et al. 2022)	Flow in the Arts and Humanities: On Cultivating Human Complexity	Chapter	Musicians

Table 2, provides the content of the narrative analysis of the publication relevant to assessing when flow is experienced by each of athletes, musicians, and researchers.

Table 2. Citation content corresponding to flow in athletes, musicians, and researchers arranged by publication date.

Citation	Content-Related Flow in Athletes, Musicians, or Researchers
(Csikszentmihalyi 1975)	Nine of thirty rock climbers studied experienced flow. Those performing the most challenging climbs report becoming lost in their action, describing it as “orgiastic” unity between thoughts and action.
(Chalip et al. 1984)	There is a high positive correlation between challenges and skills during play in informal sports but not adult-supervised instruction, suggesting flow is more likely when adolescents can determine the balance between challenges and skills.
(Csikszentmihalyi 1988)	When studying, involved students are more frequently in an inner state conducive to enjoyment than the non-involved ones, who are twice as often anxious at school and twice as likely bored doing homework. Involved students spend more time doing homework, yet they are hardly ever bored.
(Wong and Csikszentmihalyi 1991)	When in flow, people perceive clear goals and feedback and are entirely absorbed in their experience, motivating them to seek it out again, even if it was not necessarily "pleasant"—like the students in this study, who derived immediate rewards from studying.
(Csikszentmihalyi and Schiefele 1992)	Forty-nine talented musicians focused on impressing others in performances of their high skills and high challenges when demonstrating flow. The opportunities for action in this regard match the ability to master the challenge.
(Csikszentmihalyi and Gilbert 1995)	Flow is achievable when young musicians work seriously on complex interactive activities, permitting them to reach beyond mediocrity and passivity—choral directors are encouraged to promote this type of performance.
(Jackson and Csikszentmihalyi 1999)	Flow is an elusive and sought-after psychological state that athletes, coaches, and sports psychologists have tried to understand, harness, and employ. The key consideration of flow is total absorption in the activity.
(Hunter and Csikszentmihalyi 2000)	Flow in sports depends on a transformation of consciousness leading to optimal physical performance. Athletes push their abilities to their boundaries to experience a merging of action and awareness. Sports lend themselves to flow experiences.
(Nakamura and Csikszentmihalyi 2001)	As a creative researcher demonstrating the qualities of flow, Linus Pauling readily absorbed lessons, guidance, and ideas throughout his career while drawing motivation from his competition and the skepticism of others rather than being paralyzed.

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(Csikszentmihalyi and Wolfe 2014)	Flow propels creativity and plays a critical role in developing complex patterns of thought and behavior in successful talent development. For potentially creative thinking to be attracted to learning the ability to formulate new problems while matching challenges with skills is an essential requirement. Creativity presupposes a community of people who share ways of thinking and acting, leading to exploration and experimentation.
(Gute, Gute, and Csikszentmihalyi 2016)	By his high school years, music was already the activity that reliably produced flow for Oscar Peterson. His greatness would have been unrecognizable without public performance. When asked when he plays his best, he said, "Definitely when I'm with an audience".
(Csikszentmihalyi, Latter, and Duranso 2017)	Counted out of the race that morning, Shelby Hyatt ran her best race, finishing fourth at the state meet—achieving her goal and setting a personal record while running through mud in a windstorm. "It doesn't make sense to me, but it felt easier. My breathing, my body, my legs felt like they could go forever… I think I flowed today."
(Csikszentmihalyi, Montijo, and Mouton 2018)	The intrinsic motivation provided by the flow experience is pivotal in the development of creativity, partially because of the importance of deliberate practice in achieving expertise and higher levels of performance. For example, a ballet dancer will draw on existing skills but seek a higher performance level to remain in the flow state.
(Vrooman et al. 2022)	Flow is less evident when there is performance anxiety—representing an imbalance of challenge and skill. While performance settings have the clear goals and feedback necessary for flow, a performer must have sufficient self-confidence to overcome anxiety for loss of self-consciousness and merging of action and awareness for flow to occur.

3.1. Flow in Athletes, Musicians and Researchers

Stories regarding athletes, musicians, and researchers in 14 publications by Csikszentmihalyi focus on flow. The identified narrative regarding flow for each relevant publication is in Table 2.

