

# Children's Stationeries and The Innovation Design and Development of DIY KiDZSTATION

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## ABSTRACT

*Stationeries are one of the most important tools needed by school children to facilitate their learning process. Often, parents of children in the age group of 4 – 12 years are known to purchase stationeries and this behaviour has reached to an extent that the cost of buying these Stationeries has surpassed other basic needs. The loss of stationeries among school children frequently happened due to the child's carelessness, stolen or misplaced. The purpose of this research was to determine the exact cost parents will have to bear for their child's stationeries and to determine the most effective way to minimize missing stationeries by having an intact product that keeps all stationeries safe. The paper also intends to introduce the development of a DIY product called KiDZSTATION. Questionnaire was developed and distributed using online survey. Convenience sampling was adopted, and data was collected using Google form. 120 respondents answered the questionnaire using their mobile phones. This study was based on the findings of a small sample of potential users. It was found that majority of the parents reported having serious issues with their children missing Stationeries at school with 52% agreed that the repurchasing of stationeries affected their money spending. In the meantime, this paper also reports the process of an innovative transformation from current stationeries and other available and cheap resources to KiDZSTATION. A design-based research framework with four phases steps were used in designing and developing this do-it-yourself (DIY) innovation. It was also found that an overwhelming 84% of the respondents thought that KiDZSTATION would significantly help parents to keep children's stationeries intact, and eventually help to eliminate extra purchases on unnecessary buying of their children's stationeries. It is recommended that parents with young children should have at least one set of KiDZSTATION for each child.*

**Keywords:** Children, Stationeries, Carelessness, DIY Innovation, KiDZSTATION

## INTRODUCTION

Stationeries are one of the most important tools especially for primary school children. There are many cases reported that parents with children in the age group between 4 – 9 years will have to buy pencils, sharpeners, rulers and erasers quite often every day due to loss of the stationeries (Resnick et al., 2017). The lost stationeries among young school children appear to be contributed by the child being careless stolen, frequently happened due to carelessness, being stolen or misplaced. Maxwell (2013) found that school children especially, are likely to lose their pencils almost every day. It became disaster when they misplace something in a rushed situation (Ding, 2017). Researchers found that school children at that tender age tend to lose their stationeries especially their writing instrument quite often that it has become burdensome for the parents to make extra purchases for the missing instrument. This type of negligence will affect parents' budget (Zhuang, 2015)

Factors affecting children's purchase requests to their parents and their parent's subsequent purchases for their children were related to a child's movements/behaviour, product's visibility, child's gender, child's developmental stage, suitability of the good for consumption, strategy used in child's request, parents' income/family level and price of the goods. Studies have shown that parents will usually obey when their children request to purchase school items (Ebster, 2009) and (Johari et al., 2011) mentioned that children and families face different challenges.

Challenges may come from the environment and certainly affect the child's upbringing. Unfortunately, other parents, for one reason or another, do not make the time or the effort to assist their children mental development. This somehow affects even in small issues such as losing school stationeries which may later become a disaster (Maxwell, 2013).

### Objectives of The Study

The purpose of this study was to find out the cost parents must bear for child stationeries; to identify the importance of having a set of safe stationeries; to identify the average costs parents have to bear on their child's stationeries; to determine the importance of having a smart set of stationeries and to introduce a do-it-yourself (DIY) innovation called KiDZSTATION.

Drawing on the introduction, the following research questions were proposed:

RQ1: Were parents aware of the importance of their children's school stationeries?

RQ 2: How much money parents must bear for their child's stationeries monthly?

RQ 3: How important for children to have a set of intact stationeries?

RQ4: Did KiDZSTATION meet parents' needs to minimize the purchase of extra stationeries?

## LITERATURE REVIEW

Many families have difficulty in providing their children with everyday school supplies. However, the problem usually is not what immediately comes to mind—money. School supplies such as papers, pencils, and erasers are relatively inexpensive especially when they were bought only once a year. However,

it would be taxing if parents keep repurchasing school supplies on a weekly or even daily basis due to the inability of their children to keep them safe (Zhuang, 2015).

