



Personal play identity and the fundamental elements in its development process

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Abstract

The aim of this study to define personal play identity and examine the fundamental elements in its development process. Within the scope of this research, 66 works (36 experimental, 28 theoretical, and two both experimental and theoretical) were reviewed and discussed by following the systematic literature review process. After reviewing process, the fundamental elements of personal play identity can be examined under four themes, namely play, personality, socio-culture and environment, and economics and technology. The evolutionary nature of play, which can be defined as an individual's complex specialized identity is considered as a part of their development, allows personal play identity to be transferred to the next generations as it shaped by the continuous interaction of factors, such as socio-cultural environment, economy and technology. It is thought that play identity has a power that can make a positive difference to people since it presents a healthy development in most skills and attitudes which determine the quality of life, such as developing solutions for the problems faced by people throughout their lives, establishing social relations, achieving identity, and the ability to cope with problems.

Keywords Play · Play development · Personal play identity · The fundamental elements in play identity

Introduction

The notion of play, as ancient as the complex biological life on earth, is a timeless subject for the numerous areas of science (Güneş, 2020). Even though much has been learned about play in the last 30 years, there are still mysterious aspects of it (Lillard, 2015). Similarly, Elkonin (2005) believes that the psychological nature of play has not been completely discovered. In the conceptual context, play interacts with many disciplines with its different approaches and inherent features. For instance, some ethologists have studied the type and origin of the play behaviour of animals and the differences and similarities presented by human play behaviour (Bekoff, 1995; Bekoff & Byers, 1998; Cheney, 1978; Fagen, 1981). Both educational psychologists and ethologists have tried to examine these similarities, differences, and relations of play behaviours in humans and non-humans (Pellegrini et al.,

2007; Pellegrini & Smith, 2005; Power, 2000). Besides ethology, play is related to the economy that directly affects child health and development (Boyden & Dercon, 2012), and the technology that guides the change of the game/toy structure (Goldstein, 2011). In addition to the former, personal experiences, play memories (Eck, 2017; Sandberg, 2001, 2003), socio-cultural effects (Elkonin, 2005; Vygotsky, 1978), experiences of social pain such as war and terror (Catani et al., 2008; Feldman, 2019; Paksuniemi et al., 2015) together with the individual and social identities created by these common experiences (Tajfel & Turner, 2004; Turner, 2010) show the interaction of play with psychology and sociology. From this perspective, play that Lakoff (1973) defined about half a century ago as a fuzzy concept can also be considered as a dynamic and complex concept having a strong interaction with many disciplines.

Note: Data sharing not applicable to this article as no datasets were generated or analysed during the current study.

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Purpose and Significance of the Study

The mutual interaction of play with other disciplines, such as ethology, sociology, economics, and psychology show its structure to be shaped by complex and dynamic elements. In addition, its wide network of interaction with life affects not only the childhood of individuals but also their adulthood.

Fields, such as sociology, technology and economy which affects and is affected by play, and all the psychological and evolutionary features inherent in it indicate the development of a customized play identity for everyone. In this framework, the aim of the current study focused on two important aspects: to examine the fundamental elements of personal play identity development and to define the concept of personal play identity.

It is a known that play is at risk in terms of its transfer to the next generation due to the consumption-based economy combined with the rapid and uncontrolled technology and digital transformation. However, because of the fundamental elements it contains, personal play identity has the potential to create a strong resistance against this risk since the transfer of play is accepted to be among the important elements of passing culture to the next generation. The first important aspect of this study was to draw attention to this potential. Discussing the way in which the play behaviour of individuals evolves and how the play perceptions of the societies will be transformed in the future through individual play identity constituted the second important aspect of the research.

Method

Research Design

Systematic review processes (Newman & Gough, 2020) were followed in the literature review, which was determined as the method of the study. In addition, content analysis was used, which allows the systematic and reproducible compression of several concepts in the reviewed texts into certain content categories using various coding methods, and thus obtain the themes and concepts used in the analysis of the findings (Stemler, 2000).

Scopus and PsycINFO were used for the selection criteria of articles. Socio-Economic and Natural Sciences of the Environment SENSE-A, SENSE-B, and SENSE-C quality ranking were used for peer-reviewed scientific publications and SENSE-D for non-peer-reviewed scientific publications, as well as Web of Science (WoS) for the selection criteria of books. The keywords were determined under the four main themes of play, personality, socio-culture and environment, and economics and technology. The keywords of the play category included play theories, play, nature of play, definition of play, and features of play. The keywords concerning personality were personal and social identity, play memories, and play perceptions. The theme of socio-culture and environment was represented by keywords using socio-cultural transform, historical events, immigration and ethnicity, typology of family, place identity, and school/academic environment. For the economics and technology theme, effects of economics

and technology and play, developmental effects of economics and technology on childhood were used as keywords.

