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**Original Article**

# GADGET USE AND PHYSICAL ACTIVITY AMONG CHILDREN: INVOLVEMENT PROCESS THEORY

## USO DE DISPOSITIVOS E ATIVIDADE FÍSICA ENTRE CRIANÇAS: TEORIA DO PROCESSO DE ENVOLVIMENTO

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**RESUMO**

O comportamento sedentário é uma preocupação global na última década e ainda é uma questão alarmante atualmente. Entre as preocupações de ser sedentário estava o uso de gadgets entre as crianças, bem como o envolvimento em atividades físicas. Várias pesquisas exploram os fatores ligados ao estilo de vida inativo. No entanto, a geração de teorias, especialmente sobre o uso de gadgets e o processo de envolvimento em atividades físicas entre as crianças, foi limitada. Assim, este artigo tem como objetivo construir teoria sobre o uso de gadgets e o envolvimento em atividades físicas entre crianças. Este estudo explora as experiências das crianças com o uso excessivo de gadgets e o envolvimento em atividades físicas por meio de uma abordagem qualitativa usando lentes da teoria fundamentada. Os participantes do estudo eram estudantes de 11 a 13 anos e pais selecionados das Filipinas. Os dados foram coletados por meio de entrevista presencial semiestruturada em profundidade. A análise de dados qualitativos assistida por computador (CAQDAS) foi implementada neste estudo. Especificamente, ATLAS ti. 22 foi utilizado um software no gerenciamento e análise de dados orientado pela teoria construtivista fundamentada de Charmaz. A teoria foi gerada neste estudo após o processo de codificação, ou seja, codificação inicial, codificação focada e construção de teoria. A análise rigorosa dos dados deste estudo gerou uma teoria e a apresentou em forma de processo. A teoria do processo de envolvimento das crianças com o uso de gadgets e atividade física foi explicada nas fases seguintes; ser influência, ser feliz, aceitar a situação, dar tarefa condicional, atividade física: ser o último da lista. As descobertas indicam a razão pela qual as crianças passam muito tempo no gadget, pois o interpretam como um lugar feliz e menos tempo para atividades físicas, pois o consideram como a última prioridade de envolvimento. Os resultados deste artigo contribuem para a compreensão de como os alunos do ensino médio interpretam suas experiências em relação ao uso excessivo de gadgets e à inatividade física. A conscientização sobre como as crianças veem o uso de gadgets e o envolvimento em atividades físicas fornece aos pais, especialistas em saúde e outros profissionais relacionados uma base para a criação de um plano ou estratégia para promover o equilíbrio no uso de gadgets e no envolvimento em atividades físicas pelas crianças.

**Palavras-chave**: Atividade física, Uso de dispositivos, Grounded theory, crianças

**ABSTRACT**

Sedentary behaviour is a global concern over the past decade and still an alarming issue at present. Among the concerns of being sedentary was gadget use among children as well as physical activity involvement. Several researches explore the factors link to inactive lifestyle. However, theory generation particularly on gadget use and physical activity involvement process among children were limited. Thus, this paper aims to build theory on gadget use and physical activity involvement among children. This study explores children experiences on too much gadget use and physical activity involvement through qualitative approach using grounded theory lens. Participants of the study were 11 to 13 years old school student and selected parents from Philippines. Data were gathered through face-to-face semi – structured in depth interview. Computer assisted qualitative data analysis (CAQDAS) was implemented in this study. Specifically, ATLAS ti. 22 software was used in data management and analysis which was guided by constructivist grounded theory by Charmaz. Theory was generated in this study after coding process i.e. initial coding, focused coding and theory building. Rigorous analysis of data in this study generated a theory and presented in form of process. The children's involvement process theory to gadget use and physical activity was explained in the following phases; being influence, being happy, accepting the situation, giving conditional task, physical activity: being last on the list. The findings indicate the reason why children spend too much time on gadget as they interpret it as happy place and less time for physical activity as they consider it as last in engagement priority. Results of this paper contribute understanding on how middle school students interpret their experiences regarding excessive gadget use and physical inactivity. Awareness on how children view gadget use and physical activity involvement provides parents, health experts and other related professionals a basis for creating a plan or strategy to promote a balance gadget use and physical activity involvement for children.