3.1.1. Athletes

The six publications authored by Csikszentmihalyi about athletes that include stories regarding achieving flow are (Csikszentmihalyi 1975), (Chalip et al. 1984), (Jackson and Csikszentmihalyi 1999), (Hunter and Csikszentmihalyi 2000), (Csikszentmihalyi, Latter, and Duranso 2017), and (Csikszentmihalyi, Montijo, and Mouton 2018). Thus, interest in this topic spanned the entire research career of the psychologist, ending four years before his final publication in 2022—the year following his death (Kleiber 2022).

From the summary provided for each of the six publications in Table 2, the relevance of flow to athletes became increasingly part of their repertoire when describing their experiences. Whereas in 1975, when Csikszentmihalyi began his research on flow in athletes, and few athletes reported an experience of flow, by his 2017 publication, athletes were looking to achieve flow and considered it an accomplishment when they did. This change over the decades in the perception of flow may be a result of athletic education increasingly considering achieving flow through mindfulness training as part of the curriculum (Kee and Wang 2008) to the point that, by 2024, sports research was advising educators to "push the flow button and motivate athletes to have peak experiences and improved

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performance"(Connolly 2024). As such, experiencing flow in athletic pursuits went from a dubious idea (Csikszentmihalyi 1975) to the standard for positive psychology education of athletes (Brady and Grenville-Cleave 2018). Given the change in the attitude of athletes regarding the notion of flow since its introduction in 1975 and that it is changes in the education athletes received that have encouraged them to consider flow integral to the experience of athletes, it would be reasonable to conclude that it is during these educational experiences that athlete report flow. However, this is not the case. Instead, the athletes in the six publications relate their feeling of flow while performing the sport with an already achieved mastery of skills. It would appear that the concentration required to learn new skills does not produce flow while engaging in a sport. Instead, flow for athletes is experienced if the activity is challenging and it uses their current level of skills to the fullest.

3.1.2. Musicians

There are four publications that Csikszentmihalyi authored regarding musicians and flow: (Csikszentmihalyi and Schiefele 1992), (Csikszentmihalyi and Gilbert 1995), (Gute, Gute, and Csikszentmihalyi 2016), and (Vrooman et al. 2022). Although he began his studies of creativity in musicians early in his career (Getzels and Csikszentmihalyi 1976), it was not until his 1992 publication that Csikszentmihalyi discussed flow and musicians—it was an interest that extended until his final, posthumous publication in 2022.

Although Csikszentmihalyi studied musicians for a period comparable to his interest in athletes, there was a greater interest in the role of sports education in promoting positive psychology that creates flow than with musicians. The finding was that creating flow in musicians depends on performance in demonstrating the integral challenge and use of skills. As such, rather than urging the choral director to promote positive psychology to create flow—as was appropriate with a sports coach—he highlighted the need to encourage a particular type of performance equated with flow.

The focus on performance for musicians regarding flow relates to the view of Csikszentmihalyi regarding creativity as existing "in a virtual space, or system, where an individual interacts with a cultural domain and with a social field" (Csikszentmihalyi 2014). Csikszentmihalyi contrasts his view on creativity with models that consider it to arise from a mental process. According to his studies, creativity always affects "the thoughts and feelings of other members of the culture. A change that does not affect the way others think, feel, or act will not be creative. Thus, creativity presupposes a community of people who share ways of thinking and acting, who learn from each other and imitate each other's actions" (Csikszentmihalyi and Wolfe 2014). Consequently, an audience for a performance by a musician is necessary for deeming their flow creative.

3.1.3. Researchers

Four publications investigate researchers and flow from a broad perspective, ranging from students to full professors—(Csikszentmihalyi 1988), (Wong and Csikszentmihalyi 1991), (Nakamura and Csikszentmihalyi 2001), (Csikszentmihalyi and Wolfe 2014). Unlike his study of athletes or musicians, Csikszentmihalyi's interest in researchers did not begin with his initial work in the mid-1970s. This interest evolved with his general considerations of flow and creativity, including musicians.

