



Research article

The influence of growth mindset, discipline, flow and creativity on innovation: Introducing the M.D.F.C. model of innovation

Hana Krskova^{a,*}, Yvonne A. Breyer^b^a The Heart Research Institute, Sydney, Australia & With Focus Consulting, Sydney, Australia^b Macquarie Business School, Macquarie University, Sydney, Australia

ARTICLE INFO

Keywords:M.D.F.C. model of innovation
The skill of discipline
Creativity
Flow
A growth mindset

ABSTRACT

In times of change, such as during periods wrought by the COVID-19 pandemic, organisations must innovate, as otherwise, they will perish. The only acceptable way forward now is about exploring avenues for increasing innovation in order for businesses to survive. The purpose of our paper is to put forward a conceptual model of factors with the potential to positively influence innovations to assist aspiring leaders and managers in addressing challenges in the future when uncertainty may be the norm rather than the exception. The authors introduce a novel M.D.F.C. Innovation Model, comprising the concepts of a growth mindset (M) and flow (F) as well as the skills of discipline (D) and creativity (C). While the elements of the new M.D.F.C. conceptual model of innovation – as separate areas of study - have been extensively researched in past studies, the authors have combined them into one model for the first time. The opportunities stemming from the proposed new model are numerous, with the implications for educators, industry and theory discussed. Developing the teachable skills outlined in the model can bring benefits for both educational institutions and employers, as more employees could be equipped to look forward, be innovative and bring new, creative solutions to ill-defined problems. The model is equally suitable for individuals wishing to embrace thinking outside of the box to reap the benefits of enhancing their capacity for innovation in all aspects of their lives.

1. Introduction

“Innovation has become the defining challenge for global competitiveness.” [1, p. 28].

Organisational survival is rooted in the ability to innovate. Organisations must innovate, as otherwise, they perish, particularly in a business environment framed by constant change, such as during periods wrought by the Global Financial Crisis or the COVID-19 pandemic. The question is no longer about whether or not to innovate. The only acceptable way forward now is about exploring avenues for increasing innovation in order for businesses to survive.

The phenomenon of innovation is as old as humanity. In fact, the gradual shift from “agriculture to manufacturing, to service, and to knowledge-based economies” [2, p. 4] is peppered with novel ideas and many instances of innovation. For example, during the First Industrial Revolution (1760–1840), nations harnessed water and steam; the second revolution (1870–1930) is synonymous with the use of electricity; with the third one (1960s–1990s) giving us electronics, information technology and automation [3,4].

* Corresponding author.

E-mail addresses: hana.krskova@hri.org.au, hana@withfocusconsulting.com.au (H. Krskova).

More recently, in late 2015 the term *Fourth Industrial Revolution*¹ was coined by the Founder and Executive Chairman of the World Economic Forum (WEF), Klaus Schwab [5]. The Fourth Revolution builds on the advances of the past revolutions and has been “characterized by blurring lines between the physical, digital, and biological spheres” [5, p. 2]. With advances in connectivity and communications, innovations have spread around the world much faster, and the Fourth Revolution continues to transform the way we work. With the advent of the Fourth Industrial Revolution and the fast-changing business environment of 2020, when the global marketplace was - seemingly overnight - changed fundamentally during the COVID-19 pandemic, the quest to gain a greater understanding of factors positively impacting innovation has become even more pressing.

In the context of the quest of educators wanting to equip graduates with the necessary skills, such as discipline, useful equally for success in the workplace and for life in general [6, p. 78], this paper is underpinned by Human Capital Theory [7]. More specifically, we were inspired by the notion that increases in skills play a positive role in enhancing human capital, and in turn, provide individuals with additional opportunities in life. Furthermore, we were guided by calls for workforce participants to be equipped with the right set of skills to be “more productive, flexible, and innovative” [8, p. 2], as well as skills that cannot easily be done by machines. As such, we proceed to discuss several concepts that can play a part in an individual’s capacity to address turbulent times.

The purpose of our paper is to put forward a conceptual model of factors with the potential to positively influence innovations. We introduce a new M.D.F.C. Innovation Model, which encompasses elements of a growth mindset (M), discipline (D), flow (F) and creativity (C), all of which have been previously linked to enhanced innovation. When implemented, the M.D.F.C. Innovation Model would enable individuals to “transform jobs into flow-producing activities” [9, p. 7], leading to “the production of novelty” or creativity [10, p. 113], and in turn, resulting in increased innovation.

As separate areas of study, innovation, creativity, flow, discipline and a growth mindset have all been researched extensively. However, what has been explored less is how these concepts might work together. We fill this gap in the literature by providing a conceptual perspective on the interrelationship between these concepts.

The article is structured as follows. Firstly, a discussion about the outcome of the proposed model – innovation - is provided. Secondly, the new M.D.F.C. Innovation model is introduced. Thirdly, the elements of the model – namely a growth mindset (M), the skills of discipline (D), flow (F) and creativity (C) – are discussed, with the pertinent literature, from which the newly presented model emerged, presented in the order of the elements. Next, the interaction between the M.D.F.C. components of the model is outlined. Then the implications stemming from the proposed new model - for educators, industry and theory - are presented, followed by a section highlighting directions for future research.

2. Innovation

Innovation is a productive process focusing on introducing something better; it is about “the development and implementation of new ideas” [11, p. 126] or “the creation of some never-before-seen item of hardware” [12, p. 297]. While creativity is about the development of ideas, innovation can transform new ideas into new products, practices or services. Many innovations, as judged by their success in the marketplace - such as the humble textbook, insurance or newspapers - have resulted in significant social impacts worldwide [13], with the interest in delivering societal benefits through innovation continuing [14–16]. As the need to provide sustainable innovative solutions to issues, such as climate change and energy efficiency, has become more urgent, the discussions in the literature are turning to the quest to foster sustainability innovation [17,18].

There has never been a more pressing time to pursue the goal of increasing innovation in the workplace. In one of her influential papers on innovation titled *A model of creativity and innovation in organisations* Teresa Amabile [11, p. 124] called out that “it is impossible to escape the reality that corporations must be innovative in order to survive”. In challenging times, such as those brought about by the Global Financial Crisis, the COVID-19 pandemic or climate change, not only does innovation contribute to a difference in the performance of organisations, it might translate into the difference between the demise or survival of a business. Furthermore, given that “innovation is a powerful explanatory factor behind differences in performance between firms, regions and countries” [19, p. 7], it then follows that it is also needed for economic growth [20]. In fact, Schwab [3, p. 34] could not be clearer in his message that “to remain competitive, both companies and countries must be at the frontier of innovation”.