**Keywords**: Physical activity, Gadget use, Grounded theory, Children

## Introduction

Sedentary lifestyle was a global concern over the past decades. Sedentary behavior are those actions that doesn't need extra energy and usually done while sitting or lying position [1]. Gadget use being sedentary activity gains the attention of health and movement experts for further research exploration in connection to children's inactivity. Gadget such as cellphone, tablet, laptop etc. are considered to be part of children's daily life in today's digital generation. Gadget exposure was common to children for entertainment and educational purposes. According to Lindsay et al. [2] gadget was part of young populations daily routine such as for leisure and school activity purposes. However, kids were prone to being excessively expose to gadget. Too much screen time was one among the activities that is link to inactivity. Association between gadget use and being physical inactive was cited in numerous researches. According to Felix et al. [3] the association between excessive screen time and inactivity is notable. Consequently, individuals that engage too much on gadget exhibit low involvement in physical activities [4,5]. Despite of the association on gadget use and physical activity engagement reported by the previous literature, it is still important to understand how children view their experiences regarding this particular topic that will provide insights that can be integrated in designing a comprehensive intervention program.

Physical activity engagement among children was reported to be a problem by health organizations. Numerous negative health related effect was connected to lack of active play engagement [6]. According to World Health Organization [7], only less than twenty percent of adolescents across the globe complies to the movement guidelines . Similarly, excessive screen time was an issue that needs to be deal with in terms of sedentary behavior. Children interpret gadget as part of their daily activities [8,9]. In connection to this, young population spends more time on gadget compare to active play engagement. Digital era create adverse impact on active lifestyle of the community [10]. Undesirable impact on young populations health was link to too much gadget use [11]. Even with the negative reports associated to too much gadget used and awareness on the positive gain of being active, children still choose to be over engaged in technological devices such as cellphone, laptop etc. With this, exploring on how children interpret their experiences through this phenomenon is timely and significant.

Interventions are created to countermeasure the negative impact associated to sedentary behavior including excessive gadget use and physical inactivity. However, despite of several researches that aims to improve the community status regarding active lifestyle, inactivity among individual continue to upsurge. With this, community sedentary behavior mainly too much gadget involvement put on notice particularly on young populations health and well-being development. Community non – compliance to movement guidelines, became World Health Organization's [12] reference for global strategy that aims to enhance the physical involvement status and recommends to conduct researches that will generate outputs and findings that might play crucial role in designing intervention plans and strategies.

Several researches suggest physical activity engagement as intervention activity. Dang et al., [13] recommends that future researchers take a look on physical activity as intervention for children who engage and experiencing adverse health impact due to excessive screen time. However, content and context of intervention was given emphasis for attainment of its effectiveness [14.] Activities and strategies must be specifically crafted base on the interpretations of individuals experiencing the phenomena. In connection to that, it is important to explore gadget use and physical activity among children. There is a limited grounded theory that can be a reference in creating intervention framework for sedentary lifestyle specifically too much gadget involvement and inactivity. Therefore, this paper aims to explore the phenomenon grounded directly from children experiences and generate a corresponding theory.

## Methods

Qualitative research method was used in this study. This method is suitable in exploring the "meaning individuals or group ascribe to a social or human problem" [15]. Consequently, constructivist grounded theory approach was implemented in this study. Constructivist theory approach put emphasis with the "world made real in the minds and through the words and actions of its member" Rieger [16] as she discussed Charmaz work in her paper. Constant comparative analysis, initial coding, focused coding, theoretical memoing and theory building was used in generating theory in this study. This approach fits as this study aim to generates theory grounded from the data directly from participants experiences [17].

*Participants*

Purposive sampling was use in this study, 22 middle school students (11-13 y.o) in the Philippines were selected to participate in this research (Table 1). Target participants were obtained through interview to the parents with child (11-13 y.o). Parents were asked if their child was experiencing the set inclusion criteria based on their observation. Snow ball sampling technique was also implemented in this study. Additionally, selected parents were also included in this study for triangulation purpose. Constant comparative analysis of codes and memo's provides the inclusion of parent's experience and interpretation regarding children's excessive gadget use and less active play engagement to strengthen the theory generation. Criteria were assessed based on the assessment of participants parents. Inclusion criteria for the participants are as follows:

1. Involves in gadget use for more than 2 hours per day;
2. Displays gadget use related impact such as inability to focus, unable to control emotion and unable to get task done [18];
3. Having less than 1 hour of engagement in physical activity per day or average per week [19].