Nowadays, school children are not only passive bystanders, but they have taken a substantial place in the families and have a major influence on parental buying decisions. Children generally are the center of attraction in any family irrespective of country and culture. Products which are directly used by children especially stationeries are mostly decided by children themselves. Primarily, these children apply emotional/pressure strategies for influencing their parents (Palan, 2017) to make a purchase. However, it is important to note that many children come from one-parent households. According to Maxwell (2013), these parents are more likely to work overtime while trying to provide a home life for their children. However, as per literature, no study has been directly done on impulse buying behaviour on book and stationery retail outlets though many papers are available on retail outlets of other categories such as apparel retail store (Mihir, 2019).

Research interest in family processes and their relation to children behaviour and school achievement has been active in the past few decades (Johari et al., 2011). In recent years, due to demographic changes in the family as more mothers have to come to participate in the workplace, research on children's school achievement has been extended to examine the relation between children behaviour, school achievement and parenting style (Barnett, 1999; Lachman & Boone-James, 1997; Lerner, 1994 as in Johari et al., 2011). Factors such as psycho-social, cognitive, schools (environment) reflect children's development and upbringing.

Nobes (2019) reported that young children's moral judgments are based more on the outcomes of actions. The current literature investigated whether negligence might also influence these judgments and explain children's apparent focus on outcome. Children in the age group between 3–8 years had negligence and outcome varied systematically. Killen, et al. (2010) further explained that children are often reminded by adults that they must take care, and they are frequently reprimanded for carelessness. Hence, even in the absence of parental communications, children's negligence often has intrinsic consequences of injury or harm to other people or property.

These issues are reflected from many factors as discussed below.

### **Family factor: Parenting Styles**

The importance of family processes in child development has long been suggested by psychologists. These psychologists indicate that parenting style which includes parent-child interaction, parent-child joint activities, parents involvement in children's education are significant in socialisation and children's functioning (Johari et al., 2011). The knowledge of parents regarding their child's development, education and problem solving are often proved to be false, which impedes the detection of developmental delay, intermitting the chances of early intervention. For professionals, the assessment of various development fields – physical, mental, psychological, social, and sensory development – are supported by benchmarks, growth charts and guidelines describing the examination of each development stage (Deutsch et al., 2019).

The first and most compelling finding published from the National Longitudinal Study on Adolescent Health found that family connectedness--a measure of quality of family relationships (Resnick et al., 2017) was the determinant of good parenting. Parents serve as role models for their children's

behaviours and communicate expectations about them (Zhuang, 2015). Family factor needs to be viewed in concert with individual and environmental factors.

### **Environmental Factor: Schools**

This term refers to two crucial factors—characteristics of the school and a child and family's sense of school connectedness. School connectedness is related to characteristics that underpin the quality of schools, such as average daily attendance, dropout rate, classroom size, educational level of the teachers, and parent involvement (Resnick et al., 2017). School also provides opportunities for peer group socialization. It is still questionable but not possible that children's habit on losing stationeries comes from this factor alone.

### **Individual Factors: Cognitive**

This factor refers to the tendency of later elementary school-age children to think concretely; to have one-dimensional perspectives, limited problem-solving skills, and language capacity; and to see things in absolute terms (Juszczak & Sadler, 1999 as in Marhanum et al., 2020). Children under 12 years old may not possess the cognitive ability to manage the difficulties of new and stressful situations that risk situations may present. Cognitive development has been expressed as academic achievement (Allen et al., 1998; Donovan et al., 1999 as in Johari et al., 2011) but is typically modifiable. This certainly reflects children's inability to save guard their belongings as primary school children have not had the ability to think concretely and it is all up to their parents to advise and support them mentally.