With such impressive potential, it comes as no surprise that there have been many discussions of the topic over the years. Peter Drucker [13], the *father of management thinking*, spoke of innovation in his book *Innovation and Entrepreneurship* in terms of it being a tool for exploiting changes in a company ecosystem and turning these into opportunities to enhance a firm’s competitive advantage. However, as not one single individual could possibly amass all knowledge necessary for solving an innovation challenge, it has been deemed “a team sport” [21, p. 8]. The challenge that now remains to be addressed is around teaching as many individuals as the possible strategies and necessary skills to adapt and innovate in times of change.

While innovation undeniably is hard work, Drucker [22, p. 85] argued that it is not “a flash of genius”, and can be learned [13]. In the spirit of the notion that the necessary skills for becoming more innovative can be learnt, the following section will now introduce a new M.D.F.C. Innovation Model, comprising four *teachable* input factors - namely a growth mindset, discipline, flow and creativity - which have the potential to enrich the ultimate output of the model: “a key driver of competitiveness” [3, p. 75], that is, innovation.

¹ At the time of writing (2022), mentions of subsequent revolutions, namely the Fifth and the Sixth Industrial Revolutions, began to appear.

3. The proposition: a new M.D.F.C. Innovation Model

At the time of writing, the turbulent times being experienced worldwide called for a special set of skills to support the economic recovery of countries around the globe as well as to enhance productivity, which - due to the significant disruptions experienced in the marketplace - might need to be achieved potentially with fewer resources. Against such a backdrop and in the context of the Fourth Industrial Revolution - and reflecting on the skills discussed in both academic and popular literature as being essential - we posit that the skills that are needed most are those that enable individuals within companies to think outside of the box, to be creative and produce novel and unique ideas.

For some time, researchers have highlighted the important role innovation play for maintaining - and preferably enhancing - a competitive advantage in the marketplace. While there are many factors influencing creativity, the literature illuminated a number of concepts, such as that of flow as well as of a growth mindset, which have the potential to contribute to an environment where innovation can thrive. The subsequent review of the literature in these two areas pointed towards the interconnectivity of these concepts (the state of flow and a growth mindset) and other significant skills (including discipline and creativity). By combining the five interrelated concepts into one model (the M.D.F.C. Innovation Model) for the first time, we offer a new way of looking at enhancing one of the ultimate goals of the quest for increased competitive advantage: innovation. The newly introduced M.D.F.C. Innovation Model is depicted in Fig. 1, which provides a graphical representation of the interconnectivity between these concepts.

The conceptual model can be described briefly in four steps. Firstly, an individual must be open to new ideas and to try new approaches. Such openness to ideas, always seeking to learn and grow while looking for new solutions, is linked with an incremental theory or a growth mindset, as opposed to an entity theory or a fixed mindset, when individuals seek to engage only in activities that require little effort but nevertheless result in an easy success [23]. Secondly, a person needs to employ a high level of discipline [24], by, for example, eliminating distractions. Thirdly, aiming to harness creative discipline at the apex of the discipline threshold [25], the employee can strive to achieve flow [26]. And lastly, at that precise time when the flow is realised, creativity can be tapped into in order for a generation of new ideas to be developed.

In other words, it all starts with a growth mindset. Individuals need to have the willingness to try to do something new, even if it can result in failure. With the right mindset, when discipline is applied to increase focus, the flow state - the essential ingredient of enhanced creativity (or the cornerstone of innovation) - can be improved.

To recap.

- Discipline has been highlighted as contributing to the state of flow [26].
- It has been acknowledged that flow contributes to creativity [10].
- In addition, a growth mindset is necessary for the process of creativity [27].

4. Elements of the model

As highlighted in the previous section, our model comprises four input factors, with innovation being the overall output in the model. The four contributing factors to enhanced innovation will now be discussed in the following sections.

4.1. Growth mindset

A key concept in our proposed Innovation Model is the “established and measurable psychological concept” of a growth mindset [28, p. 1]. While often discussed in the context of primary and secondary education [e.g. 29] and in relation to, for example, the role a growth mindset of parents plays in child development [e.g. 30], the interest in the positive impact of a growth mindset in other areas is continuing to grow.

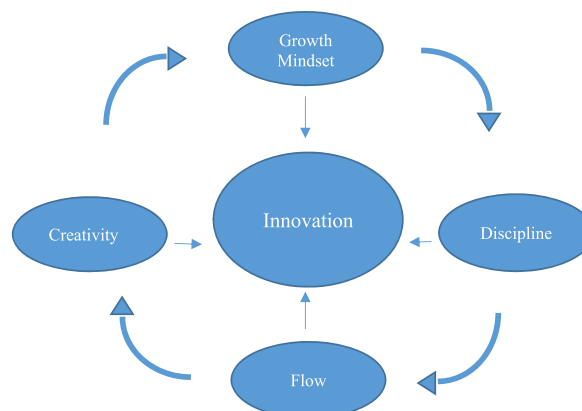


Fig. 1. M.D.F.C. Innovation conceptual model of factors influencing innovation (Source: Authors' original figure).

The key message for the field of education, and business for that matter, is that while some people might have a stronger tendency towards the entity theory (believing that our intelligence is fixed) or the incremental theory (with the emphasis on cultivating our intelligence) [29], “everyone is actually a mixture of fixed and growth mindsets” [31, p. 213]; individuals can thus be trained to progress from a fixed mindset towards a growth mindset. There are many benefits stemming from students embracing a growth mindset as opposed to the negative impact of a fixed mindset on their academic achievement.

The role of mindset in the context of schools was initially explored by Professor of Psychology at Stanford University, Carol Dweck, and her colleagues. Their studies highlighted the stark difference between a learning-goal orientation (when learning is pursued through mastering new things) and a performance-goal orientation (when individuals tend to take fewer risks in order not to reveal that they do not know something) [e.g. 23]. More recently, in a study of 343 eighth-grade students across four schools in Indonesia, a growth mindset was also found to be positively associated with better learning outcomes [32].

Unsurprisingly, the work of Carol Dweck has also been discussed in the context of tertiary education. For example, Dachner et al. [33] argue for the benefits of an improved performance-goal orientation of management students to ensure that they enjoy career success in the future; while Puente-Díaz and Cavazos-Arroyo [34] uncovered a positive influence of a growth mindset on achievement goals and creative self-efficacy of college business students.

Exploration of the role of a growth mindset has also extended to business settings. In a study of the relationship between leadership behaviour and mindset across 2280 managers, Kouzes and Posner [35] found that greater leadership was exhibited by growth-minded managers than their fixed-minded colleagues. Based on a literature review of 177 articles, Han and Stieha [36] underscore the potential benefits of a growth mindset in the context of human resource development and highlight opportunities for career development. While Abernethy and her colleagues [28] report on the surprising fact of a growth mindset being also associated with budgets being more thoroughly examined and variances in organisational performance more promptly addressed. Such a finding highlights an undeniable benefit to any organisation: having employees with a growth mindset can be linked with better fiscal management, an outcome certainly to be appreciated by any organisation, particularly in turbulent times.