**Table 1.** Demographic profile of middle school age participants

| Participant number | Sex | age | Screen time (hours/day) | Physical activity (hours/day) | Screen time behavioral effect |
|---|---|---|---|---|---|
| P1 | F | 11 | More than 5 | Less than 1 | Controlling emotion |
| P2 | F | 11 | More than 3 | Less than 1 | irritable |
| P3 | M | 13 | More than 3 | Less than 1 | Irritable |
| P4 | M | 12 | More than 3 | Less than 1 | irritable |
| P5 | F | 12 | Almost 8 | Less than 1 | Easily distracted |
| P6 | M | 12 | More than 3 | Less than 1 | Controlling emotion |
| P7 | M | 11 | 4-5 | Less than 1 | Easily distracted |
| P8 | F | 13 | 8 | Less than 1 | irritable |
| P9 | F | 12 | 8 | Less than 1 | Less focus on task |
| P10 | M | 11 | More tha 3 | Less than 1 | Low self-control |
| P11 | F | 12 | More than 3 | Less than 1 | Low self-control |
| P12 | M | 12 | More than 3 | Less than 1 | irritable |

| Participant number | Sex | age | Screen time (hours/day) | Physical activity (hours/day) | Screen time behavioral effect |
|---|---|---|---|---|---|
| P13 | F | 11 | More than 8 | Less than 1 | irritable |
| P14 | F | 12 | More than 4 | Less than 1 | Easily distracted |
| P15 | F | 13 | More than 3 | Less than 1 | irritable |
| P16 | F | 13 | More than 3 | Less than1 | Easily distracted |
| P17 | F | 11 | More than 3 | Less than 1 | irritable |
| P18 | F | 13 | More than 3 | Less than 1 | Easily distracted |
| P19 | M | 11 | More than 3 | Less than 1 | irritable |
| P20 | F | 13 | More than 3 | Less than 1 | irritable |
| P21 | M | 13 | More than 5 | Less than 1 | Easily distracted |
| P22 | M | 11 | More than 3 | Less than1 | Easily distracted |

**Source:** authors

*Procedures*

Semi structured in depth interview was used in data collection this study. This interview process fits grounded theory approach as the researcher can exercise the flexibility of questioning to explore certain concepts that is significant to theory generation. Open questions are set to guide and prompt discussions. Participants were asked to describe their experiences about gadget use, how it started, as well as in terms of physical activity engagement. Pilot interview was done to tests whether the questions are appropriate for this research. Necessary adjustment on guide questions were done after the pilot interview. Aside from the ethical approval of this study, the nature and objectives of this study were discussed in detailed to participants' parent and ask for signed informed consent. Prior to the interview with the participants, parents are requested to read the informed consent that contains terms and references regarding the study. This study made sure that the guardians fully understand the study before signing the informed consent. The researcher also made it clear to the participants and parents that all data will be treated with full confidentiality and with anonymity. Data gathering covers for almost 6 months. Children's ability to focus is one of the important aspects in terms of interview duration. Focus for young population only average 20 to 26 minutes [20]. Therefore, the duration of interview took for almost 15 to 20 minutes which starts to the question exploring participants' experiences in gadget use and active play engagement and then tackles on their interpretation on why involved in too much gadget exposure and less physical activity involve. Audio record using cell phone was done during the interview for transcribing purposes.

*Data analysis*

Data management was done with the aid of ATLAS TI 22. Audio recordings of the interview were uploaded in ATLAS ti. 22 and were transcribed by the researcher. English translation was done since the interview was on native language. Constant comparative analysis, initial coding, focused coding, theoretical memoing and theory building by Charmaz [21] was used in this study.