Findings

Characteristics of the Reviewed Studies

The type, method, index, and author information of the reviewed studies are presented in Table 1.

The reviewed items included 66 works (45 articles and 21 books), of which 17 studies were from 2015 and later, with first-hand sources from different fields, such as ethology, psychology, and sociology. The experimental methods were used in 36 works, the theoretical methods were in 28, and both theoretical and experimental methods in two. The index information for the reviewed items were: SSCI for 26 articles, SCIE for eight, ESCI for seven, PsycINFO for two, and SCOPUS for two. There were only two books in this study indexed in both SENSE-D and WoS indices, while the remaining books were indexed in SENSE-A, B and C and in WoS. All works included in the research were indexed by internationally accepted high-level.

Discussion

The fundamental elements of personal play identity can be examined under four themes, named play, personality, socio-culture and environment, and economics and technology according to reviewing process.

The Fundamental Elements of Personal Play Identity Development

The components related to play were primarily determined through the studies reviewed in terms of the development of personal play identity. Then, the sub-concepts of these components were extracted, and the fundamental elements contained in these sub-concepts were gained.

Play as the First Component of Personal Play Identity

Most of the behaviours that organisms exhibit when they are not hunting, breeding and threatened are defined as play behaviour (Bekoff, 1977; Bekoff & Byers, 1998; Fagen, 1981), and these behaviours are mostly seen in mammals, most vertebrates, and rarely in invertebrates (Oliveira et al., 2010). Burghardt (2014) stated that the observation of the play in many types, such as reptiles, lizard, insect, or fish is a strong sign of our evolutionary past. Furthermore, social play plays an important role in metabolism and brain development, especially in mammals (Bekoff, 1977; Burghardt, 2005; Held &

Table 1 Main characteristics of the reviewed studies

Author(s)	Type	Method	Index	Author(s)	Type	Method	Index	Author(s)	Type	Method	Index
Bekoff and Byers (1998)	B	E	SENSE-A & WoS	Smith (1997)	B	E	SENSE-B & WoS	Parten (1933)	A	E	SSCI
Fagen (1981)	B	T	SENSE-A & WoS	Power (2000)	B	T & E	SENSE-B & WoS	Smilansky (1968)	B	E	SENSE-B & WoS
Oliveira et al. (2010)	A	T	SCI-E	Blurton Jones (2017)	B	T & E	SENSE-B & WoS	Piaget (1952)	B	T	SENSE-C
Burghardt (2005)	B	T	SENSE-A & WoS	Henrick (2008)	A	T	ESCI	Hutt et al. (1989)	B	T	SENSE-B & WoS
Held and Spinka (2011)	A	T	SCI-E	Eberle (2014)	A	T	ESCI	Weeks (1990)	C	T	WoS
Pankseep (2007)	A	E	ESCI	Vygotsky (1967)	A	E	PsycINFO	Tumer (2010)	C	T	SENSE-D & WoS
Cheney (1978)	A	E	SCI-E	Vygotsky (2004)	A	E	PsycINFO	Tajfel and Tumer (2004)	C	T	SENSE-D & WoS
Bekoff (1977)	A	E	SCI-E	Piaget (1962)	B	T	SENSE-C	Wetherell (1996)	B	E	SENSE-B & WoS
Eck (2017)	A	T	SCOPUS	Edwards (2000)	A	T	SSCI	Paksuniemi et al. (2015)	A	E	SSCI
Sandberg (2001)	A	E	SSCI	Singer et al. (2009)	A	E	ESCI	Kousky (2016)	A	T	SSCI
Henniger (1994)	A	E	SSCI	Sutton-Smith (2001)	B	T	SENSE-A & WoS	Wang et al. (2020)	A	T	SCI-E
McLean (2020)	A	E	SSCI	Holmes (2011)	A	E	ESCI	Ehnholt and Yule (2006)	A	T	SCI-E
Warash et al. (2017)	A	E	SSCI	Berman (2001)	A	T	SCI-E	Post et al. (2019)	A	T	SCOPUS
Ranz-Smith (2007)	A	E	SSCI	Catani et al. (2008)	A	E	SCI-E	Trawick-Smith et al. (2015)	A	E	SSCI
Vygotsky (1978)	B	E	SENSE-A & WoS	Chazan and Cohen (2010)	A	E	ESCI	Sturge-Apple et al. (2010)	A	E	SSCI
Roopnarine et al. (1994)	B	T	SENSE-B	Feldman (2019)	A	E	ESCI	McHale et al. (1999)	A	E	SSCI
Rentzou (2014)	A	E	SSCI	Sandberg (2003)	A	E	SSCI	Hull (2015)	C	T	SENSE-B & WoS
Barnett and Kleiber (1984)	A	E	SSCI	Catron and Allen (2008)	B	T	WoS	Plowman and McPake (2013)	A	E	SSCI
Proshansky (1978)	A	T	SSCI	Hirose et al. (2012)	A	E	SSCI	Danniels et al. (2020)	A	E	SSCI
Proshansky et al. (1983)	A	T	SSCI	Miranda et al. (2017)	A	E	SSCI	Leung et al. (2020)	A	E	SSCI
Proshansky and Fabian (1987)	B	T	SENSE-B & WoS	Robertson et al. (2020)	A	E	SSCI	Hu et al. (2020)	A	E	SSCI
Chawla (1992)	B	T	SENSE-B & WoS	Dercon (2002)	A	T	SSCI	Fleer (2020)	A	E	SSCI

