RedFame

International Journal of Contemporary Education
Vol. 7 No. 2; October 2024
ISSN 2575-3177 E-ISSN 2575-3185
Published by Redfame Publishing
URL: http://ijce.redfame.com

The Basis, Value and Path of Integrating Embodied Cognition into High School Career Education

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Received: August 18, 2024 Accepted: September 26, 2024 Online Published: September 27, 2024

doi:10.11114/ijce.v7i2.7135 URL: https://doi.org/10.11114/ijce.v7i2.7135

Abstract

Embodied cognition has received a lot of attention in recent cognitive research, and how embodied cognition can be integrated into high school career education is the question of this study. The purpose of the study is to discover the relationship between modal simulation, conceptual metaphor in embodied cognition and high school career education. To integrate embodied cognition into high school career education, it is important to pay attention to the contextual nature of the career education field, emphasise the systematic nature of the career education curriculum, and seek to create a new pattern of career parenting. Integrating embodied cognition into high school career education is a way to improve the quality of high school students' cultivation, meet the actual needs of high school students' development, and is of great significance in effectively meeting students' needs and in the cultivation of cognitive generation, emotional experience and behavioural orientation.

Keywords: high school; embodied cognition; career education

1. Introduction

With the society's increasing concern for employment, there is also an increasing concern for students' career planning, which further has an impact on the selection of courses in senior secondary schools, which will invariably increase students' demand for career education. However, in the practice of career education in high school, career education is often disconnected from social life, and the logic, law and value of career education itself are ignored, so that the value of career education is diluted. Career education needs to teach students how to apply the cultural tools behind the social environment to analyse and solve problems, and to shape the space and geography of a career that people can understand. Embodied cognition theory suggests that bodily sensorimotor movement, its state and the environment in which it is located all influence and participate in the cognitive and affective learning processes (Ye, 2015). It embodies the philosophical concepts of nature education, experiential education and labour education of Western scholars. The theoretical elaboration and practical demonstration of contextual learning is carried out in psychology. It also reflects the philosophical concepts of nature education, experiential education and labour education of western scholars, and carries out the theoretical elaboration and practical demonstration of contextual learning in psychology. In the rapid development of the information society, there are various forms of information education, such as flipped classroom, VR teaching, etc., all of which are the present practice of 'embodied cognition', and the way of teaching and learning is facing unprecedented challenges. Therefore, integrating embodied cognition theory into high school career education can not only provide theoretical support and practical strategies for career education, but also promote the cultivation of students' career ability, establish students' correct career values, and provide more diversified and innovative ideas and suggestions for the development of career education. This paper explores the internal logic, profound significance and implementation path of integrating embodied cognition into high school career education.

2. Theoretical Basis: Inherent Unity between Embodied Cognition and High School Career Education

Embodied cognition poses a major challenge to the traditional concept of education, proposing the principle of the unity of body and mind, the principle of unity of mind and intelligence, and the principle of rootedness in education. The principle of the unity of body and mind requires changing the concept of the opposition between body and mind in the previous education, and gradually shifting the focus of school education from 'mind' to 'mind' and 'body'. Emphasis on the unity of knowledge, emotion and intention in the learning process implies that the education process should not only pay attention to the acquisition of knowledge, but also take into account the emotional experience and behavioural operation of students. Rooted principle advocates the interaction between the body and the environment in the cognitive

role; the education process cannot be detached from the context, and the mind should be rooted in the body, the body rooted in the environment, to achieve a dynamic balance between the three dimensions (Xu and Zhang, 2021).