Trustworthiness of this study was validated through the criteria (credibility, transferability, dependability and confirmability) popularized by Guba and Lincoln that was discussed by Moser & Korstjens [22]. Credibility and dependability were achieved in this study through triangulation by

including parents' views and experiences about the phenomena. Consequently, peer debriefing was also implemented to evaluate the results credibility such as discussions of results among co-authors and colleagues in related fields. Confirmability was done through member checking, results and findings were discussed to the participants for affirmation to avoid misinterpretations. Lastly, securing rich and thick description through memoing was provided to strengthen transferability aspect of this study. This study acknowledges the familiarity and engagement within the study provided that primary author as physical educator, being familiar on the notion of sedentary lifestyle and having direct observation as the author have kids experiencing too much gadget use as well, however peer debriefing help reduce bias. Co-authors that are consider to be outsider and several external insights from colleagues giving lessen personal bias. Affirmation from the participants on the transcribe, translated data and interpreted data prevents misinterpretation of information, therefore adds up research credibility. Furthermore, triangulation in this study provides significant contribution credibility and dependability of study findings.

## Results

Considering the iterative and repeated nature of grounded theory methodology and after series of constant comparative analysis (figure 1), substantive theory in this study was generated and presented it in form of "process". *"Studying a process fosters your efforts to construct a theory because you define and conceptualize relationships between experiences and events"*[21;472]

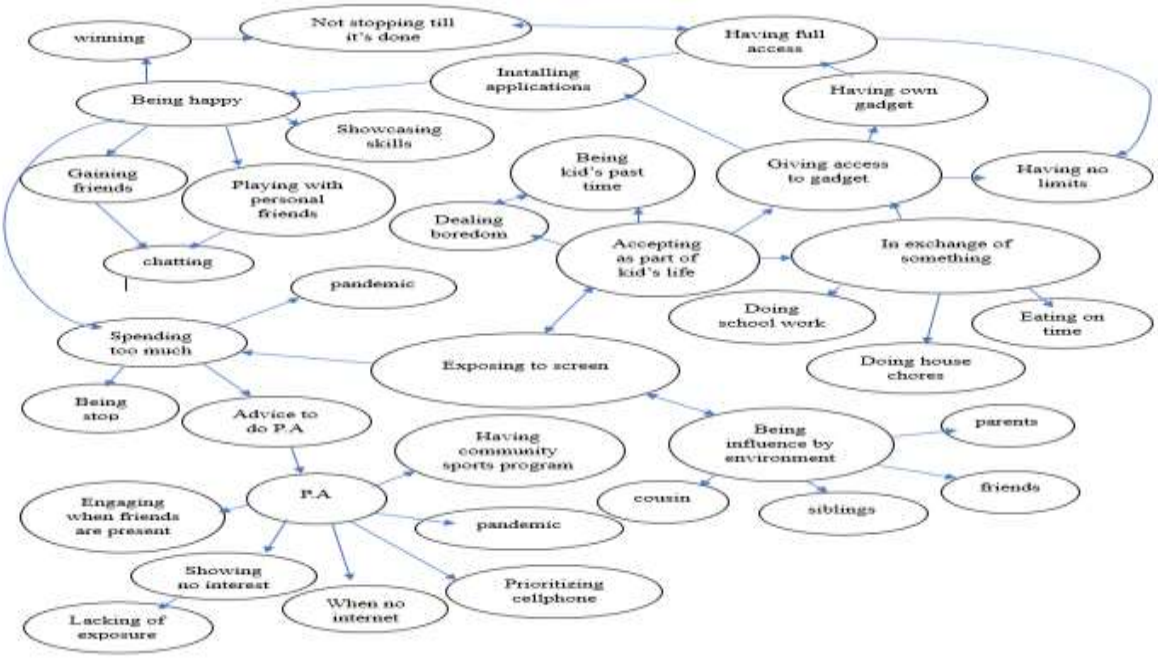


**Figure 1.** Diagramming/mapping exercise (shows connections between codes)
**Source:** authors

## Phase 1. Being influence

This refers to exposure of the participants to the gadgets in which the attention to it started. Participants interpret that exposure to gadget game applications is a pivotal event to make them curious and like it eventually. Consequently, this is reinforced when children have the chance to play the game application personally. This interpretation is manifest in the following quotations when they are asked how they started being involved to gadget.

*P7 - "when I saw the game, I enjoy it"*
*I – "From whom did you saw it"*
*P7 – "To my brother"*

*P8 – "Because of surroundings"*
*I – "What do you mean by surroundings?"*
*P8 – "My sisters are also engaging in online games, we play together"*

*P19 - "because of my companions"*
*I – "can you tell me who are you referring to when you say companion?"*
*P19 – "my neighbors"*

Surroundings is important aspect that affect kids' attitude towards gadgets *"because my family also plays (online games)" P10*. Participants are being influence by their friends, cousins, siblings and neighbor. The initial phase in the process identified can be presented by the following figure (figure 2).