Abbreviates in Table 1:

Type (Type of the study) = A (Article), B (Book)

Method (Methodology of the study) = T (Theoretical), E (Experimental)

Spinka, 2011), and the evolutionary origins of play can be determined even though they are seen as different behavioural patterns across all species (Bekoff, 1977; Bekoff & Byers, 1998; Burghardt, 2014; Oliveira et al., 2010). Biologically, the role of the organism on the balance of brain development can be also shown as the most concrete indicator of the

evolutionary origin of play. For instance, Panksepp (2007) examined the effect of play on the brain functions of organisms, stating that play stimulated the amygdala, the brain region responsible for organization, monitoring, and planning the future, and the brain-derived neurotrophic factor in the prefrontal cortex, and reported increased weight and

effectiveness of the brains of experimental animals playing with an object two hours a day.

With reference to the genetic origins of play, considering the Darwinian approach based on the idea of a common ancestor (Darwin, 1859), it is thought that defining the purpose of play in an evolutionary context in line with the play behavior of organisms would be a more accurate perspective. It is known that play is older than the culture created by man and animals did not wait for man to teach them how to play (Huizinga, 1949). Based on this idea, it is considered that the definition of play behavior being based on purely human activity will lead to divergence in terms of evolutionary flow. Gross (1898, 1901) emphasized that the aim of play is to achieve talent development and relaxation and defined play for both humans and other organisms as the behaviors that they develop instinctively to improve their individual talents and to escape from the stress of life.

Cheney (1978) also indicated that most of the object-oriented behaviors developed by organisms have features that improve motor skills and pointed to the contribution of play to talent and skill development in the organism. Bekoff (1977) evaluated fake fighting or predatory movements that occur spontaneously in some animals in terms of the behavioral characteristics within play and stated that the movements based on locomotor activities are dominant in the play behavior of animals. Fagen (1981) referred to the play behavior of organisms with its locomotor, object and social aspects and emphasized that social games contributed positively to the organism's ability to integrate into the group by improving its social skills. As in humans, the behaviors that animals exhibit for play include purposeful intentions, such as relaxation, socialization, and talent development, different from the behaviors they exhibit in real situations (Smith, 1997). While Power (2000) thought that play was widespread in both genders, Blurton Jones (2017) pointed out that males reflected more physical strength, rough and imitation-oriented play behaviors than females, as in many species. It can be stated that the genetic structure of play includes three fundamental elements, namely evolutionary genetic codes, play behavior, and the purpose of play.

According to Henrick (2008) the definition of play can be sought in the answers to following questions: which/what are play? Is play morally good? Is play functional? Is play logical and is it freer than other types of activities? Eberle (2014) emphasized that play had characteristics, such as being aimless, voluntary, extraordinary, fun, and having its own unique rules and defined six fundamental elements of play as anticipation, surprise, pleasure, understanding, strength, and poise. Piaget (1962) examined the characteristics of play and explained the types of play as sensorimotor play, symbolic play, and games with rules. Parten (1933) stated that the schemes for types of play consisted of solitary independent, onlooker (observing others), parallel play, associative play,

and cooperative play. According to Smilansky (1968), play types can be grouped as functional (sensorimotor play), structural play (building or art), dramatic (symbolic) play, and games with rules. Piaget (1952) emphasized the functional value of play on cognitive development by drawing attention to the development of the imagination, animistic thinking, concrete and abstract thinking skills, and problem-solving skills included in the play process. In addition, Vygotsky (1967, 2004) revealed the relationship between play and creativity, imagination, and mental development, and how these skills improve during in play.