In 1970, 'career education' was formally introduced in the United States. Career education was initiated n response to mass structural unemployment and school drop-outs in the 1970s and had a global impact. In Japan, it was first introduced in 1999 to meet the large labour force needs of the post-war recovery period. Since the introduction of career education in the UK in 2000, it has been found so far that the implementation of career education may help to promote inequalities related to gender, race and social class (Moote and Archer, 2018). These all highlight the socially orientated function of career education in times of social upheaval and change. Career education has evolved from a social needs-driven employment orientation and a human needs-driven personality development orientation to a third orientation - a cultural orientation. Relevant research today recognises cultural diversity as a particularly important variable influencing career development (Hernandes and Morales, 1999). With cultural changes, the traditional concept of 'career' is no longer applicable to the complex and changing social environment, and more scholars are focusing on 'borderless career'. As the employment environment becomes more and more complex, the psychological capital and employment capital required will also become more and more complex. Career is embedded in culture, and the environment created by culture gives people the conditions to create and realise their careers, so career education is alive and needs to be constructed based on the environment and culture. Therefore, embodied cognition and career education have a great fit. Discussing the relationship between embodied cognition and high school career education is an important prerequisite for promoting the implementation of students' embodied cognition through career education. There are two theoretical frameworks in embodied cognition research - modal simulation and conceptual metaphor, both of which are based on the concept of body states or recurring body-environment interactions and the perceptual linkage of abstract concepts that are closely related, but the types of body states they are based on are fundamentally different.

2.1 Modal Simulation and Career Enablement Formation

A modal simulation framework involves representational forms of the body, where abstract concepts are accessed through the direct experience of bodily perception and movement. During simulation, attention is given to the perception of emotions, time and people. Regarding the perception of emotions, there is a correlation between the perception of processing emotional stimuli and their specific recurrent bodily responses (Foroni & Semin, 2009). Regarding the perception of time, people often think and discuss time by mapping it to space, and body movement is correlated with time (Miles et al., 2010). The use of different spatio-temporal metaphors to talk about time is largely learned, which reflects cultural differences. With regard to the perception of people, including the individual's perception of themselves, others and social relationships, such abstractions can be based on bodily experience; for example, social intimacy has been found to be reflected in a sense of bodily warmth (Menon et al., 2010). The essence of the individual's interdependent relationship with the collective is to participate in the simulated practices of society, whereby cultural reproduction occurs, and in this process, it is achieved through a shift in embodied cognition. Career education stimulates students to plan their careers with agency, and human agency is defined as the combination of intention and action that makes things happen (Cochran, 1997). Bandura (2001) defined agency as a proactive, self-regulating and self-reflective individual who intentionally influences his or her functioning and life circumstances. This was combined into career theory to form the four dimensions of career ennui theory: career intentionality, career anticipation, career self-responsiveness, and career self-reflection. Chen (2015) proposed that career activism is an intrinsic human potential and ability to self-regulate and manage the events and demands of the external world in a career context. Constructivism suggests that everyone mentally constructs the world through cognitive processes, and therefore there is no other objective or direct way of understanding the world than through construction (Young & Collin, 2004). This fits well with the two ways of experiencing emotional processes in embodied cognition. Individual agency is influenced by previous work experience, entrepreneurial role models and social support (Boyd & Vozikis, 1994). It can be seen that, in real experiences, individuals are able to access emotions and transform them into motivation to stimulate career agency. Thereby, people will keep working towards the direction for the execution of a certain career behaviour. Career agency is a combination of individual, social, environmental and contextual factors. It is an iterative, dynamic process that is built on the individual and the culture (Muijen et al., 2018). Career education works through the positive emotional experience of the educated person in the career programme, which starts from the point of view of 'the body as the body'. In career activities, through interactions with teachers, peers, parents, and other members of the community, students interact with others to promote emotional deepening and meaning construction through various messages such as emotional infections, body postures, and facial expressions.

2.2 Conceptual Metaphors and Career Value Formation

The conceptual metaphor framework, which is a broader perspective, is more abstract than the concrete representational form of the modal simulation framework, and commonly used metaphors usually link abstract meaning generation