4.2. Discipline

Much has been written about discipline or the lack thereof. Discussions in the literature can be divided into three distinct categories –classroom management, classroom discipline or behaviour management.

[e.g. 37, 38]; the positive impact discipline has on academic achievement [e.g. 39, 40]; and lastly, the role discipline might play in domains other than education [e.g. 2, 41]. The first category is focused predominantly on discipline in the context of classroom management [e.g. 42, 43], and, for example, on a continuum of the classroom discipline approaches ranging from “maximum freedom to maximum control” [44, p. 2]. However, discussions in this area are based mainly on disciplinary action and showing children and adolescents what not to do to stay out of trouble.

The second category of discussions centres on the positive impact discipline can have on academic achievement and spans both the school and high education contexts. In relation to schools, studies often utilize data from the three-yearly Programme for International Student Assessment (PISA) administered by the Organisation for Economic Co-operation and Development (OECD) and run in over 80 countries, with evidence for the positive role of discipline in greater learning and higher academic achievement. For example, linking discipline to the competitiveness of nations, a study at a macroeconomic level [45] found that discipline has a direct effect on educational performance and an indirect effect on competitiveness, with the relative importance of discipline in contrast to investment in education on educational performance being 88 and 12% respectively.

In the context of higher education, several American college studies provide support for the notion that discipline is also a driver of academic outcomes [46,47]. However, these studies were based on a discipline measurement instrument constructed from data collected both from university and school students [48]. Therefore, the next group of studies focused on discipline only with reference to higher education, given that university students are bound to view discipline differently from students at schools. First, a study of university students in Australia uncovered that in the context of higher education, discipline is comprised of five elements, namely Focus, Intention, Responsibility, Structure and Time (coined F.I.R.S.T. discipline) [24], with a subsequent study uncovering that there are gender and country-related differences in the level of discipline across participants from China, South Korea and the United States [49].

The third category of discussions, is very much aligned with the notion that discipline is a teachable skill that “is key to success both in education and work” [25, p. 271], as it is, in fact, ‘a very effective and useful tool to enhance learning, personal development and overall human betterment’ [50, p. 1021]. Such a skill is sought after in many domains, such as high-performance organisations [e.g. 51] and entrepreneurship [e.g. 52]. In the context of business management, Peter Senge’s remarkable book *The Fifth Discipline* [41] (named one of the seminal management books of the last 75 years by Harvard Business Review) highlights discipline as essential for organisations wishing to continuously improve, deeming the ability of an organization to learn at a faster speed than that of its competitors to be the only source of competitive edge. In fact, Napier and Nilsson [2, p. 206] reported that “creative organisations have discipline at the heart of what they do”.

The list of texts published by prominent academics, in relation to the links between discipline and the other concepts in the proposed model, also includes, for example.

- Professor Mihaly Csikszentmihalyi, a Hungarian American psychologist known for his extensive work on flow and creativity, highlights the role of discipline in overcoming the obstacle of focusing attention on a somewhat dull activity, such as piano practice, in order to progress into the flow stage of activity [53, p.68].

- When it comes to a growth mindset, Dweck [29, p. 43] posits that “meaningful success requires effort”. Given that effort requires focus and time invested in the pursuit, and discipline is associated with enabling focus, structure and time allocation as well as regulation of self [24], it follows that growth mindset and discipline are also interrelated.
- A world-famous psychologist, Professor Edward de Bono, nominated for the Nobel Prize for Economics in 2005, clearly indicates that creativity “requires a lot of discipline” [54, p.135]. In other words, to become more creative, we need to foster more *creative discipline* [24].
- And lastly, in relation to the four main concepts discussed in this paper, discipline is also linked to innovation by, for example, Keeley and his colleagues [21, p. 194] in their book *Ten Types of Innovation: The Discipline of Building Breakthroughs* by highlighting that “creativity is not the scarce resource in innovation efforts. Discipline is”.

In sum, discipline is a contributing factor to high performance in business [41], with the literature pointing to discipline being a key ingredient in many endeavours, given that any “worthwhile accomplishment is based on skills and discipline” [55, p. 8].

4.3. Flow

The concept of flow, coined by one of the founders of positive psychology, Professor Mihály Csíkszentmihályi, in 1975, has been widely referred to across a variety of fields, such as sport [e.g. 56] and music [57]. This highly desirable state, also known as *being in the zone*, involves complete absorption in a task where one loses a sense of time [58]. Initially, Professor Csíkszentmihályi had set out to find out how to inject “more creativity and joy in” the lives of ordinary people [59, p. xi], and discovered during the decades of his research that flow is a contributing factor not only to creativity [10], but also, in turn, to innovation [e.g. 60].

The optimal experience of being in flow is “made possible by an unusually intense concentration of attention on a limited stimulus field” [55, p. 7]. Flow is enhanced in situations where individuals experience clarity of goals; they are able to fully concentrate on the task; they receive immediate feedback as they progress towards their goal (from themselves or others); and where they possess just the right level of skills for the task to be challenging but achievable [10]. In other words, “flow occurs when your skills are used to their utmost – matched against a challenge just barely within your grasp” [61, p. 43]. This accords with a growth mindset, where individuals continue to learn and overcome additional challenges.

In the context of education, numerous studies highlight the possibilities and steps we can take to enhance flow among students. For example, Custodero [62] discusses a path for the music education of children based on flow experience, highlighting three specific behaviours that facilitate flow: anticipation, expansion of activity and extension of the engagement with the activity. Custodero recommended that school sessions be restructured in order for the flow to be facilitated in the context of education. Furthermore, in a study of 178 Dutch music teachers and 605 music school students aimed at examining the possible crossover of teachers’ flow to their students, Bakker [63] asked a question: Is flow contagious? This particular study found that there is indeed a link between the flow experiences of teachers and the experiences of it by their students. More recently, a study of 314 sport and music students explored the role of flow in the recent COVID-19 pandemic lockdown to uncover that the experience of the impact of COVID-19 on students was able to be predicted based on flow dimensions [64].

The optimal experience of flow has also been discussed in the context of sport. In fact, the year 1992 has been highlighted as the year of the first study of flow in elite sport [65]. Then in a study of 398 athletes participating in a variety of sports for a World Masters competition, Jackson et al. [66] demonstrated that the participants’ perception of their ability was “a crucial factor for facilitating flow” (p. 373). In other words, those who believed in themselves were also able to achieve the balance between skills and challenges underpinning the flow state. Furthermore, in a review of the literature about flow states in elite sport, across 17 empirical studies published between 1992 and 2011 [67], positive thinking and preparation were highlighted as possible mechanisms for enhancing flow.