When the philosophical structure of play is examined, epistemic play is included in the play classification together with ludic play and games with rules. In epistemic play, children learn about the properties of objects and physically manipulate these objects and use them for different purposes (Hutt et al., 1989). For instance, Leung et al. (2020) reported in their study based on video art in the context of digital play that children's cognitive skills were improved in terms of exploration, problem solving, and skill acquisition in the epistemic play process, while others engaging in ludic activities were likely to participate in symbolic or innovative play. In this respect, it is thought that epistemic or heuristic play is a type of play and has characteristics that shed light on the philosophical structure of play. Considering that epistemic questions, such as the limits, nature, origin, and originality/freedom of play are effective in shaping the perception of play (Güneş et al., 2020), one of the important elements of play is thought to be its epistemic structure.

Personality as the Second Component of Personal Play Identity

The social development and cultural context of play are closely related to the identity possessed by the individual and the society and culture they are part of through this identity (Elkonin, 2005; Vygotsky, 1978). According to Weeks (1990), the originality of identity and the value of difference should be perceived positively by both individuals and communities, and the formation of belonging according to the differences and similarities between us and others should be examined from a holistic perspective. Turner (2010) considered the formation of group membership with the concept of social identity and self, and the development of a positive self-perception and self-esteem as the basis of a healthy social class formation. Similarly, Tajfel and Turner (2004) stated that inclusion in the group, intra-group behavior and intergroup conflicts was part of social identity development. The acceptance of the individual by the social structure and adaptation of the individual to the culture have a decisive effect on social identity acquisition and on the process of becoming a member of the group (Wetherell, 1996). In this respect, the play groups in which human beings are included in their childhood point

to the formation of the first social classes and the common play experiences of these classes are indicators of the foundations of a social identity development with similar characteristics, as well as conflicts. From this perspective, personality including personal and social identity elements is an important component in the development of play identity.

The personal experiences and perception of play incorporated in personality are the source of the elements of the development of play identity. According to Eck (2017), memories of play are very special, and those emotional experiences are remembered and help to overcome the difficulties encountered in adult life. Similarly, Sandberg (2001) stated that play memories were deemed very important by individuals in terms of their childhoods, and that the toys with which they played, and the features of these toys were also prominent in their play memories together with the emotions of the individuals. However, the interactions of parents, playmates and other adults in play are considered to be more valuable than toys in play memories since it has been reported that some adults do not adequately engage in play with their children, and for those children, in their play memories, some of the closest playmates are pets (Henniger, 1994).

The process of parents in learning about how their children play within the socio-cultural context has been affected by social media, suggesting that the parent and child interaction has begun to shift from a physical communication to a social and digital platform, and this indicates that there are difference between the play memories of children and their parents (McLean, 2020). As a natural result of the differentiation of the play memories of children and parents, the perception of play also varies. The expectations of the parents have been shown to be quite different from the experiences of children during the play process (O’Gorman & Ailwood, 2012), and these differences in parents’ perception of play are among the important variables that affect the child’s play process. For instance, mothers are more aware of the value of play and its effect on academic success than fathers and support their children in play. In addition, even though parents have positive perceptions about play, it has been found that the positive perceptions of parents change negatively as their children grow up and approach the formal education period. Thus, parents’ perceptions of play tend to have a negative correlation with their children’s ages (Warash et al., 2017). Furthermore, teachers’ perceptions of play have an important role in children’s play development. In one study, it was reported that although the classroom teachers had positive perceptions about the role of play in learning and the value of play, this was not reflected in their classroom practices and the children were observed to be reluctant even in continuing play they initiated themselves (Ranz-Smith, 2007).

Socio-Culture and Environment as the Third Component of Personal Play Identity

The ethnographic characteristics of play (Roopnarine et al., 1994), its intercultural structure (Edwards, 2000; Singer et al., 2009), and cultural depth (Sutton-Smith, 2001) which reflects its cultural values and beliefs (Holmes, 2011) and also contains universal elements (Lancy, 2002) shed light on a relationship between play and culture based on an illustrious past (Holmes, 2013). From this point of view, one of the important components of personal play identity development is socio-culture and environment.