closely to concrete bodily experiences, with conceptual metaphors being closely related to specific bodily states or body-world interactions (Lakoff & Johnson, 1999). Two basic concepts are included in conceptual metaphors, a target concept and a source concept. The target concept refers to the abstract concept that people want to understand, and the source concept is the concrete concept that helps people understand the abstract concept. Conceptual metaphors are created by associating elements of the target concept with the corresponding elements of the source concept or by psychologically associating them, e.g., the concept of immorality is associated with words such as 'darkness' and 'filth'. However, the source concept can exist independently and does not necessarily trigger the target concept. Conceptual metaphors are embedded in culture and function across time, space and time, geography, and culture. Conceptual metaphors constitute people's understanding of their own experiences and also frame their experiences of others, thus serving to build relationships. Some researchers refer to modal simulation as an intra-conceptual mechanism and conceptual metaphor as an inter-conceptual mechanism. Both frameworks recognise the role of bodily experience in understanding complex concepts, but the two are linked in terms of bodily states and associated mental representations, which are also fundamentally different (Landau et al., 2010). Thus, abstract concepts cannot be understood and higher-order thinking cannot operate without the interaction of the subject's body, psyche and environment. The essence of career education lies in the cultivation of career values. Career values reflect both individual-specific cultural values and universal values, and people's different values produce individual differences. The content of career education is closer to life and more suitable for students to understand the relationship between abstract concepts and real situations, combining indirect theoretical knowledge with students' intuitive career experience, so that students can have more subjective consciousness, gradually sublimating the abstract understanding of career values, and enhancing the timeliness of career education.

3. Embodied Value

Career education requires the comprehensive participation, coordination and integration of physical, mental, cognitive, emotional, volitional and behavioural elements. In traditional cognition, 'body' is often regarded as a cognitive organ or carrier, and career education under this view of the body is often metaphysical, with the body becoming a tool. Embodied cognition reinterprets the 'body', which is no longer simply seen as a material being, but as a self-created body, a body that has a living experience (Xu & Zhang, 2021). In career education, the experience of the unity of body and mind can stimulate creative practical activities, thus promoting the overall development of the individual. Career education inspires people to search for the meaning of their career, and from the meaning, motivates individuals to actively explore their career path. From the perspective of embodied cognition, the active exploration of the unity of body and mind is an important way to guide individuals to understand the value of career, which can promote individuals to become free people with active consciousness of comprehensive development and stimulate positive emotional experience.

3.1 Physical Engagement for Cognitive Generation

Many of the theoretical approaches used by psychologists studying human cognitive development are based on an understanding of the biological basis (the brain), cognitive functions (the brain), and the environment, and the boundaries are clearly defined, with cognition considered to be a situational activity that exceeds the physical limits of the human brain (Clark, 2008). From this perspective, it makes sense to consider factors external to the brain (body, physical environment, social environment, etc.) when studying cognitive processes. This has led to common terms such as embodied, activated, distributed, embedded or extended thinking, which have made different contributions to the field. In recent decades, more and more scholars have focused on the important role of the body in various aspects of cognition, and the terms 'embodiment' and 'embodied cognition' have been proposed for psychological research in the areas of emotion, memory, problem solving, concepts, and language. "Embodied cognition" and "disembodied cognition" are products of dualistic philosophical thought. Embodied cognition is defined as cognition that is embodied and that originates in the body's interaction with the world. Cognition relies on an experience that comes from a body with special perceptual and motor capacities. They are inextricably linked and together they form a matrix. In this matrix, memory, emotion, language and all other aspects of life are intertwined (Thelen et al., 2001). Embodied Cognition emphasises multi-sensory learning in a learning environment, and considers the role of the body in interacting with the environment to be very important. Modal simulation, bodily states and contextualised actions are the basis of cognition (Barsalou, 2008). Embodied Cognition places greater emphasis on multi-sensory learning in a learning environment and sees the body's interaction with the environment, modal simulation, bodily states and contextualised actions as the basis of cognition (Barsalou, 2008). Career education needs to play a role in the interaction between students' bodies and the environment, creating career contexts so that students can feel immersed in the situation, and promoting students to think about ways to solve problems, so that students can take the initiative to closely interact with the current reality of the environment, thus promoting the body and the environment to achieve the isomorphism in the continuous intertwining of experience. In addition to the environment created by the school, various

environments such as society, organisations and families are also experiential environments for students to interact with. By learning in different environments, students are facilitated to acquire multiple life senses, so that both the body and cognition can dynamically adapt and adjust to changes in the environment. This form of education must require the physical presence of the student in order to perceive the relationship between person and self, person and person, person and society, and person and culture. These perceptions and experiences are generated within the individual through interaction with the environment and cannot be acquired from simple theoretical teaching in the classroom.