Yet, in viewing musicians and researchers as creative, Csikszentmihalyi did not highlight their flow similarly. As mentioned, for musicians, flow requires a performance to challenge and utilize their skills most effectively. In contrast, it is not presenting a paper on their research at a conference—an act of performance—that defines flow for researchers. Instead, their flow comes from the study of their preferred topic. They use their skills and perceive challenges regarding the evolution of their findings. Investigation is the creative act that produces flow for researchers, differentiating them from musicians, where the performance defines creativity and creates flow.

It is self-directed learning that distinguishes a researcher as experiencing flow, although the researcher may be involved in various forms of learning. Both athletes and musicians may engage in

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self-directed learning while developing mastery of their skills. However, it is only with researchers that their self-directed learning is integral to their achieving flow (Shao, Hong, and Zhao 2022).

4. Discussion

Through a narrative analysis of the relevant works by Csikszentmihalyi regarding athletes, musicians and researchers, evidence has been provided that flow in athletes and musicians differs from researchers in being related to performance rather than self-directed learning. However, considering whether the experience of flow is unique is relevant.

There is a comparison of Flow theory and cognitive evaluation theory (Deci and Ryan 1985). Both theories address intrinsically motivated behavior. A recent examination of the relationship between the two theories found that they apply to different types of behavior. Cognitive evaluation theory relates to understanding the development of intrinsic motivation. In contrast, flow theory is more relevant in understanding intrinsic motivation once an activity involves skills mastery (Abuhamdeh 2021).

The question also arises whether flow is equivalent to contemplation. Csikszentmihalyi considered this possibility and responded.

By now you have probably noticed that the experiences of flow and contemplation strongly resemble each other. On a superficial level they indeed share many similar characteristics. Because they both fundamentally involve a manipulation of attention this is not surprising. They both share a need for concentration, feedback, a goal, and a requisite amount of skill. Furthermore, they phenomenologically appear similar in manifesting a loss of self consciousness, transformation of time, and a merging of action and awareness. These appear similar because the dynamics of attention are necessarily limited and when used to their utmost, the same outcomes arise. However in gestalt terms the states are phenomenologically opposite. (Hunter and Csikszentmihalyi 2000).

In stating that flow and contemplation are phenomenologically opposite in gestalt terms, Csikszentmihalyi explains that the body in space is in the foreground for flow while in the background for contemplation. The question is whether he is correct that this differentiates flow from contemplation. When making this distinction, Csikszentmihalyi compares athletes in flow with contemplative individuals resulting from mindfulness practices. What he was not considering is researchers who are in flow. Furthermore, if considering researchers, that there is a phenomenological difference between contemplation and flow cannot be supported as the body is not in the foreground for researchers in flow.

How contemplation and flow in research are differentiated is that contemplation regarding mindfulness activities is about directing attention in a more intentional manner than in daily thought. However, this intentionality is not dependent on self-directed learning, as with flow in researchers. Consequently, to differentiate flow in researchers from the experience of athletes and musicians regarding self-directed learning, as has the results of this study, appears to be a robust distinction, as this variation also remains in separating flow from contemplation.

A limitation of this assessment that flow in researchers is unlike flow in athletes and musicians is that it was not a distinction made by Csikszentmihalyi during his research career. As such, he did not study this effect. Since his death, in 2021, various publications have linked flow and performance in athletes and musicians and those on flow regarding self-directed learning in researchers. The assessments follow.

4.1. Athletes, Flow, and Performance—Recent Publications

Csikszentmihalyi regarded the skills mastery of athletes as the best representation of the level of performance required to achieve flow because it intrinsically provides the necessary dynamic interplay between individual abilities and environmental opportunities (Csikszentmihalyi, Montijo, and Mouton 2018). On the other hand, Csikszentmihalyi also reported that flow was achievable at any level of expertise in sport (Nakamura and Csikszentmihalyi 2014), and, as such, the argument is that the portrayal of flow as a state regarding athletes is inadequate (Lange 2024). Yet, considering

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that flow in athletes depends on performance achievement, what represents skills mastery regards the type of achievement to which the athlete aims. Yet, this is not to say there is a direct flow-performance relationship. The claim is not that flow produces peak performance—there is little evidence for flow leading to improved performance—revealed through a recent systematic review and meta-analysis (Harris et al. 2023). To another extreme, recent research in this area has focused on merging flow and mindfulness in athletes (Herbert and Harmat 2022), contrary to the gestalt view of Csikszentmihalyi in arguing they are distinct and phenomenologically opposite (Hunter and Csikszentmihalyi 2000). What remains common in the research on flow in athletes since the final publication of Csikszentmihalyi in 2022 is that there is an intimate connection of it to the performance objective of the athlete with perfectionism contributing to the quality and frequency of experiencing flow (Blachowska, Waleriańczyk, and Stolarski 2023).