The key messages about flow are that not only “the capacity to experience flow seems to be an extremely important personal skill” [68, p. 218], but most importantly, it should be noted that “the ability to experience flow can be learned” [69, p. 89]. Thus, on an individual level, increasing the levels of flow, at work or in private life for that matter, will lead to personal benefits because when experiencing flow, individuals do not wish “to be doing something else” [70, p. 249]. Furthermore, given that “the flow experience contributes tens of billions of dollars to the Gross National Product each year” [71, p. 218], the critical importance of flow for boosting workplace and national productivity simply cannot be overlooked. Organisations can reap untapped benefits through bringing more flow into teams by restructuring how tasks are completed: the more flow is experienced at work, the greater the level of innovation will be.

4.4. Creativity

Creativity, defined as “the production of novel and useful ideas” [11, p. 126], is an imaginative process. It is aimed at the generation of new and unique ideas in contrast to innovation, which focuses on the implementation of creative ideas in practice.

Creativity starts with “the ability to discover new problems never before formulated” [72, p. 162], with creative individuals asking “questions no one has thought of before” [73, p. 23]. Without novel proposals, innovation would stagnate. Creativity is, therefore, highly valued across all aspects of human undertakings [74]. In fact, increasing the level of individual creativity could also lead to additional benefits for individuals in all aspects of their lives, as “much-or most-of what makes our lives interesting, meaningful, and worthwhile, is the result of creativity” [75, p. xvii].

Creativity is also recognised as “a key factor in corporate success in the future, particularly in industries with complex, changing

business environments” [76, p. 67], as “individual creativity and organizational innovation are closely interlocked systems” [11, p. 125] In fact, creativity has been discussed across many realms, such as education, art studies, psychology and neuroscience [e.g. 73,77, 78].

So, if the benefits of becoming more creative are so great, a question needs to be asked: can anybody become creative? Initially, the answer was not encouraging. The common belief used to be that creativity is unusual, somewhat akin to “a mystical substance” [75, p. xxiii]. However, what we now know differs greatly from these initial notions. It has been acknowledged that “the real secret to exceptional creativity is practice” [73, p. 50], as “creativity is 99% perspiration and 1% inspiration” [79, p. 75]. Most importantly, everyone is capable of developing their creativity [80].

In a world filled with worries that a lot of future jobs might be replaced by computers, it has been recognised that creativity is not something that can be produced by a machine [81]. However, individuals might need a framework for increasing their levels of creativity. If all that is initially needed to spark creativity is a great deal of interest in a particular topic, with curiosity and enthusiasm highlighted as characteristics common in creative individuals [82], then with practice, creativity can be enhanced. For example, creative writing courses assist participants to develop various strategies, and in the context of administrative work, the M.D.F.C. Innovation Model can be used as scaffolding for the five elements to be implemented across all roles.

5. Interactions between the elements

A common theme in the literature in relation to the components of the model is *learning*. “The hallmark of successful individuals is that they love learning, they seek challenges, they value effort, and they persist in the face of obstacles” [29, p. 1]. The same hallmark is associated with individuals seeking to relive the optimal experience of flow. And similarly, it applies to individuals wishing to engage in the pursuit of creativity through mastering one’s field and coming up with novel ideas. Such individuals “worry less about looking smart, and they put more energy into learning” [31, p. 2], embracing a growth mindset fully.

In regards to the links between creativity and a growth mindset, the notion that “the creative life is fed by continuous learning” [73, p. 61] aligns with Dweck’s belief that individuals with a growth mindset focus on learning goals [29] while pursuing learning. Creativity comes to those who are not afraid of admitting that they do not know something, those who focus on learning through “mastering the discipline of learning” [73, p. 53]. In fact, Sawyer argues that to feed creativity, individuals should never forgo the opportunity to learn something new. When it comes to creativity, “no new glimmer of knowledge, is ever wasted” [73, p. 70].

It has been acknowledged that the road to creativity is peppered with obstacles, often accompanied by stop-start progress. It thus follows that those with a growth mindset, those who treat difficulty “as a natural part of things and [...] welcome” a challenge [29, p. 13], might be better equipped to navigate the creativity domain, as opposed to individuals with a fixed mindset. In addition, creativity or the ability to come up with novel ideas is often underpinned by the drive to understand and link ideas from unrelated fields. Such a drive reflects “a desire to learn new skills, master new tasks, or understand new things” [29, p. 15], which too is indicative of a learning-goal orientation.

Another way to look at mindset is through the helpless versus mastery-oriented reactions to failure. The latter group adopts a strategy focused on improving performance (i.e. subscribe to a growth mindset), while the former group might avoid any experience that might make them look less smart or not being good at that particular task (i.e. display a fixed mindset) [29]. Given that creativity requires constant effort to come up with something new (and potentially failing many times over), individuals who apply the mastery lens to their experiences might be better equipped to tackle tasks requiring a creative approach.

In terms of linking a growth mindset to flow, the objective of learning and mastering new skills and strategies [29] is in line with “a growth principle” in the context of an optimal experience [58, p. 94]. The desire to grow stems from individuals wishing to “replicate flow experiences” [58, p. 94], which can be achieved by continuously developing new skills, and actively seeking additional and increasingly more complex challenges. Those wishing to push boundaries, seek novel answers to new questions, believing that their intelligence is malleable (and their knowledge can grow) are those who will continue to experience the flow through their working lives.

In addition to the links in the literature between mindset and flow as well as mindset and creativity (and, in turn, with innovation), the literature also points towards a link between a growth mindset and the skill of discipline. Dweck [29, p. 43] posits that “a meaningful success requires effort”. Given that effort requires focus and time invested in the pursuit, both of which are associated with the skill of discipline [24], it follows that growth mindset and discipline are interrelated.

Discipline is also linked to creativity, as creative discipline is the pinnacle of the discipline threshold [24], and it is aligned with the updated Bloom’s learning taxonomy [83]. Within the updated taxonomy, *create* takes a prime spot at the apex of the learning hierarchy. The skill of discipline – applied in the context of flow and a growth mindset – is, therefore, presented as an avenue for increasing the levels of creativity, and in turn, innovation among university graduates and workforce participants alike.

Furthermore, in relation to the importance of discipline during the creative process, Keith Sawyer [73, p. 6] highlights the critical role of being disciplined or “always looking for good problems”, while Csikszentmihalyi [10, p. 61] celebrates the paradox of creativity requiring a “combination of playfulness and discipline” in order to curate an idea from the initial sliver of possibility to completion. In other words, discipline is needed to spur creativity to bring something new, something different to life. Thus, the role of discipline in relation to creativity cannot be overstated.