Cognitive ability is somehow important to parents as well as they have to teach their children in spending money wisely. Cognitive factors would become significant determinants in the financial decision-making process (Marhanum et al., 2020). Financial knowledge is needed by parents to avoid financial problems, especially in the context of financial decision making (Herdjiono & Damanik, 2016) and such knowledge can be passed on to their children.

### **Individual factors: Psychosocial**

This factor refers to developing self-esteem, adopting a socially approved conventional behaviour structure, cultivating social relationships among peers, and achieving autonomy and individualization while maintaining emotions to parents and family (Jessor & Jessor, 1977 as in Resnick et al., 2017). Psychological autonomy is the child's expression of individuality with an expectation toward increasing independence (Herman et al., 2017). Just imagine these children's development when they are scolded frequently by their parents when they lost their stationeries. This will eventually lead to social anxiety.

Social anxiety (SA) is characterized by a persistent fear of one or more social or performance situations (National Institute of Mental Health [NIMH], 2018). This also could lead to the inability to establish healthy relationships (Zhuang, 2015), exhibit a devalued self-concept and self-esteem, depress and difficult to cope with stressful situations (Coplan et al., 2010). It is associated with various psychosocial factors such as self-concept, anxiety, anxiety disorders, coping strategies, assertiveness, (Cederlund & Öst, 2011), and physiological arousal in social situations and etc (Nikolić et al., 2018). A devalued self-concept generates feelings of low self-worth that interfere with the child's development, hence leading to difficulties in acquiring social skills and ineffective coping strategies (Ehrenreich & Santucci, 2009).

The factors explained above certainly reflect children's development and upbringing. Nobes (2019) reported that young children's moral judgments are based more on the outcomes of actions. The current literature investigated whether negligence might also influence these judgments and explain children's apparent focus on outcome. Children in the age group between 3–8 years had negligence and outcome varied systematically. Killen et al. (2010) further explained that children are often reminded by adults that they must take care, and they are frequently reprimanded for carelessness. Hence, even in the absence of parental communications, children's negligence often has intrinsic consequences of injury or harm to other people or property.

This negligence-based account might also explain much of children's apparent use of outcome information that has been reported in more recent research. For example, Walden (1982) as in Zhuang (2015) reported about a child who broke a clock by dropping or banging it on a table; how a boy on a bus hurt another passenger when he lost his balance and fell; a boy throwing a ball and hitting another on the head—all these situations can be accounted for negligence and the same goes to children losing their school stationeries.

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### **DIY Idea: KiDZSTATION, its Innovative Design and Development**

In conjunction with this paper, an idea has been brought up to create do-it-yourself (DIY) stationery innovation where children and parents are introduced to few stationeries' ideas with a safety tool that are made from available cheap resources.

Wolf & McQuitty (2011) defined do-it-yourself as behaviours where "individuals engage raw and semi-raw materials and parts to produce, transform, or reconstruct material possessions. The term of Do-it-yourself can be traced back in 1912, which it has been associated with Arts and Crafts Movement in the United States and it evolved from cost saving home improvement activities of the 1940s and 1950s into a creative act of consumerism, planned obsolescence and waste (Mota, 2011).

Do-it-yourself (DIY) activities encompass a variety of undertakings from home improvement to self-service, from crafts to art making, and from design work to digital technologies (Williams 2013). Despite the substantial growth in DIY activities, very few social scientists have studied the psychology behind DIY. Wolf & McQuitty (2013) have come out with a consumer behaviour model to explain motivations and outcomes associated with DIY and stated that motivations and identity factors drive the participation in DIY and reported a link between physical DIY involvement and higher order outcome values, with implications to life goals (Wolf & McQuitty 2013). Other investigators have reported forms of knowledge sharing, open source contributions, learning, and creativity as the core motivational forces underlying DIY involvement, rather than profit and social capital (Pöllänen, 2015).