3.2 Life Context Enhances Emotional Experience

Emotional experience is based on life experience, awareness, reflection on emotional interactions between people, between people and life, as well as experience and perception of the value of life(Hirschfeld, 2019). Emotional experiences are cognitively based, but are not formed through a cognitive processing system. Emotional experiences arise as the organism adapts to different environments. The most direct way people feel emotional processes is by experiencing them, and the indirect way is by watching videos, reading, listening, recording, and so on. The indirect way may be able to produce a feeling response because the emotion has occurred in a past experience. Metaphorical research on emotions has found that emotions are also inseparable from culture. This is because emotions are the embodiment of the body as the interaction and integration of physical and cultural dimensions (Maalej, 2004). When emotional experiences are positive, individuals will want to recreate similar situations in order to experience similar emotions. For example, when a person is complimented for being helpful, the next time they encounter a similar situation they will develop a similar way of handling the situation in order to achieve inner satisfaction. This is when the behaviour is given meaning, and meaningful behaviour has emotional undertones behind it. The ability of individuals to find meaningful behaviours in their careers, for which they will continue to put effort, is inseparable from emotional experience. Emotional experiences emphasised by embodied cognition can contribute to formative cognition in career education and give career education a strong contextual dimension. Create career experience environments in society, schools, business organisations, families and other environments. Students are allowed to personally participate in real situations so that they can have real emotional experiences. After generating positive emotions, students will form attitudes, which will then be transformed into motivation, and motivation can lead to behaviour. Thus, students can form a positive cycle of career exploration, find a suitable direction for themselves and stick to it.

3.3 Career Education Stimulates Behavioural Orientation

Embodied cognition bridges the gap between biology and socio-culture, attempting to relate abstract knowledge to bodily, everyday experience. The analogy of the human brain to computers and artificial intelligence focuses on the processing of symbols and information. Embodied cognition tends to be characterised by being embodied or involved (cognition relies on the physical properties of the organism), contextual (cognition should encompass the environment in which the cogniser is situated), and generative (cognitive processes are dynamic systems generated by the coupling of factors from the brain, the body, and the environment) (Ma, 2018). Some scholars have also focused on the value of culture and society in embodied cognition (Cohen & Leung, 2010). The theory of embodied cognition suggests that experiences of the body's sensory and motor systems are important in cognitive processing, and that mental simulations are equally valuable.

Career education can help high school students feel the relationship between the body and society in their environment and discover the direction of fit between themselves and society. Through the interaction between the body and the environment, the student's physical and mental development continues to advance in a positive direction, and the physical and mental development in turn advances action, resulting in a virtuous cycle. In such a cyclical process, abstract concepts in career education will be closely related to sensory-motor, which in turn will have an active role in the process of cognitive formation, leading to the unity of cognition, emotion and action, as well as the generation of willpower. In this way this unity can be maintained. Career education integrates knowledge acquisition and competence development in the classroom or in practice. The ultimate goal of career education is for students to be able to find career goals and stick to them. Students are therefore required to take action in order to find the next step in their actions. Especially for high school students, in the face of future choices, only boredom study without knowing the direction will produce confusion, have a goal can produce motivation, thus eliminating the boredom of learning itself, and then produce endogenous motivation. Career education does not only meet the objective needs of students for further studies, but also meets the subjective needs of pursuing career goals.

The integration of embodied cognition into career education emphasises the priority of reflection and the return of the body from the traditional cognitive subject. The process of experiencing different careers provides an ideal and realistic vehicle for the school community to gain direct experience and promote the organic unity of cognition, emotion and behaviour. Through career education, the whole body and mind of students are mobilised to participate in the experience, to classify and reflect on their experiences, so that students can acquire experiential cognition in their career

experience, thus forming rational cognition, generating meaningful emotions, and stimulating subsequent behaviours. Considering the body and mind as a systematic whole and interacting with each other from the environment, it promotes the formation of career mobility and leads to a positive virtuous circle.