Play is directly affected not only by positive sociological facts but also by the negative aspects experienced by the members of a society. In particular, studies reveal that war, natural disasters, or internal conflicts and violence cause mental disorders due to post-traumatic stress in children (Berman, 2001; Catani et al., 2008), and they also negatively alter the nature and structure of play processes (Chazan & Cohen, 2010; Feldman, 2019; Paksuniemi et al., 2015). Although it is known that children continue to play even during war (Paksuniemi et al., 2015) and war cannot constitute an impediment for play, children do engage in play in an unsafe environment, in which they are subjected to acute stress (Feldman, 2019). Children exposed to this type of violence experience long-term mental and physical health problems and traumas (Berman, 2001); inevitably they reflect their negative experiences in their play. Faced with natural disasters, such as war and violence, children are seriously deprived of an adequate education, in addition to the effects on their physical and mental health (Kousky, 2016); thus, these children show negative development and these negativities are reflected in the next generation.

Widespread health problems affecting the world have an important effect on the development of play identity. According to Wang et al. (2020), the closure of schools upon the COVID-19 pandemic, the physical and mental health of 180 million primary and middle school children and 47 million preschool children could potentially be adversely affected, due to less physical activity, long-term screen viewing, irregular sleep, unsuitable diets, and weight gain. However, play has a therapeutic power (Chazan & Cohen, 2010; Post et al., 2019) and is known to survive not only through destructive social events, such as war and terrorism (Feldman, 2019; Paksuniemi et al., 2015) but also in natural disasters (Kousky, 2016). In this context, although the healthy development of play identity is affected by negative social events or natural disasters, the healing power of play within its own dynamics is considered to have the potential to treat the damage that might occur in play identity. In conclusion, it can be stated that socio-culture, which is among the important sub-concepts of personal play identity development, includes historical events

elements, such as war, natural disasters, and global health problems.

One of the important components under the socio-cultural sub-concept is ethnicity and immigration, in which considering the answers to the questions of who I am and where I belong is part of the personal and social identity development (Gleason, 1983). In this context, play processes that directly affect the identity development of children are also directly affected by ethnicity and migration. Immigrant children experience mental and physical health problems in the countries they have moved to, showing developmental disorders under stress, and frequently experiencing traumas due to the need to adapt to a different society (Ehnholt & Yule, 2006). Children who are excluded from social, cultural, economic, and political life due to their ethnic identity or poverty have the potential to exhibit behavioral problems at later stages in their lives (Post et al., 2019). In another study on the effect of ethnicity and immigration on the choice of play and toys, it was reported that the quality of toy choices and playing times of children aged three to four years varied according to socio-economic status, ethnicity, and gender (Trawick-Smith et al., 2015).

Family typologies also play an important role in the social structure of play identity development, as in all socio-cultural elements, considering that the family is the first environment on which migration and ethnicity have the most effect on all members (Platt, 2008). Among the main family typologies, Sturge-Apple et al. (2010) examined the play of cohesive, enmeshed, and disengaged families with their children, and reported that children's play behaviors and prosocial behavior achievements toward social life differed compared with incompatible family typologies. It has been shown that family-child interaction and family typologies have a determining effect on developing behaviors toward negative emotions and thoughts, such as irritability, anger, and rage, and that the social peer relationships of children who have warm and positive relationships, and their interactions with their peers and behaviors within play are more positive (McHale et al., 1999). Children's behaviors observed in social and non-social play and their preferred types of play are related to their personal and family characteristics (Rentzou, 2014).

The environment which individuals inhabit not only affects their physical and mental development, but also their identity development processes. Individuals develop different skills and behaviors in each different environment, and there is a strong interaction between skills and abilities that encompass daily life and develop within the context of space identity (Proshansky, 1978). Space identity can be defined as memories, attitudes, values, thoughts, meanings, and behaviors belonging to a particular place. In addition to the foregoing, space identity also includes physical, social, cultural environment, and self-identity (Proshansky et al., 1983; Proshansky & Fabian, 1987). Places in which childhood is spent support play memories and play behaviors with social bond and

communication development and greatly shape future behaviors and attitudes (Chawla, 1992). On the other hand, considering the physical environment as important at different stages of life, it is argued that there is a connection between place identities and how adults play in their childhood and how their play processes are shaped today (Sandberg, 2003). In this context, it can be accepted that the memories, behaviors, conditions, and relationships contained in the space identity are an effective element, giving clues to the foundations of the development of the play identity.