In sum, given that “creativity involves the production of novelty” [10, p. 113], when individuals immerse themselves in an activity, in their creative quest for something new, unsurprisingly, under such conditions, they can enter a state of flow [84]. At the same time, enhanced flow leads to enhanced creativity. With discipline needed to control the process, assisted by a growth mindset promoting the keenness to attempt to create something new, the interplay between all four concepts – Growth Mindset (M), Discipline (D), Flow (F),

and Creativity (C) - is well established in the literature. When these four inputs are combined in one model – the M.D.F.C. Innovation Model – the output, innovation, is stimulated.

6. Opportunities

The opportunities stemming from the proposed new model are numerous. The implications for educators, industry and theory are outlined in the subsequent sections.

6.1. For educators

The aim of the proposed model is to provide a framework for enhancing innovation. In line with the arguments around the teachability of creativity [75], given that the other elements comprising the model are also teachable, they should be taught and practised from school through to vocational and higher education. First, we need to encourage students, regardless of where in the education process they currently are, to embrace *inquiry*. Students need to be taught to *ask questions* to uncover problems (and, in turn, to highlight the associated opportunities).

Equally, as educators, we need to teach our students how to incorporate the benefits of embracing the M.D.F.C. Innovation Model into their everyday lives. We can guide our students through the elements of the model and teach them the fundamental basics of each of the five concepts. For example, case studies or real-life scenarios focusing on each of the elements underpinning the Innovation Model (namely a growth mindset, the skill of discipline, flow and creativity) could be utilised to best assist individuals in harnessing novel and creative ideas.

In the context of, for example, management education, with the new “emphasis on the ability of workers to adapt continuously and learn new skills and approaches within a variety of contexts” [3, p. 45], it is now timely for management educators to guide emerging leaders to gain skills that will help in addressing the turbulence and heightened rate of change in the current business environment. Building on the work of Anderson et al. [85, p. 430], who contended that “management educators are in a unique position to influence current and future managers to both respond to and initiate change in the face of societal change”, we argue that it is our responsibility and moreover an opportunity to teach management education students to become more adept at pivoting when the environment changes, to come up with novel and creative ideas that lead to innovation in the marketplace.

In sum, unclaimed potential in any of the five areas – a growth mindset, the skill of discipline, the optimal state of flow or creativity and innovation – will limit achievement. The five dimensions of the new Innovation Model could, therefore, form a part of university programs, either as a foundation unit or in the form of compulsory sessions during orientation weeks. The proposed new model also offers itself as a framework suitable for inclusion in school curricula as well as vocational and professional education.

6.2. For industry

In these times when we “face chaos, uncertainty, and constant change” [86, p. 515], we need employees to be equipped to look forward, think outside of the box, be innovative and most importantly, bring new, creative solutions to ill-defined problems. Thus those wishing to become agents of change might consider incorporating into their lives not just one new skill but a suite of skills and concepts. And integrating the M.D.F.C. Innovation Model of a growth mindset (M), discipline (D), flow (F) and creativity (C) into corporate training and development would assist with fostering innovation.

Coaching and encouraging employees to implement the five elements of the model in their everyday working lives, in each role across companies, increases the chances that innovation might become a more everyday occurrence. With the help of the M.D.F.C. Innovation Model, changing production processes to use existing resources to produce new items might not be limited to the periods of the COVID-19 pandemic, when, for example, chemistry labs pivoted to meet the demand for hand sanitiser. Employees harnessing the benefits of the model might also be better equipped to develop sustainable responses, not only to the demands arising from pandemics but also to, for example, climate change. By improving their abilities to come up with creative and innovative ideas, employees will also be better placed to put forward sustainable innovative proposals to address matters of critical importance, such as future energy use and production.

Industry leaders need staff with the right skills to create opportunities for innovation. Hence, employers need to help employees to embrace a growth mindset and improve their levels of discipline to increase the chances of a state of flow occurring [10] in order to enhance creativity and thus innovation. And in line with the notion of “a disciplined approach of generating new ideas” described by Napier and Nilsson [2, p. 204], as being common in high-performing, highly creative and innovative businesses, implementing the M. D.F.C. Innovation Model principles will set organisations up for success in times of constant flux.

6.3. For theory

One of the main aims of this paper was to contribute to the body of knowledge by advancing the theoretical understanding of innovation. In line with a taxonomy of theoretical contributions [87], the original contributions to theory include formulating propositions about the relationships between the variables under exploration, enhancing the understanding of the concept of innovation, and proposing a novel, unified conceptual model of innovation.

The newly proposed M.D.F.C Innovation Model (as per Fig. 1) presents a framework of theoretical foundations for enhancing innovation, by combining a growth mindset (M), discipline (D), flow (F), and creativity (C) into one model for the first time, thus

offering a new lens for investigating innovation. The conceptual model also contributes to a better understanding of the factors contributing to enhanced innovation.

The process of one input enhancing the following one is not linear and can be best described as iterative. Not only does each input factor positively impact the other input elements, they also, in turn, individually and synergistically increase innovation. In addition, the influences operate in a loop; for example, in an event of a crisis (a catalyst), an individual must have the right mindset to seek new solutions to a problem that presents itself. The skill of discipline will not only help with focus on the task at hand but enable the person to also reap the benefits that flow can offer in such a situation. The impact of these will then, in turn, boost creativity leading to additional ideas that will reinforce the growth mindset view individuals have of their abilities. This could lead to a person applying even higher levels of discipline in their pursuit, seeking to relive the experience of flow, which can lead to even greater creativity. In sum, the third implication for the theory lies in the proposition of a circular flow between the concepts.

7. Directions for future research

Every piece of research has limitations, including ours. The purpose of this article was not to provide a systematic review of the literature of the many contributing factors to enhanced innovation. One of the limitations worth noting, therefore, is that the focus of the proposed model is only on the interplay of four input elements, out of an almost limitless pool of potential enhancers of innovation.

Future research is warranted to empirically test the proposed model to explore the impact of the various elements on innovation. Prior research demonstrated clear links between the constructs. The focus of future research could, therefore, be on investigating demographic variations, such as gender and culture, in the links between the concepts as well as differences in the overall levels of innovation.

In addition, further investigation into differences in the levels of innovation, probing the influence of the factors outlined in the model, between students, recent graduates and long-term workforce participants is recommended. Differences between participants in various industries could also be investigated. Furthermore, given the critical role of support from, for example, “a mentor, teachers or peers” [88, p. 9] in the creative lives of adolescents, the impact of structured instruction in schools around the elements of the model could also be explored, particularly as the field of study of the creativity of adolescents was previously noted as somewhat under-explored [89]. Moreover, noting that “sustainability is hinged on innovation” [18, p. 1990], the role that the newly introduced M.D.F.C. Innovation model might play in fostering societal benefits in the context of, for example, environmental sustainability, or sustainability innovation generally, should also be explored.

8. Conclusion

We opened our article with a quote about the critical importance innovation plays in the context of economic growth and competitiveness of firms. Driven by the desire to assist individuals and organisations alike to reap the benefits of enhanced innovation in the increasingly competitive global marketplace, this paper makes several unique contributions.