The emergence of positive behaviour (Bakker & Schaufeli, 2008; Luthans, 2002 as in Ouweneel, 2013) has paved the way for individual interventions that are aimed at enhancing themselves. The question

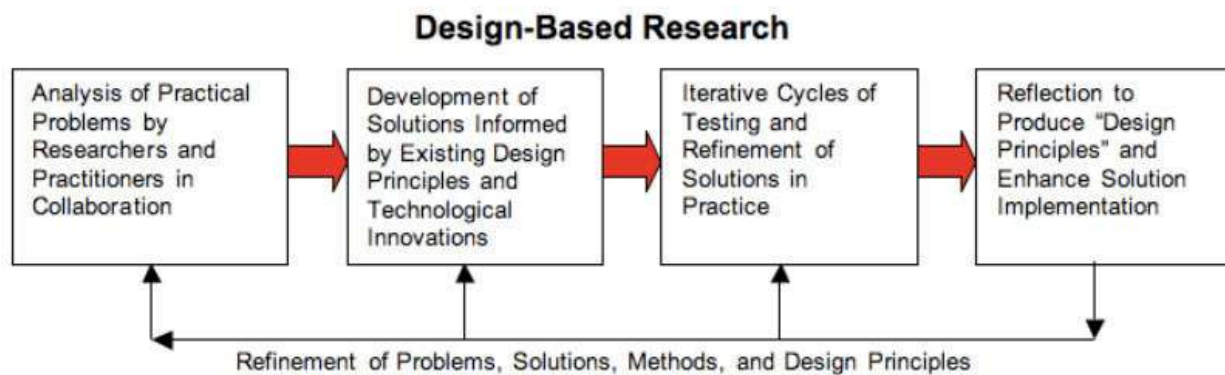
is, however, how exactly can this be accomplished? Simple as this question might seem at first glance, the answer is far from self-evident.

This DIY innovation is called KiDZSTATION. The idea is to bring out an innovation concept idea to reality based on the problem discussed above. KiDZSTATION mainly targets the preschool and young children to educate them to care for their Stationeries. Thus, KiDZSTATION is the first to introduce the most economical way to keep their Stationeries intact.

## METHODOLOGY

This study intended to determine the exact cost parents must bear for a child's stationeries; to identify the importance of having a set of safe stationeries; to create awareness among parents of having a smart set of stationeries and later to introduce smart innovation idea of DIY stationery called KiDZSTATION.

In this study, design-based research model put forward by Ma & Harmon (2009) was used as the framework as it provided the processes clearly (Figure 1).



**Fig 1 Reeves's Model**

The “analysis of practical problems” was the first phase as in the Reeves’s model. In this phase, a practical problem was identified and the related literature about the practical problem was reviewed. Then, questionnaire was developed and distributed. This study was conducted to the suited respondents which are scattered around UiTM Cawangan Kelantan’s staff *Whatsapp* groups. A set of questionnaires using Google form were distributed among lecturers’ *Whatsapp* groups, families, teachers, personal business groups and best friend forever (BFF) groups. This instrument was used as it is easy to reach the respondents and analysis was done automatically by the application. The questionnaires consisted of four questions that are related to children stationeries and its importance to parents. The last question asked was the newly innovated DIY idea called KiDZSTATION and the response of such idea.

The second phase was “development of solutions” for the practical problem identified in the first phase by conceptualizing a solution within the problems arised, identifying research purpose and development method, developing a prototype that serves to address the research problem. In the second phase, an innovative DIY called KiDZSTATION was designed and developed specifically to address the principal research questions.