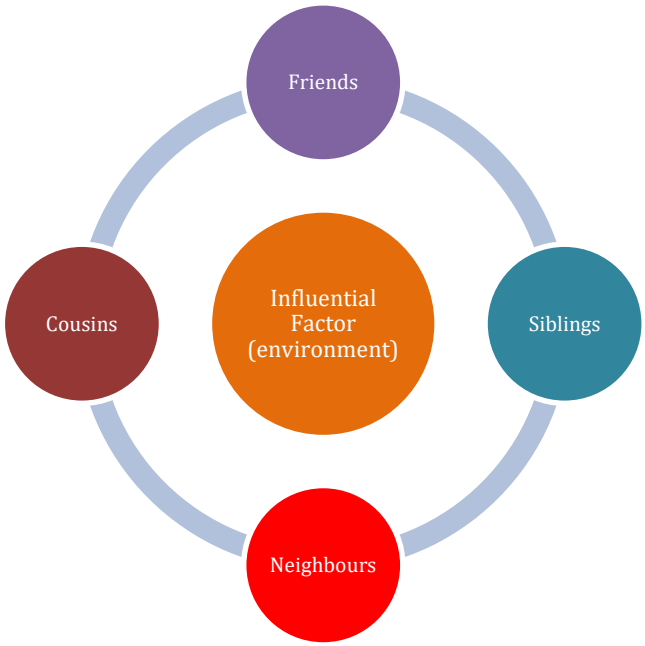


**Figure 2**. Influential factor for kids' gadget use engagement
**Source**: authors.

**Phase 2. Treating it as happy place**

Participants experience happiness through gadget use by having interaction with their peers, experiencing sense of accomplishment and being satisfied or entertained. The next stage of the identified process was participants treat gadget as their happy place. The source of happiness as participants interpreted their experiences with gadget used was the following:

***Interacting with friends***

Friends play significant role on children engagement to gadget. This represents child enjoyment and happiness while in gadget because of their friends. Being on screen, particularly

playing online games makes them glad together with friends, this interpretation reflects on the following quotations:

*"Me and my friends are having fun" P10*
*"I am happy if I have company then we play together, that's why I am happy, like my smile reaches my ear" P14*
*"The joy is different when you are with your friends online" P16*
*"Entertaining and fun, then if my friends are also in there, I have someone to talk with" P1*
*"I am entertained, I can talk to my friends" P12*
*"When I am with my friends, online friends, then we are having conversation while playing, sharing stories and laughter" P16*

***Achievement and being a winner***
Competence such skill development and mastery that results being achiever and winner contributes to the motivation of children in screen use. Participants give meaning on how they experience happiness through citing achievement and being a winner. Being a winner is achieved through game application which is in battle modes. They value the moments which are accompanied by winning. Achievement also plays important role in kids pleasure in gadget involvement such as game objectives which they consider as difficult one *"When I finished difficult games, I am happy because the games are very difficult" P6.* Following are other quotation that reflects what makes them happy in front of gadget:

*"When you accomplished the "achievements" in the game" P20*
*"Happy when winning" P3*
*"When always winning and you and your team mates play well" P8*
*"When winning" P11*

***Appreciation, Skill and talent expression***
Children value the feeling of being appreciated. Participants interprets their happiness on gadget as a way or platform they can express their talents and skills and being appreciated at the same time. This was evident to the following quotations:

*"Just like in Minecraft, I can show all of my talents, I can show it in that game" P17*
*"Being skillful" P7*
*"I did something that amaze them" P3*
*"They are saying, wow you are so good" P6*
*"There are times that I record it, feels really good and watch it again" P7*

***Being entertained by content***
Gadget use was also interpreted by the participants in form of entertainment. Happiness was also found by the participants through watching videos. Being occupied through watching videos is another fun thing to do in gadget. This was evident to the following quotations:

*"Happy, I enjoy it, because I like what I am watching" P2*
*"The videos that I watch, cooking videos, then basketball, I am entertained of such videos, it is satisfying to watch" P4*
*"I am happy to watch music video and dance" P5*
*"In watching, you will see funny videos, those are cool, funny" P15*

As the middle school age experience fun and entertainment along with spending time in gadget, it is not surprising that excessive screen time was the next stage in the process. During the prolong gadget used stage among children, parents' attitude and perception will also play significant role.