4. Practical Paths for Integrating Embodied Cognition into High School Career Education

The integration of embodied cognition into career education is a systematic process of practice, which is a transformation through the cross-fertilisation of disciplines, each of which plays its own strengths, and innovatively opens up new paths for student development. The application of embodied cognition has a lot of room for development, and integrating it into career education will be a win-win path. Integrating embodied cognition into career development further promotes students' employability and adaptability. By realising the contextual nature of the educational field, the comprehensiveness of the educational content, the experiential nature of the educational process, the plurality of the educational methods and the significance of the educational results, the career becomes a process of students' embodied experience, creativity and learning, and achieves the in-depth fusion of the body, mind and environment to form a comprehensive career competence.

4.1 Emphasising the Contextual Nature of the Career Education Field

Embodied cognition serves to restore the importance of everyday experience and intuitive knowledge as a basis for understanding the development of more complex ideas, helps to understand how meaning can be ascribed to many complex concepts, and emphasises how different aspects related to gestures and body movement characteristics provide opportunities to reveal tacit knowledge, revolutionising previous theories that used only language as an explicit way of expressing tacit knowledge. The contextualisation of embodied knowledge includes both direct and indirect experiences, both of which emphasise the involvement or ‘presence’ of the student's body. In terms of direct experience, students are physically involved, actively immersed both physically and psychologically in their career learning. Schools mobilise society, organisations and families to create career scenarios together. By combining career experiences with other course work, students can find a direction they are willing to put their efforts into and continue to adhere to.From the perspective of indirect experience, media can be used to enhance the sense of experience, which can be books, audios, videos, or even VR technology to mobilise visual, auditory, sensory, kinesthetic, and other multi-sensory participation. From indirect contact to simulated experience, students can feel the authenticity of career experience. Through the integration of embodied cognition into the context of career education, students can have an immersive experience of career values, career intentions, career skills, etc. This positive emotional experience will have an effect on the individual's career motivation, and enable the individual to generate a positive sense of emotion, which will further generate career motivation. Experiencing positive emotions in a multimodal teaching approach and creating a career contextual teaching approach that promotes students' physical engagement can help students to increase their motivation to participate in the course, and can also promote the development of an organic system of cognition, emotion and behaviour.

4.2 Emphasis on the Systemic Nature of Career Education Programmes

The nature of embodied cognition is driven by cultural presuppositions and practices. The mind-body connection is informed or driven by one's cultural experiences so that “*social constructions are given bodily basis and bodily motivation is given social-cultural substance* (Kövecses, 2000, p14).” People's experiences are situated within culture, and Vygotsky's socio-historical view of cultural development systematically articulates that the highest level of the zone of nearest development is culture, and that scaffolding is what can explain cultural differences. Scaffolding is the process by which humans learn abstract concepts by mapping them onto concrete, extant knowledge structures that may have a physical basis (e.g., temperature, size) acquired early in life (Williams et al.,2009). The subject of embodied cognition is not only physiological and neurological, but should also incorporate experiences brought about by the social culture, which must be taken into account in a particular socio-cultural context (Rohrer, 2007, p.345). Embodied cognition is situated in a linguistic or cultural environment where the mind is not merely embodied, but is embodied in such a way that our conceptual systems are heavily dependent on the commonality of our bodies and the environment in which we live. The result is that “most of one's conceptual systems are either universal or cross-linguistic and cross-cultural” (Lakoff and Johnson, 1999, p.6). Over time, these concrete, contextualised concepts are constructed into more abstract concepts (e.g. relationships). Thus, cultural scaffolding represents a scaffolding that maps relatively abstract culturally relevant knowledge to concrete body-related experiences. The development of career education can be multi-channel, multi-level, multi-perspective, multi-form, and practice-based. In the training of students, career education incorporating embodied cognition is carried out according to different specialisations, and students are triggered to think deeply through debates, situational experiences, case studies and other forms. In the process of practical teaching, teachers should be able to stimulate students' innovative consciousness, consciously create different career paths, and cultivate the spirit of exploration and practical ability. Using culture as an index, students look for

cultural tools and resources to solve problems, combine the perspective of cultural diversity, explore ways to solve problems from multiple perspectives and look for breakthroughs in career development, and are able to continuously try and break through obstacles.