Firstly, underpinned by a large body of research in the areas of a state of flow and a growth mindset, as well as the skills of creativity and discipline, this paper puts forward a conceptual M.D.F.C Innovation Model. This new model comprises elements of a growth mindset (M), discipline (D), flow (F) and creativity (C). When implemented, the individual factors in the model have the potential, individually and collectively, to positively influence innovations in the workplace. By enhancing the individual elements, through a forward-feeding loop, the model is equally suitable for individuals wishing to embrace thinking outside of the box to reap the benefits of enhancing their capacity for innovation in all aspects of their lives. *Secondly*, grounded in the Human Capital notion that increases in non-cognitive skills translate into an enhanced contribution in the workplace, the paper contributes to the extant literature on the skills of discipline, creativity and innovation as well as to the discussions about the concepts of flow and growth mindset. *And thirdly*, this paper puts forward a notion that to enhance innovation, our efforts should be focused on harnessing the impact of several contributing factors. The literature signalled links between the concepts of flow and a growth mindset with discipline and creativity, and the new M.D.F.C. Innovation Model celebrates the interconnectivity and the circular flow between the four concepts - namely a growth mindset (M), discipline (D), flow (F) and creativity (C) – as well as with the outcome of the model: innovation.

Answering the calls for “creating competitive advantage through effective management education” [90], we recommend that, in order to enhance the likelihood that graduates of management education become effective leaders and managers, skills such as creativity and discipline, as well as the newly presented M.D.F.C. conceptual model of innovation, are embedded into the management education curricula. We also urge educators and industry leaders to work collectively on closing the gap between what we teach and what the ever-changing world requires. After all, we need to equip management professionals to be able to generate effective and sustainable business solutions to new problems in times of uncertainty.

In her article titled *What Having a “Growth Mindset” Actually Means* published in Harvard Business Review in 2016, Dweck [31, p. 2] speaks of the deep gratification of experiencing when “ideas make a difference – improving motivation, innovation, or productivity”. Our proposed model for generating innovation here has the potential to positively impact all three in individuals: motivation, innovation and, in turn, productivity. Through enhancing – individually or synergistically - the four input elements of the model across all company-wide roles, organisations can harness the model’s potential to foster sustainable solutions to ill-defined problems, continuously improve company offerings as well as enrich innovation and, thus contributing to the ongoing competitive advantage of an organisation.

Author contribution statement

Hana Krskova; Yvonne Breyer: Analyzed and interpreted the data; Wrote the paper.

Funding statement

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Data availability statement

No data was used for the research described in the article.

Declaration of interest's statement

The authors declare no conflict of interest.

Acknowledgments

The authors would like to thank the anonymous reviewers for their kind feedback and helpful suggestions. The first author would also like to thank Glyn Mather for her guidance and help; a flow of inspiration from Professor Chris Baumann; and support from Professor Matt Bower.

References

- [1] M. Porter, S. Stern, Innovation: location matters, *MIT Sloan Manag. Rev.* 42 (3) (2001) 28–36.
- [2] N.K. Napier, M. Nilsson, *The Creative Discipline: Mastering the Art and Science of Innovation*, Greenwood Publishing Group, Westport CT, 2008.
- [3] K. Schwab, *The Fourth Industrial Revolution*, Penguin Books, London, 2017.
- [4] K. Schwab, N. Davis, *Shaping the Future of the Fourth Industrial Revolution: A Guide to Building a Better World*, Penguin Random House, London, 2018.
- [5] K. Schwab, *The Fourth Industrial Revolution: what it Means and How to Respond*, Foreign, 2015. Affairs.
- [6] M. Seligman, *Flourish: A Visionary New Understanding of Happiness and Well-Being*, Atria, New York, 2013.
- [7] G. Becker, *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*, National Bureau of Economic Research, New York, 1975.
- [8] World Bank, *World Development Report 2019: the Changing Nature of Work*, World Bank, Washington, 2019.
- [9] M. Csikszentmihalyi (Ed.), *Flow and the Foundations of Positive Psychology: the Collected Works of Mihaly Csikszentmihalyi*, Springer, New York, 2014.
- [10] M. Csikszentmihalyi, *Creativity: the Psychology of Discovery and Invention*, Harper Perennial, New York, 2013.
- [11] T.M. Amabile, A model of creativity and innovation in organizations, *Res. Organ. Behav.* 10 (1) (1988) 123–167.
- [12] S.J. Kline, N. Rosenberg, An Overview of Innovation. *Studies on Science and the Innovation Process: Selected Works of Nathan Rosenberg*, 2010, pp. 275–305.
- [13] P. Drucker, *Innovation and Entrepreneurship*, Harper, New York, 1985.
- [14] J.G. Dees, B.B. Anderson, J. Wei-Skillern, Scaling social impact, *Stanford Soc. Innovat. Rev.* 1 (4) (2004) 24–32.
- [15] Z.J. Acs, J. Sany, Measuring the social value of innovation: the cases of Muhammad Yunus, Grameen Bank and Bill Gates, Microsoft, in: G.D. Libecap (Ed.), *Measuring the Social Value of Innovation: A Link in the University Technology Transfer and Entrepreneurship Equation*, vol. 19, Emerald, 2009, pp. 143–170.
- [16] E. Eppinger, How open innovation practices deliver societal benefits, *Sustainability* 13 (3) (2021) 1431.
- [17] F. Bengtsson, P.J. Ågerfalk, Information technology as a change actant in sustainability innovation: insights from Uppsala, *J. Strat. Inf. Syst.* 20 (1) (2011) 96–112.
- [18] S. Kusi-Sarpong, H. Gupta, J. Sarkis, A supply chain sustainability innovation framework and evaluation methodology, *Int. J. Prod. Res.* 57 (7) (2019) 1990–2008.
- [19] J. Fagerberg, Editor *Innovation: A Guide to the Literature. The Many Guises of Innovation: what We Have Learnt and where We Are Heading*, Georgia Institute of Technology, Ottawa, 2004.
- [20] M. Soskil, Overcoming equity gaps in and through education, in: A. Doucet, J. Evers, E. Guerra, L. Nadia, M. Soskil, K. Timmers (Eds.), *Teaching in the Fourth Industrial Revolution: Standing at the Precipice*, Routledge, London, 2018, pp. 8–24.
- [21] L. Keeley, H. Walters, R. Pikkil, B. Quinn, *Ten Types of Innovation: the Discipline of Building Breakthroughs*, John Wiley & Sons, 2013.
- [22] P. Drucker, *Management Challenges for the 21st Century*, Harper Business, New York, 2001.
- [23] C. Dweck, E. Leggett, A social-cognitive approach to motivation and personality, *Psychol. Rev.* 95 (2) (1988) 256.
- [24] H. Krskova, Y. Breyer, C. Baumann, L.N. Wood, An exploration of university student perceptions of discipline: introducing F.I.R.S.T. Discipline principles, *High Educ. Skills Work. base Learn.* 10 (1) (2019) 61–82.
- [25] H. Krskova, Y. Breyer, C. Baumann, L.N. Wood, F.I.R.S. T, Principles of discipline for 21st century skills, in: Y.A. Breyer, L.P. Tan, L.N. Wood (Eds.), *Industry and Higher Education: Case Studies for a Sustainable Future*, Springer, Singapore, 2020.
- [26] M. Csikszentmihalyi, *Flow: the Psychology of Optimal Experience*, Harper Perennial, New York, 2008.
- [27] C. Dweck, *Mindset: Changing the Way You Think to Fulfil Your Potential*, Robinson, London, 2017.
- [28] M.A. Abernethy, S.W. Anderson, S. Nair, Y.A. Jiang, Manager 'growth mindset' and resource management practices, *Account. Org. Soc.* 91 (101200) (2020) 1–21.
- [29] C. Dweck, *Self-theories: Their Role in Motivation, Personality, and Development*, Psychology Press, New York, 2000.
- [30] M.L. Rowe, K.A. Leech, A parent intervention with a growth mindset approach improves children's early gesture and vocabulary development, *Dev. Sci.* 22 (4) (2019) 1–10.
- [31] C. Dweck, What having a "growth mindset" actually means, *Harv. Bus. Rev.* 13 (2016) 213–226.
- [32] F. Rahardi, T. Dartanto, Growth mindset, delayed gratification, and learning outcome: evidence from a field survey of least-advantaged private schools in Depok-Indonesia, *Heliyon* 7 (4) (2021), e06681.
- [33] A.M. Dachner, R.F. Miguel, R.A. Patena, Risky business: understanding student intellectual risk taking in management education, *J. Manag. Educ.* 41 (3) (2017) 415–443.
- [34] R. Puente-Díaz, J. Cavazos-Arroyo, The influence of creative mindsets on achievement goals, enjoyment, creative self-efficacy and performance among business students, *Think. Skills Creativ.* 24 (2017) 1–11.
- [35] T.K. Kouzes, B.Z. Posner, Influence of managers' mindset on leadership behavior, *Leader. Organ. Dev. J.* 40 (8) (2019) 829–844.