**Phase 3. Accepting the situation**

The role of the parents in limiting gadget use was significant. Rules set by parent regarding this matter plays important role on children's attitude towards screen use. This next phase in the process refers to the parental attitude or perception towards too much involvement of children to gadget. Parents accepts that this case or situation among young population is normal, therefore, so be it. This interpretation reflects on the following quotations:

*"Because the culture at present is mostly gadget" G1*
*"I just ride on, no effect, nothing happens no matter what you say to them" G3*
*"Extending, I just let them (extends gadget use), I cannot do anything to it" G2*
*"They cannot be stopped in using gadget, so they are using gadget everyday" C18*

**Phase 4. Giving conditional task**

Task were given to children before they can use gadget. This stage refers to parents taking advantage on kids' gadget use. Parents only allow their child to have their gadget until they are finish to the task given to them. Following quotations were given for this particular interpretation:

*"After answering all the questions (school activity)" P7*
*"After having a meal and do some cleaning, that is ok" P8*
*"After doing house chores" P12*
*"After doing my assignments" P13*

**Phase 5. Being least priority: Physical activity**

Movement compliance discrepancy among participants was interpreted to be cause by putting physical activity engagement on the least of their daily activity routine priority. The last phase on engagement process was physical activity engagement. Active play involvement was put in the last option by the participants. Young population think of physical activity when they are sickened and bored in gadget *"When I am sickened or bored in cell phone" P9.* Physical activity as least priority as interpreted by participants was evident in the following quotations:

*"I don't play sports, because I play online games" P21*
*"Because I only want to play games (online)" P1*
*(Not choosing physical activity) "because of cell phone, because I just want to play games" P1*
*(Choosing gadget even she preferred sports) "because it is fun to do (gadget)" P2*
*(Not choosing physical activity) "because of the online games I am playing" P21*

Interview to the parents regarding physical activity engagement provides supports to the interpretation that physical activity is the last on the list.

*G1 - "When they spend too much on the gadget"*
*I – "When do you say it's too much?"*
*G1 – "If they are not going out of the house, for instance almost a day in the gadget, I am telling them, time to go outside and play"*

This study also identified the engaging factor and dismissing factor in connection to physical activity engagement. Factors were based on the response of participants during interview sessions.

Participants interprets physical activity to be engaging if it is suitable for kids, majority are interested to it and friends must be also participating. Chart 1 shows the responses of participants regarding on reason to engage in physical activity.

| ENGAGING (FACTORS) PHYSICAL ACTIVITY | | |
|---|---|---|
| QUOTATIONS | INITIAL CODES (line by line) | FOCUSED CODES |
| It's like it's easy to play P6 | Being easy to play | Being suitable for kids |
| When it's less tiring P8 | Being less strenuous | |
| When it is for kids P12 | Being suitable for kids | |
| Less tiring sports P8 | Being easy to play | |
| When like by majority P8 | Sharing same interest | Sharing same interest |
| When we are helping each other as team P14 | Promoting teamwork | |
| Sometimes challenging P9 | Being interested on challenging Physical activity | |
| When I see kids playing P14 | Being expose to active play | |
| When it makes me improve P6 | Experiencing improvement | |
| There is a prize when you win P10 | Seeing prize as motivating factor | |
| The more the merrier, that the time I want to play P2 | Having more playmates | Setting Friends as requirement |
| Having lot of friends and acquaintances P8 | Having more playmates | |
| When I have friends and I gain friends P11 | Having friends<br>Gaining friends | |
| First of course is I have playmates which are my friends P12 | Friends' presence | |
| I want to have other people and I prefer friends, so I don't need to approach them like strangers P15 | Preferring friends | |
| I have lots of friends P17 | Preferring friends | |
| It's just same in online games, spending time with your friends, and then you are playing together but in other way P21 | Comparing to online games<br>Spending time with friends<br>Playing together | |

**Chart 1**. Factors on engaging physical activity
**Source:** authors

Children are more likely not to participate in any physical activity because of safety concern, having no friends to do it and lack of exposure or awareness regarding physical activity. Chart 2 shows the quotations provided by the participants during interviews.