High schools need to be equipped with appropriate career courses, and it is recommended that embodied cognition be incorporated into the curriculum for career education, and that schools establish appropriate organisational structures, such as career guidance and counselling centres, to develop courses with organisational structures at their core. Stand-alone courses and integration courses can be carried out. Stand-alone courses refer to adding special courses to the existing teaching system, from which embodied career experience environments are designed, such as career labs, holographic projections, etc., integrating the content of career education into the teaching process of embodied cognition, adding localised content in combination with local characteristics, and designing the teaching by clarifying the concepts, teaching the content, promoting self-study or peer-to-peer learning, as well as applying it in practice and collaborating with the curriculum co-construction . An inclusive curriculum is one that integrates the development of career competencies into the rest of the curriculum, linking embodied cognitive experiences to all areas of study and helping students to further reflect on and develop needed career competencies. An integrative curriculum encourages learners to incorporate learning experiences into their construction of meaning, thereby broadening and deepening their understanding of themselves and the world (Li and Fan, 2019). As a result, a curriculum system for career education in schools is established, incorporating embodied cognition theory, designing career education experience centres, organically integrating career counselling, career guidance and career courses, and establishing a system and promoting it.

4.3 Creating a New Pattern of Career Parenting

In the current information society, with the rapid development of science and technology, the rapid growth of information and knowledge, the shortening of the cycle of knowledge updating, the acceleration of the frequency of innovation, and the increasing demand for human quality, learning becomes an urgent need for individuals, organisations and society. Integrating embodied cognition into career education is not enough to rely only on the curriculum or one or two departments, but needs to be implemented in a concerted manner by school psychology teachers, teachers of professional courses, counsellors and other parties. First of all, teachers of professional courses need embodied awareness to increase their understanding of the characteristics of learning in the information age and to develop their ability to apply new technologies in teaching. Teachers are tasked with designing and practising the curriculum and integrating elements of career education into specific subjects. Teachers of different subjects also need to work together to promote active student participation. Secondly, the integration of embodied cognition into the curriculum of career education also requires the integration of teachers. The school's mental health centre is used as an axis to bring in teachers from all subjects in the school.The concepts of embodied cognition and career development are organically combined with the professional courses, and constant interaction is carried out in terms of the construction of teaching materials, the construction of the teaching team, the arrangement of the curriculum, the teaching method, and the assessment and evaluation, etc., and exploration and optimisation are promoted through practice. Finally, practical activities outside the professional curriculum are brought into play to promote students' understanding of career content integrated with embodied cognition. Examples of practical activities can be in the form of academic discussions, school events, and online platforms. The means of information technology is an area that senior secondary schools can focus on by building an information network platform, which can build a case base, share resources, and collect students' attitudes towards the relevant content secondarily through public push and discussion platforms in order to amend the subsequent courses and activities. The realisation of online interaction can make up for the lack of resources and manpower in some schools, and can also promote students' multi-perspective thinking about embodied experiences. China can consider using information technology to promote the participation of schools, enterprises, social organisations and families in career education, especially for areas with poorer educational resources, which can be united with schools with better career education through the Internet. In the process of information technology, the sharing of knowledge and skills is the foundation, establishing communication and understanding is the way to open up students' horizons, and being able to raise awareness and transform mindsets is the ultimate goal. People in the new era who are unfamiliar with information technology will encounter many obstacles on the path of career planning. It is of far-reaching significance to organically combine online and offline methods, to complement continuous and discontinuous educational contents, to stimulate students’ innovative thinking and to raise their awareness of problems, and to further promote mental abilities suitable for today's society, in order to form a virtuous circle of students’ development.

Acknowledgments

This work was supported by the Educational Youth Project 2020 in the "13th Five-Year Plan" of the National Social Science Fund of China (grant number: CLA200280).

Authors contributions

Not applicable.

Funding

Not applicable.

Competing interests

Not applicable.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of the Redfame Publishing.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

Not commissioned; externally double-blind peer reviewed.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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