Regarding future research directions concerning athletes and flow based on the results of the above-mentioned studies, there are several open avenues. One is further investigating the extent to which athletes of any caliber experience flow (Lange 2024). Although Csikszentmihalyi purported that flow is achievable by any athlete as long as they are performing at their top level of skill and feel challenged (Nakamura and Csikszentmihalyi 2014), at the same time, he thought flow was best achieved by those who are elite athletes (Csikszentmihalyi, Montijo, and Mouton 2018). Whether the flow of both types of athletes is similar or expertise makes a difference in reporting flow requires investigation. To this extent, the causal relationship between flow and peak performance requires clarity (Harris et al. 2023). Additional research on athletes is necessary to provide it. Csikszentmihalyi believed there is a gestalt difference between flow and the type of contemplation that comes from mindfulness while engaging in athletic performance (Hunter and Csikszentmihalyi 2000). Further studies are necessary to determine the accuracy of this belief—especially if athletic flow is equivalent to a drive to perfection in performance (Blachowska, Waleriańczyk, and Stolarski 2023).

4.2. Musicians, Flow, and Performance—Recent Publications

Recent research on flow and musicians has taken for granted that flow comes from performance, but some musicians cannot reach flow because of performance anxiety (Spahn, Krampe, and Nusseck 2021). One publication on reducing performance anxiety suggests that future research concentrates on whether online programs promoting flow in providing performing musicians with psychological tools for performance are similarly efficacious and retentive compared with face-to-face programs (Moral-Bofill et al. 2022). In this regard, another publication investigates the musical features that induce or disrupt flow during performance. The finding is that stepwise, smooth motion in a repeated sequence is common to enter the flow state, and dissimilar syncopated motion often relates to its exit (Zielke, Anglada-Tort, and Berger 2023). Additional research has found that engaging in musical interpretations can develop a tendency in musicians to experience flow during musical performances (K. Chen 2023). Application of the logistic regression method detected the most suitable predictors for identifying performing musicians with high flow levels during musical performance. Only balance, goals, feedback, and situation were statistically significant predictors of flow—gender, age, dedication, musical instrument, or style of music were not statistically significant predictors (Moral-Bofill, López De La Llave, and Pérez-Llantada 2023).

This recent research points to suggestions for future empirical studies of musicians regarding flow. Whether performance for an audience is the best example of flow in musicians, although currently accepted (Spahn, Krampe, and Nusseck 2021), has not been sufficiently demonstrated. Csikszentmihalyi conducted several studies of musicians, leading him to this conclusion (see Appendix A for the extent of these publications), but the number of musicians participating in any of these studies was limited. Studies of more musical performers of all genres are necessary before current research assumes that audience-directed performances are best at detecting flow in musicians. This need is because musicians often display performance anxiety (Moral-Bofill et al. 2022). More research is required on the relationship between flow and stage fright before educators consider it necessary to focus on performance anxiety because it abates flow. The type of research

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that determines when musicians come in and out of flow provides a better understanding of flow that makes it more testable (Zielke, Anglada-Tort, and Berger 2023). The suggestion is for more research teams to replicate this research on musicians. The finding that musical interpretations are beneficial for musicians to engage in flow points to questions regarding the type of interpretations (K. Chen 2023). The focus of jazz is musical interpretations—not classical music. Whether it matters that the genre of music is directed to interpretations or not in achieving flow through musical interpretation needs further investigation. Finally, using logical regression to determine the predictors for identifying performing musicians with high flow levels during musical performances is research in its infancy (Moral-Bofill, López De La Llave, and Pérez-Llantada 2023). Such research is promising and requires replication by various research teams.