| DISMISSING (FACTORS) PHYSICAL ACTIVITY | | |
|---|---|---|
| QUOTATIONS | INITIAL CODES (line by line) | FOCUSED CODES |
| Sometimes when someone fights P2 | Having conflict or fight | Being concern with safety |
| You can be hurt, it's possible to have fight P7 | Being hurt<br>Having conflict or fight | |
| My parents are telling me not to go outside P11 | Not being allowed to go outside | |
| My playmates in basketball have class P6 | Having no playmates | Having no friends |
| I don't have companion or friends P14 | Having no playmates | |
| I don't have someone to do it, like outdoor activities, because my neighbour friends are also at home and engage in cell phone P16 | Having no playmates | |
| I don't know the other kids playing P19 | Not acquainted to other kids | |
| I don't have interest in sports P5 | Showing no interest | Being not expose |
| I am not used to physical activities P8 | Being not familiar | |
| I am not trained before physically P9 | Not being engage | |
| I am interested on gadget, not in physical activity P12 | Showing on interest | |
| Maybe because I have low stamina, I am easily getting tired P15 | Being not physically fit | |
| I really want to join, like volleyball, the problem is, they don't allow me, because they don't want me to go outside the house P18 | Being not allowed to go outside | Being not allowed |
| They said that I should not go outside | Being not allowed to go outside | |

**Chart 2**. Factors on dismissing physical activity
**Source**: authors

Through constant comparative analysis this study generates a theory pertaining to gadget use and physical activity involvement among school students and presented it in the form of process. Stages or phases of the theory are as follows and put into diagram framework (figure 3).

1. Being influence
2. Treating it as happy place
3. Parental acceptance
4. Giving conditional task
5. Being least priority: Physical activity

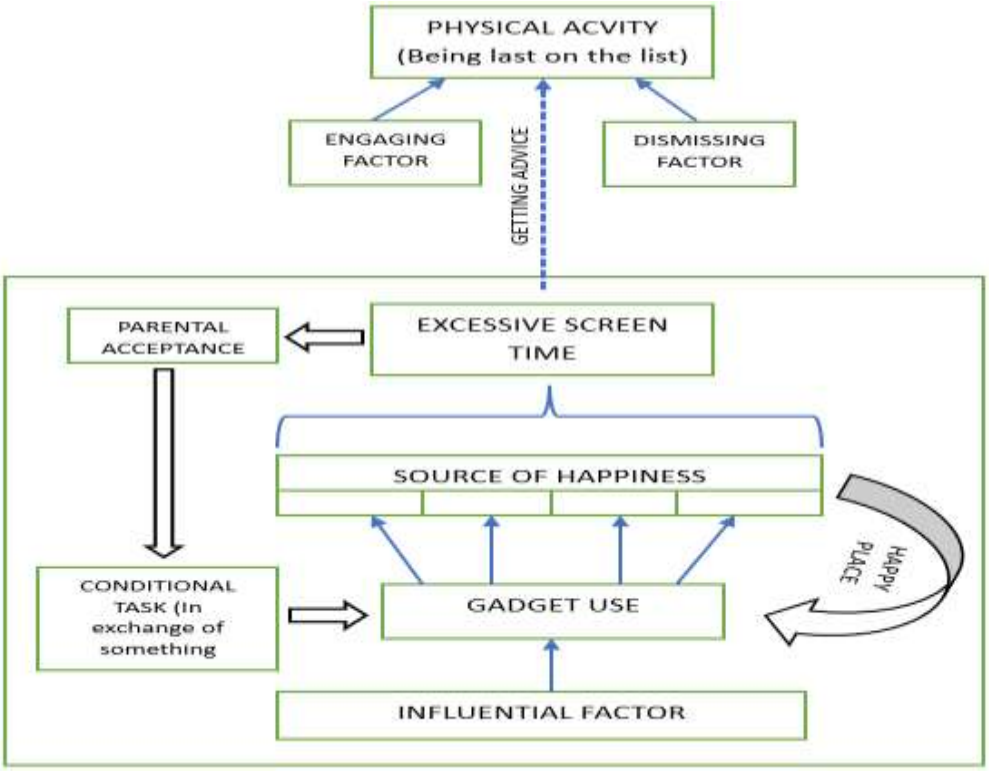


**Figure 3.** Gadget use and physical activity involvement process among children.
**Source**: authors.

## Discussion

Environment plays vital role as starting phase of the process. This is the time where participants are initially expose to gadget. Environment refers to siblings, friends, cousins and neighbours. Peer exposure that involves in excessive gadget use is noteworthy to consider as influencing factor. Similarly, it was reported that individual who surrounds children such as peer affects their attitude towards gadget use [23].