- [36] S.J. Han, V. Stieha, Growth mindset for human resource development: a scoping review of the literature with recommended interventions, *Hum. Resour. Dev. Rev.* 19 (3) (2020) 309–331.
- [37] R.L. Curwin, A.N. Mender, *Discipline with Dignity*, Association for Supervision and Curriculum Development, Alexandria, Virginia, 1988.
- [38] C.M. Charles, K.B. Barr, *Building Classroom Discipline*, Longman, New York, 1992.
- [39] A.L. Duckworth, M.E. Seligman, Self-discipline outdoes IQ in predicting academic performance of adolescents, *Psychol. Sci.* 16 (12) (2005) 939–944.
- [40] E.H. Cohen, B. Kramarski, Z.R. Mevarech, Classroom practices and students' literacy in a high and a low achieving country: a comparative analysis of PISA data from Finland and Israel, *Educ. Pract. Theor.* 31 (1) (2009) 19–37.
- [41] P.M. Senge, *The Fifth Discipline: the Art and Practice of the Learning Organization*, Random House Business Books, London, 2006.
- [42] R.T. Tauber, *Classroom Management from A to Z*, Holt, Rinehart and Winston, Orlando Florida, 1990.
- [43] R.T. Tauber, *Classroom Management: Sound Theory and Effective Practice*, Greenwood Publishing Group, 2007.
- [44] Z. Millei, T.G. Griffiths, R.J. Parkes (Eds.), *Re-theorizing Discipline in Education: Problems, Politics, & Possibilities*, Peter Lang, New York, 2010.
- [45] H. Krskova, C. Baumann, School discipline, investment, competitiveness and mediating educational performance, *Int. J. Educ. Manag.* 31 (3) (2017) 293–319.
- [46] S.B. Robbins, J. Allen, A. Casillas, C.H. Peterson, H. Le, Unraveling the differential effects of motivational and skills, social, and self-management measures from traditional predictors of college outcomes, *J. Educ. Psychol.* 98 (3) (2006) 598–616.
- [47] M. Komarraju, A. Ramsey, V. Rinella, Cognitive and non-cognitive predictors of college readiness and performance: role of academic discipline, *Learn. Individ. Differ.* 24 (1) (2013) 103–109.
- [48] H. Le, A. Casillas, S.B. Robbins, R. Langley, Motivational and skills, social, and self-management predictors of college outcomes: constructing the Student Readiness Inventory, *Educ. Psychol. Meas.* 65 (3) (2005) 482–508.
- [49] H. Krskova, C. Baumann, Y. Breyer, L.N. Wood, The skill of discipline—measuring FIRST discipline principles in higher education, *High Educ. Skills Work. base Learn.* 11 (1) (2020) 258–281.
- [50] C. Baumann, H. Krskova, School discipline, school uniforms and academic performance, *Int. J. Educ. Manag.* 30 (6) (2016) 1003–1029.
- [51] J.R. Katzenbach, D.K. Smith, *The Wisdom of Teams: Creating the High-Performance Organization*, McGraw-Hill Publishing Company, Maidenhead, England, 2005.
- [52] B. Aulet, *Disciplined Entrepreneurship: 24 Steps to a Successful Startup*, John Wiley & Sons, Hoboken, New Jersey, 2013.
- [53] M. Csikszentmihalyi, *Finding Flow: the Psychology of Engagement with Everyday Life*, Basic Books, New York, 1998.
- [54] E. De Bono, *Serious Creativity: How to Be Creative under Pressure and Turn Ideas into Action*, Vermilion, London, 2015.
- [55] M. Csikszentmihalyi, Attention and the holistic approach to behavior, in: K.S. Pope, J.L. Singer (Eds.), *The Stream of Consciousness*, Plenum, New York, 1978, pp. 335–358.
- [56] S.A. Jackson, M. Csikszentmihalyi, *Flow in Sports*, Human Kinetics, 1999.
- [57] S. Sinnamon, A. Moran, M. O'Connell, Flow among musicians: measuring peak experiences of student performers, *J. Res. Music Educ.* 60 (1) (2012) 6–25.
- [58] J. Nakamura, M. Csikszentmihalyi, The concept of flow, in: C.R. Snyder, S.J. Lopez (Eds.), *Handbook of Positive Psychology*, Oxford University Press, New York, 2002, pp. 89–105.
- [59] M. Csikszentmihalyi, *Flow and the Foundations of Positive Psychology - the Collected Works of Mihaly Csikszentmihalyi*, ume 2, Springer, Dordrecht, 2014.
- [60] M. Csikszentmihalyi, R. Wolfe, New conceptions and research approaches to creativity: implications of a systems perspective for creativity in education, in: M. Csikszentmihalyi (Ed.), *The Systems Model of Creativity: the Collected Works of Mihaly Csikszentmihalyi*, Springer, Dordrecht, 2014, pp. 161–184.
- [61] M. Seligman, *The Optimistic Child: A Proven Program to Safeguard Children against Depression and Build Lifelong Resilience*, William Heinemann, Sydney, Australia, 2011.
- [62] L.A. Custodero, Seeking challenge, finding skill: flow experience and music education, *Arts Educ. Pol. Rev.* 103 (3) (2002) 3–9.
- [63] A.B. Bakker, Flow among music teachers and their students: the crossover of peak experiences, *J. Vocat. Behav.* 66 (1) (2005) 26–44.
- [64] K. Habe, M. Biasutti, T. Kajtna, Wellbeing and flow in sports and music students during the COVID-19 pandemic, *Think. Skills Creativ.* 39 (100798) (2021) 1–9.