Since the environment is not only composed of informal settings, it is thought that the school/academic environment plays a critical role in terms of play identity. Findings showed that school experiences were not only limited to academic subjects and revealed the positive effects of socialization and school experiences on impulse control in older age children (secondary and high school) were compatible with development theories emphasizing that permanent track experiences in schools might cause long-term personality change (Brandt et al., 2019). From this point of view, it is understood that in preschool where personality development has begun to intensely take shape comprises an environment that makes a difference in terms of personality and play identity development. The environment consists of physical (design, material, and furniture), social (child-teacher and family communication) and temporal (time, flow, activity and daily routines) components; thus, pre-school is considered to have a decisive effect on children's learning and development (Catron & Allen, 2008). In line with this train of thought, Hirose et al. (2012) stated that indoor and outdoor arrangements were important not only for the healthy development of children, but also for discovering their special play behaviors and interests. In addition, it is accepted that the outdoor environment shapes children's social play (Miranda et al., 2017) and is one of the important elements of children's socio-dramatic play processes (Robertson et al., 2020).

Economics and Technology as the Fourth Component of Personal Play Identity

In the rapidly globalizing world, the component of economics and technology plays a critical role in shaping the other three components. The economic structure of countries directly affects the healthy development of children, whether they have an adequate and balanced diet, and their access to qualified education. For example, the findings from the Young Lives International Research Project confirm the strong link between early childhood diet and cognitive development in older ages and point out the importance of economic development by emphasizing a similar relationship between child nutrition and social emotional outcomes, such as self-esteem and self-efficacy (Boyden & Dercon, 2012). In the Growth and Development Report of the World Bank Commission (2008)

emphasized that economic investments were not only necessary for the survival and quality life of children but should also be undertaken to create a sustainable economy.

Low-income and large families are among the common risks referred to in both the economy and child development literature. In addition, problems in economic development lead to certain issues in children, such as multiple developmental risks, lacking an adequate and balanced diet, having low education levels, and not accessing an effective educational environment (Dercon, 2002). Over the last 70 years of economic development, it is reported that approximately 63% of the world population in the 1950s, 43% in the 1980s, and 10% in 2015 lived in extreme poverty. Although the extreme poverty rate has tended to decline in recent years, the rapidly developing technology and innovation processes seem to have negatively contributed to a tendency toward inputs with a low efficiency increase and excessive consumption (Inklaar et al., 2018; World Bank, 2019). In this context, although the economic development experienced in the technology and innovation process seems to have made progress over the last 70 years, this growth appears to have exhibited an excessive consumption-oriented structure. One of the concrete examples that form the basis of this idea is the rapid growing of a technology-based toy market, which negatively affects children's creativity and can cause them to experience an artificial and social isolation. The recent focus on children's use of digital games and toys and indoor computer games shows the negative reflections of uncontrolled economic development on play and toys. In this context, this weak economic structure negatively affects the health and educational skills of the children, while the strong and uncontrolled economy changes the nature of play and takes the children away from creativity and socialization.

Technology developing in parallel with the economy has recently been a determinant variable on the lives of children. It is seen that technological tools, such as the internet, mobile phone, television, and video games are now an accepted part of the lives of children and adults (Hull, 2015). Recent studies have shown that the video art as digital play (Leung et al., 2020), active screen time (Hu et al., 2020), and digital pre-school environment and applications (Fleer, 2020) have positive effects on child's learning, creativity, and innovation skills. Digital technology is no longer seen as an enemy of children by some researchers (Fleer, 2020; Hu et al., 2020; Kewalramani et al., 2020; Leung et al., 2020). Furthermore, Plowman and McPake (2013) debunked as a myth that technology is an enemy of children; rather, they defined young children as digital natives. However, the levels of benevolence and prosocial behavior of children who are exposed to violent video games are one of the negative application areas of technological development, which have resulted in a significant increase in the externalization behavior of children at an early

age (Coyne et al., 2018). Even though the technology use in childhood results in looking at a screen for a long time and being immobilized, attention problem (Swing et al., 2010), physical problems, obesity and eating habits (Rosen et al., 2014), cognitive development problem (Kumari & Ahuja, 2010), sleep and memory problems (Dworak et al., 2007) with negative effects on the three main aspects, namely health and well-being, cognition and brain development, and social and cultural competencies (Bolstad, 2004), many studies that emphasize the positive aspects of children's technology use also present remarkable findings (Fleer, 2020; Hu et al., 2020; Kewalramani et al., 2020; Leung et al., 2020; Plowman & McPake, 2013). Another example of the positive effects of technology is the integration of technology into early childhood education. It was reported that many educators had expressed views on increased efficiency in the evaluation of activities with the use of technology in game-based classes (Danniels et al., 2020).

Definition and Significance of Personal Play Identity

It is considered that the play identity consists of play, personality, socio-culture and environment, and economics and technology components. Each of these four components consists of their own sub-concepts and fundamental elements. Figure 1 presents the pattern relationship formed by the components, sub-concepts, and fundamental elements within the holistic and relational structure of personal play identity determined in the literature research.