Children became too much engage to gadget because of the fun and enjoyment they are getting with it. Young population consider gadget as their happy place. Children interprets interaction with their friends as the major source of their happiness during gadget use. Attaining happiness for children was positively link to spending time with their friends - *"spending time*

*with their peers and having fun with them as well"*[24;10]. This opposed the idea that kids want to be alone when they are in front of screen. Gadget applications in which they can interact with their friends are consider to be the virtual meeting place for them [25]. Consequently, online games for participants are venue where they can meet and gain new friends [26]. Achievement and the feeling of being winner are also valued by kids as they get it in playing online games [27]. According to Hu et al. [28] children value the feeling of being better than others and experiencing the praise of being on the top. Furthermore, this can be associated to self-determination theory which explains the competence nature of children as it serve as their motivation for activity involvement [29].

Normalizing the situation from parents' perception reinforce the excessive involvement of children to gadget. This supports previous literature cited that guardians accepts gadget as part of young populations daily routine [2]. Parents attitude towards gadget use posed association to children's behaviour towards it. Knowledge, awareness and practice of guardians plays important role in young populations attitude towards device time and being inactive [30]. Parental acceptance contributes to kid's excessive use of technological device such as cell phone as they do not impose strict rules for its usage. This finding suggests that parents will be a significant factor in achieving a balance gadget and active play engagement for children. Taking advantage to kids over engagement to gadget, parental response was to give a task as a condition before they can have their gadget. This phase of the process gives "sense of entitlement" for the kids as they feel they work for it (gadget use).

Involvement to physical activity was last in the process. Participants only recognize active play when they are sickened and bored to gadget. This indicates that physical activity was least in their priority. Also, this behaviour towards active play was reinforce by parents' attitude who also put physical activity last on their activity list for their kids.

Some limitations of this study were acknowledged by the authors. The findings of the study may differ from other research locale as it presents different cultural norms. The age range of participants only includes 11 -13 years of age, therefore generalization across children is not appropriate. Therefore, it is recommended to include participants in wide age range for possible future studies.

Study findings of this paper provides information on how children create and interprets their experiences regarding gadget use and physical activity involvement. This will give awareness on parents and health experts on children's attitude towards this phenomenon. Therefore, results of this study can be a basis and integrated in designing a wide range intervention program.

## Conclusion

Base on the research findings young populations put gadget as their priority in terms of daily activities over physical activity involvement. Happiness, enjoyment and achievement are valued by the middle school age students. Friends play significant factor in gadget engagement; healthcare professionals can use the concept "friends" in designing intervention activity. This study concludes that "friends-based delivery" of intervention program is noteworthy to evaluate or explore. Parents attitude and perception also plays significant part in the process as it reinforces the child's behaviour towards gadget and physical activity. Parents must be kept well informed and educated about the importance of their role in fostering healthy gadget habits and active play engagement. Furthermore, this paper also concluded that "giving conditional task" before letting kids to have their gadget have a great impact on their behaviour towards screen over exposure. Policy makers and healthcare professional can consider exploring the impact of this category "giving conditional task" as part of intervention activity. Lastly, this paper concluded that physical activity engagement was taken for granted by parents as they accept and normalize the excessive screen time phenomena among children. In connection to giving conditional task, parents,

educators and health care professionals can put physical activity as the pre requisite or condition before children can use gadget.

This study suggests to perform similar study in bigger scope or larger age range. Also, an exploration of this phenomena in different context such as "time, place, culture and situation" to have better understanding [21].

This study also recommends to develop intervention framework using the theory generated in this study as a reference. Intervention framework that is specifically designed based on participants' experiences and behaviour will address the research gap i.e., limited intervention framework anchored to theory grounded to the data. Followed by crafting program or strategies that can be evaluated and validated in mixed method research. Possible results and findings that will occur on evaluation and validation of crafted program will contribute to existing body of knowledge that will strengthen and create another researchable area in this particular topic and other related field.

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