4.3. Researchers, Flow, and Self-Directed Learning—Recent Publications

The author's publication on self-direction in physics graduate education is the most relevant article on flow in researchers who engage in self-directed learning (Nash 2022b). Identified in this study was that it is possible for a researcher to continuously engage in flow when working if they are a self-directed learner. A subsequent publication by the author demonstrated that work-related flow is career-sustainable in providing advice for human resources management development of career sustainability (Nash 2024a). One recent publication notes the similarity between the flow state and the daily life of autistic persons as self-directed learners (Heasman et al. 2024). Using autistic autobiographical accounts, the authors present four principles: (1) autistic people demonstrate a unique ability to engage in and manage flow; (2) their flow may be qualitatively different from traditional models of flow; (3) difficulties in transitions into and out of flow for autistic people need examination; and, (4) the internal and external constraints to flow represent an undiscovered potential regarding their flow. The implications discussion is how they can provide alternative explanations to previously researched phenomena and build enabling environments for autistic people, allowing their flow to flourish across various contexts. Digital learning may be how researchers of all ages—autistic and otherwise—can self-direct their learning (Nash 2024b). However, a study of healthcare professional learning found that digital learning may prevent them from reaching flow conditions if the learning program does not match the learner's preferences, learning difficulty, or interests, requiring their adaptation to unfamiliar learning structures (Stelter et al. 2024).

Of the three types of activities that induce flow that are the focus of this study, flow in researchers has produced the least number of studies since the final publication by Csikszentmihalyi. This author has written the most on this subject, regarding flow in theoretical physicists (Nash 2022b; 2024a) and flow in self-directed students (Nash 2024b). To understand the importance of self-directed learning to flow regarding researchers in contrast to the flow produced by athletes and musicians in performance, conducting additional studies by various researchers is necessary. An intriguing study is the research comparing flow in researchers to the flow achieved by autistic individuals (Heasman et al. 2024). Further research on autism itself concerns reconsidering hyperfocus in autism as flow, as doing so repositions this trait as a strength in autistic individuals—one that can also be extended to those with attention deficit hyperactivity disorder once there is a differentiation distinguishing shallow flow states from deep flow states (Dupuis et al. 2022). This research supports the earlier findings that hyperfocus and flow are the same in considering these populations (Ashinoff and Abu-Akel 2021)—research that has recently been replicated (Rapaport et al. 2024) —showing that hyperfocus has a negative connotation and flow one that is positive (Dupuis et al. 2022). The research on neurodivergence and flow is expanding. What is still missing from this literature is relating the flow in these populations to self-directed learning. The effectiveness of digital learning regarding research on flow is a largely unstudied topic (Stelter et al. 2024). Although there are scoping (Peifer et al. 2022; Daneels et al. 2021) and systematic reviews (Sajjadi, Ewais, and De Troyer 2022; Cheah, Shimul, and Phau 2022; Hammady and Arnab 2022) on flow in playing digital games, what lacks study is the relevance of digital interface with researchers in self-directed learning regarding flow.

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5. Conclusions

Psychological flow is a topic that relates directly to individuals who self-direct. However, there is a difference between those who achieve their flow while self-directing based on a performance of their skills mastery and those who achieve flow through SDL. In differentiating individuals associated with three types of activities—athletes, musicians, and researchers—evidence demonstrates that whereas athletes and musicians characteristically experience flow during a performance, researchers achieve flow by engaging in SDL. This distinction was not the focus of Csikszentmihalyi during his 47-year career publishing on flow in these individuals. Thus, this work contributes to the ever-increasing literature on flow, providing a new direction for future studies. The impact of continuing research in this area will be most profound in developing educational opportunities for encouraging and supporting flow in self-directed learners.

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Informed Consent Statement: Not applicable.

Data Availability Statement: All new data are found in the article.

Conflicts of Interest: The author declares no conflicts of interest.

Appendix A

All works by Csikszentmihalyi considered for inclusion are divided by topic, numbered, and ordered by publication dates. These do not represent all of the publications by the psychologist, only those considered by the author to regard each of the three topics based on reading the abstracts of each work.

Athletes

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