The evolutionary nature of play allows personal play identity, which can be defined as individual's complex, specialized identity as a part of their development to be transferred to the next generations as it shaped by the continuous interaction of factors, such as the socio-culture and environment, economy, and technology.

Personal play identity offers remarkable projections for the future of human and play. First, the evolutionary origin of play (Bekoff, 1977; Bekoff & Byers, 1998; Burghardt, 2005, 2014; Held & Spinka, 2011; Oliveira et al., 2010), which is one of the important components of personal play identity, revealed in the context of ethological studies, shows that play identity is being passed on to the following generations. This characteristic has important potential in protecting and transferring play, which are important elements of humanity's cultural heritage (Holmes, 2011, 2013; Sutton-Smith, 2001). Although play has been facing the risk of losing many of its inherent characteristics, such as socialization, creativity, and physical activities because of the negative applications of uncontrolled consumption-based economy and technology (Coyne et al., 2018; Dworak et al., 2007; Kumari & Ahuja, 2010; Rosen

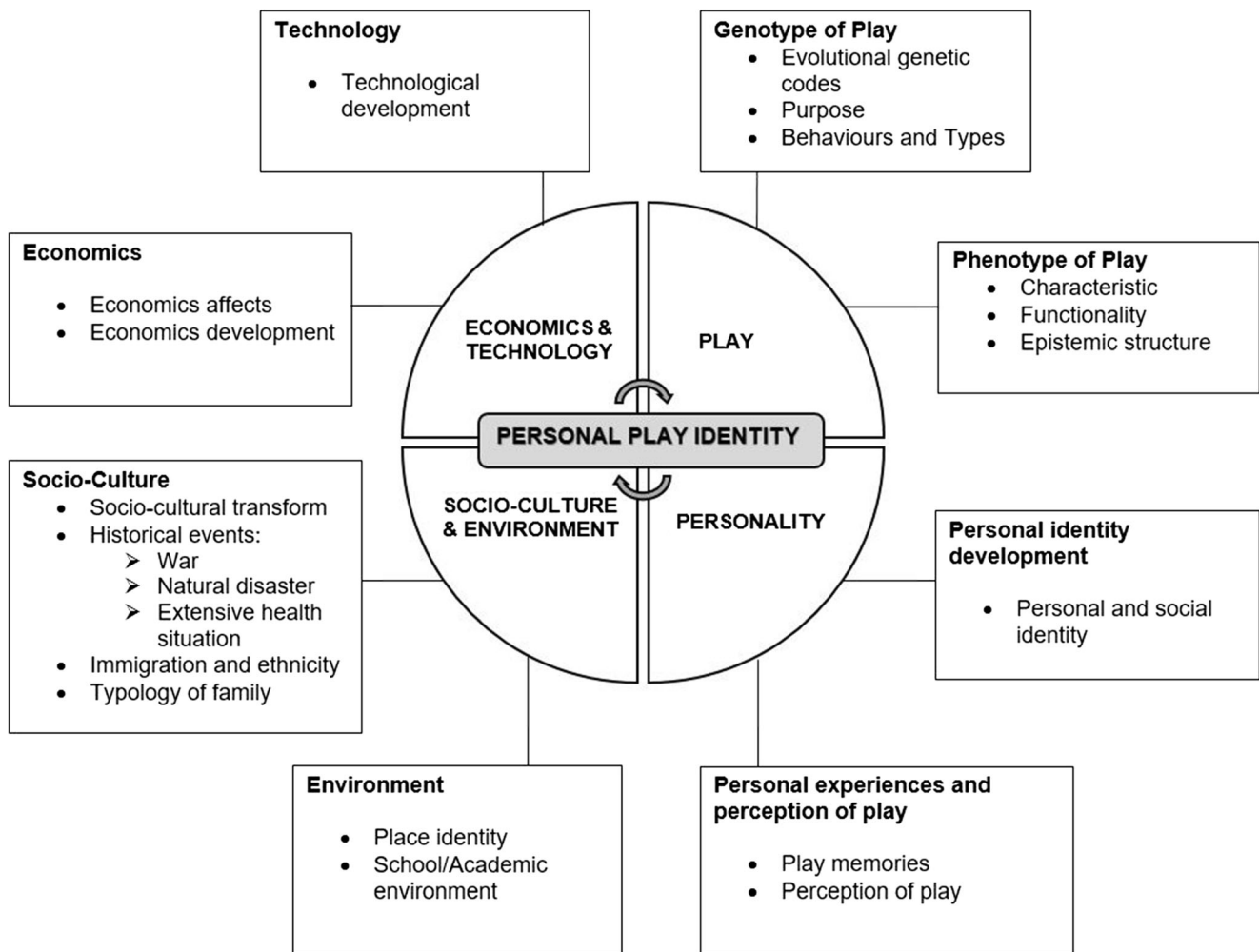


Fig. 1 Personal play identity

et al., 2014; Swing et al., 2010), it is thought that it will have a chance to create a strong resistance against this risk with the healthy development of personal play identity. In addition, considering the role of personal play identity in identity development, it can definitely be suggested that it has a strong simulation feature regarding the structure of the reactions toward the events that people will encounter throughout their life or the solution strategies they will develop for problems.