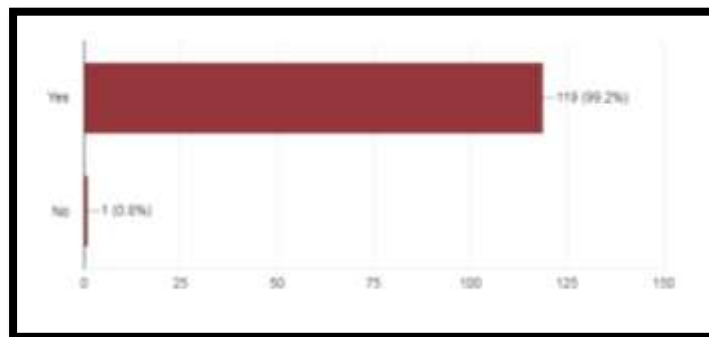
The third phase was evaluation and testing of solutions in practice. Since the solution in this study was to develop a DIY KiDZSTATION, through several iterations, relevant research studies with respect to the needs and the requirements of the stakeholders (parents and their children) were conducted. In addition, to develop a prototype that serves the research purpose, few days of observations on five parents and their children in handling their stationeries and questions were developed and asked to these children as to understand their behaviour. This study was also influenced by the design-based action research model put forward by Keskin & Kuzu (2015) where phase 3 is an iterative cycle rather than a linear process. In this phase, problems related to the prototype are recognized and action plans are developed. At the implementation, these plans are implemented, and the consequences of the action are evaluated and reflected.

The final phase was “documentation and reflection” where design principles are generated and documented to provide guidance for parents and other children who are interested in doing their own DIY Stationeries. This product has also won two gold medals in innovation competitions within Malaysia.

Since design-based research is a multi-phase study, the present study involved four parents and their children. In this study, researchers took the initiative and involved from the beginning of the design process together as researchers, educational technologists and tried to understand these novice users (children) at the same time. All researchers were closely involved throughout the whole process which lasted over a period of four months. The formative evaluation was carried out with four content experts, five educational technologists, five novice users and their parents.

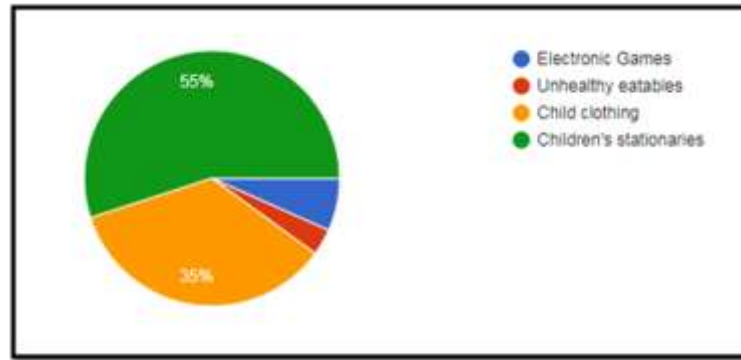
## RESULTS AND DISCUSSIONS

### Result 1: Phase 1



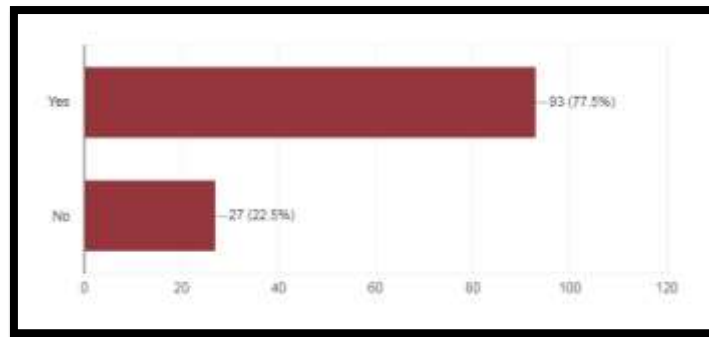
**Fig 2 Awareness on the Importance of Children Stationeries**

Figure 2 shows that 99.2% (119 respondents) of the total respondents were aware that their children should be equipped with basic Stationeries and that having Stationeries are important for their children. However, only 0.8% (1 respondent) of the total respondents disagreed with the statement that Stationeries are important.