- [65] C. Swann, Flow in sport, in: L. Harmat, F.O. Andersen, F. Ullén, J. Wright, G. Sadlo (Eds.), *Flow Experience*, Springer, Switzerland, 2016, pp. 51–64.
- [66] S.A. Jackson, S.K. Ford, J.C. Kimiecik, H.W. Marsh, Psychological correlates of flow in sport, *J. Sport Exerc. Psychol.* 20 (4) (1998) 358–378.
- [67] C. Swann, R.J. Keegan, D. Piggott, L. Crust, A systematic review of the experience, occurrence, and controllability of flow states in elite sport, *Psychol. Sport Exerc.* 13 (6) (2012) 807–819.
- [68] M. Csikszentmihalyi, Toward a psychology of optimal experience, in: *Flow and the Foundations of Positive Psychology*, Springer, Dordrecht, 2014, pp. 209–226.
- [69] M. Csikszentmihalyi, J. Hunter, *Happiness in Everyday Life: the Uses of Experience Sampling*. *Flow and the Foundations of Positive Psychology - the Collected Works of Mihaly Csikszentmihalyi*, Springer, Dordrecht, 2014, pp. 89–101.
- [70] J. Nakamura, M. Csikszentmihalyi, The concept of flow, in: M. Csikszentmihalyi (Ed.), *Flow and the Foundations of Positive Psychology - the Collected Works of Mihaly Csikszentmihalyi*, Springer, Dordrecht, 2014, pp. 239–263.
- [71] M. Csikszentmihalyi, Towards a psychology of optimal experience, in: M. Csikszentmihalyi (Ed.), *Flow and the Foundations of Positive Psychology - the Collected Works of Mihaly Csikszentmihalyi*, Springer, Dordrecht, 2014.
- [72] M. Csikszentmihalyi, Motivation and creativity: toward a synthesis of structural and energetic approaches to cognition, *New Ideas Psychol.* 6 (2) (1988) 159–176.
- [73] K. Sawyer, *Zig Zag: the Surprising Path to Greater Creativity*, John Wiley & Sons, 2013.
- [74] H.G. Gough, A creative personality scale for the adjective check list, *J. Pers. Soc. Psychol.* 37 (8) (1979) 1398–1405.
- [75] M. Csikszentmihalyi, *The Systems Model of Creativity: the Collected Works of Mihaly Csikszentmihalyi*, Springer, Dordrecht, 2014.
- [76] M. Csikszentmihalyi, K. Sawyer, Shifting the focus from individual to organizational creativity, in: M. Csikszentmihalyi (Ed.), *The Systems Model of Creativity: the Collected Works of Mihaly Csikszentmihalyi*, Springer, Dordrecht, 2014, pp. 67–71.
- [77] A. Craft, The limits to creativity in education: dilemmas for the educator, *Br. J. Educ. Stud.* 51 (2) (2003) 113–127.
- [78] T.M. Amabile, M.A. Collins, R. Conti, E. Phillips, M. Picariello, J. Ruscio, et al., *Creativity in Context: Update to the Social Psychology of Creativity*, Routledge, New York, 2018.
- [79] M. Csikszentmihalyi, K. Sawyer, Creative insight: the social dimension of a solitary moment, in: M. Csikszentmihalyi (Ed.), *The Systems Model of Creativity: the Collected Works of Mihaly Csikszentmihalyi*, Springer, Dordrecht, 2014, pp. 73–98.
- [80] M. Csikszentmihalyi, J. Nakamura, Creativity through the life span from an evolutionary systems perspective, in: M. Csikszentmihalyi (Ed.), *The Systems Model of Creativity: the Collected Works of Mihaly Csikszentmihalyi*, Springer, Dordrecht, 2014, pp. 239–255.
- [81] M. Soskil, Education in a time of unprecedented change, in: A. Doucet, J. Evers, E. Guerra, L. Nadia, M. Soskil, K. Timmers (Eds.), *Teaching in the Fourth Industrial Revolution: Standing at the Precipice*, Routledge, London, 2018, pp. 8–24.
- [82] M. Csikszentmihalyi, Creativity and genius: a systems perspective, in: M. Csikszentmihalyi (Ed.), *The Systems Model of Creativity: the Collected Works of Mihaly Csikszentmihalyi*, Springer, Dordrecht, 2014, pp. 99–125.
- [83] L. Anderson, D.R. Krathwohl, P.W. Airasiaan, K. Cruikshank, R.E. Mayer, P.R. Pintrich, et al., *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives*, Longman, New York, 2001.
- [84] M. Csikszentmihalyi, *Play and Intrinsic Rewards*. *Flow and the Foundations of Positive Psychology*, Springer, Dordrecht, 2014, pp. 135–153.
- [85] L. Anderson, P. Hibbert, K. Mason, C. Rivers, Management education in turbulent times, *J. Manag. Educ.* 42 (4) (2018) 423–440.
- [86] P. Hedberg, Guiding moral behavior through a reflective learning practice, *J. Manag. Educ.* 41 (4) (2017) 514–538.
- [87] W. Presthuis, B.E. Munkvold, How to frame your contribution to knowledge? A guide for junior researchers in information systems, *Bibsys Open Journal Systems* 24 (1) (2016) 1–14.

- [88] C. Lassig, A typology of student creativity: creative personal expression, boundary pushing and task achievement, *Think. Skills Creativ.* 36 (100654) (2020) 1–13.
- [89] C. Lassig, Approaches to creativity: how adolescents engage in the creative process, *Think. Skills Creativ.* 10 (2013) 3–12.
- [90] C.O. Longenecker, S.S. Ariss, Creating competitive advantage through effective management education, *J. Manag. Dev.* 21 (9) (2002) 640–654.