Finally, children who assume the roles in which they discover their potential to develop their creativity in the play process, even in unsafe environments, such as war, terror attacks (Feldman, 2019; Paksuniemi et al., 2015), and natural disasters (Kousky, 2016), where their basic needs, including security and nutrition cannot be met. Children perhaps start life at the top of the Maslow's (1943) hierarchy of needs, in which the unique potential of play enabling self-actualization as a component of the play identity in addition to preparing them for life also helps children to cope with the difficulties in life, be happy and hold onto life despite all the negativities.

Conclusion

It is considered that personal play identity, which was defined in this study by considering the thesis, anti-thesis and synthesis approaches in the literature review, consists of the four components of play, personality, socio-culture and environment, and economics and technology. Under the genotype of play sub-concept, which is accepted as the first component of play, there are three fundamental elements, namely evolutionary genetics codes, purpose, and behaviors and behavior types, while under the phenotype of play sub-concept are three fundamental elements, which are characteristics, functionality, and epistemic structure. The second component of personality is considered to consist of the two sub-concepts of personal identity development and personal experiences and perception of play. The first sub-concept consists of personal and social identity, and the second sub-concept consists of play memories and perception of play elements. The third component of socio-culture and environment contains four fundamental elements under the socio-culture sub-concept,

which are socio-cultural transformation, historical events, immigration and ethnicity, and the typology of family. Under environment, which is another sub-concept of this component, it is considered that there are two fundamental elements: place identity and school/academic environment. Economics and technology, the last component of the personal play identity, is thought to include two fundamental elements as economic affects and economic development under the economics sub-concept, and technological development fundamental element under the technology sub-concept.

Limitations and Implications for Further Research

To define personal play identity, only four main dimensions, i.e., play, personality, socio-culture and environment, and economics and technology were examined within the scope of this study. Since other dimensions or disciplines have a part in personal play identity, restricting the dimensions to only four is seen as a limitation of the study.

It is recommended that longitudinal studies with experimental methods are conducted regarding the development and change of personal play identity. In addition, measurement tools for the determination of national play identity can be developed and the cross-cultural comparison of the findings can be proposed. Finally, it is suggested to plan research aiming to reveal other dimensions of play identity by examining the developments and transformations of personal play identity components and fundamental elements in detail in the light of empirical findings.

Data Availability Data sharing not applicable to this article as no datasets were generated or analysed during the current study.

Declarations

Ethical statement I declare that I fully comply with all items stated below:

- The manuscript should not be submitted to more than one journal for simultaneous consideration.
- The submitted work should be original and should not have been published elsewhere in any form or language (partially or in full), unless the new work concerns an expansion of previous work. (Please provide transparency on the re-use of material to avoid the concerns about text-recycling ('self-plagiarism').)
- A single study should not be split up into several parts to increase the quantity of submissions and submitted to various journals or to one journal over time (i.e. 'salami-slicing/publishing').
- Concurrent or secondary publication is sometimes justifiable, provided certain conditions are met. Examples include: translations or a manuscript that is intended for a different group of readers.

- Results should be presented clearly, honestly, and without fabrication, falsification or inappropriate data manipulation (including image based manipulation). Authors should adhere to discipline-specific rules for acquiring, selecting and processing data.
- No data, text, or theories by others are presented as if they were the author's own ('plagiarism'). Proper acknowledgements to other works must be given (this includes material that is closely copied (near verbatim), summarized and/or paraphrased), quotation marks (to indicate words taken from another source) are used for verbatim copying of material, and permissions secured for material that is copyrighted.

Informed consent Informed consent is n/a (non-applicable) for current study. Because this is a non-experimental study which was made via systematically literature review, the research instruments such as questionnaire, scales or observations were not used on any sample groups such as child, teachers or etc. Therefore, there was no need neither to take any ethical permission from institution nor informed consent from child, parents or etc.

Conflicts of interest There is no conflict of interest in the current study.

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