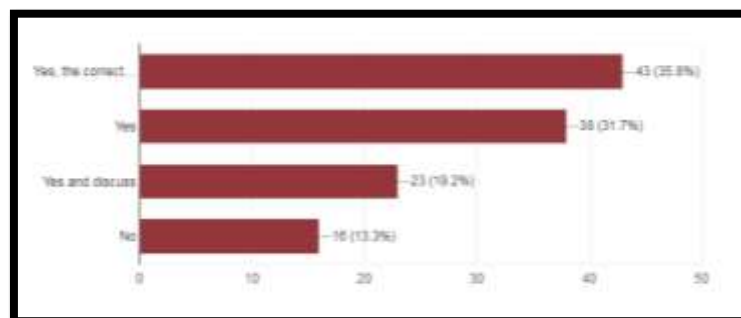
**Fig 3 Items Purchased for Children**

Figure 3 shows the allocation of money by parents in terms of items purchased for their children. According to the survey, 55% of the respondents said that items purchased for their children are largely allocated for children's stationeries while 35% of parents' budget for children goes to child clothing. In addition, 6% of the budget goes to electronic games and 4% are allocated to unhealthy eatables.



**Fig 4 The Average Cost of Children's Stationeries**

Figure 4 shows that 77.5% of the respondents are aware of the exact cost for children's stationeries while 22.5% of the respondents did not know the exact cost. This may be due to their perceptions that school stationeries are inexpensive. However, the respondents realized that their budget on stationeries is increasing with an average of RM28.50 per child of the age of 5-11 years in a month.



**Fig 5 Initial Response of Parents towards KiDZSTATION**



Figure 5 shows the initial response of parents toward the new DIY product called KiDZSTATION. It was found that 43 (35.8%) respondents agreed with the new innovation and were willing to buy the product immediately while 31.7% agreed that such innovation should immediately exist in the market. In the meantime, 23% of the respondents agreed with the product and should spend time doing the DIY project with their childrend, while 16% disagreed with the product.

## Result 2: Phase 2, 3 and 4



Fig 6 Pictures of basic stationery items to be glued to stick together



Fig 7 Pictures of a complete simple innovative and creative DIY KiDZSTATION



Fig 8 Pictures of an advanced DIY KiDZSTATION with recycle cloths as its casing (Pouch)



Fig 9 A picture of one of the many children is enjoying herself using the DIY KiDZSTATION with recycle cloths as its casing

The views expressed by these novice users indicated that the developed KiDZSTATION was generally efficient, simple to do, not easy to dismantle, easy to keep and not lost, appealing and engaging.

A word of cautious must be exercised because this initial investigation focused on UiTM Cawangan Kelantan's staff *whatsapp* group only. However, from the researchers' standpoint and the general findings of this research, it must be noted that children have the tendency of losing their stationeries due to certain factors such as immaturity, parental guidance or simple carelessness, but parents will have to play their roles in guiding them on the aspect of making their children's stationeries are safe and sound.

## CONCLUSION

Having gone through this process, it was felt that the design-based research build on the principles of stakeholder centeredness was effective in developing this DIY KiDZSTATION. This was due to the fact that the researchers, parents and their children were actively involved throughout the whole process and supported each other to produce the DIY KiDZSTATION

Despite the challenges of making sure that school children keep their stationery safe and giving money to their children to buy stationeries frequently, to motivate them to go to school, parents failed to consider the fact that even though the price of these stationeries is relatively cheap but when they must buy them almost every day or every week, the costs will eventually rise. It is important to note that the children's development and motivation in developing characters and habits are far more beneficial than giving money for granted and having the idea of doing a DIY stationeries project has helped parents and children in so many ways.

The conclusion above are consistent with Nobes (2019) that outcome does have some influence on moral judgments but that this is largely because it moderates negligence; actions are more negligent when the consequences are negative. Parents should observe this more than just following their children's wants. It also has important implications for the interpretation of these findings. The result is that the true influence of negligence on young children's judgments is probably considerably greater than is indicated in this study. As a result, the true distinction made by young children between positive and negative intentions is probably significantly greater than the current findings indicate.

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