

**Increasing Intrinsic Motivation to Hand Wash: A Play and Laughter Methodology for
Displaced Refugee Children**

Rajiv S. Virdee

Utrecht University

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Abstract

Handwashing with soap is largely recognised as a key cost-effective tool to reducing infectious diseases. Research into behaviour change interventions have largely focused on children in school-based settings. Meanwhile, information on interventions targeting children in humanitarian crises settings is scarce. Previous studies on behaviour change interventions with children have principally focused on health-based messaging, which is often not a motivator of behaviour change. In order to understand how children are motivated to hand wash, it is important to understand what motivates children. Play is considered to be a motivator of behaviour change. Thus, this research investigates the use of Clowns without Border's play-based learning methodology to increase intrinsic motivation from a Self-Determination Theory perspective. The results highlight three main mechanisms to play-based learning that increases children's intrinsic motivation: knowledge and understanding, psychosocial health and peer-to-peer learning. These mechanisms are discussed in relation to Self-Determination Theory, and the implications that a play-based learning methodology has for practice in the WASH sector.

Keywords: WASH, play-based learning, intrinsic motivation, self-determination theory

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1.1. Background

Children living in humanitarian emergency settings are at high risk for infectious diseases due to the lack of clean water and sanitation facilities, poor healthcare and environmental conditions, overcrowding and children's lack of knowledge regarding best hygiene practices. Such infections that children are vulnerable to include; gastrointestinal infections, neonatal infections, trachoma, diarrhea and acute respiratory infections (Black, Cousens, Johnson, Lawn, Rudan et al, 2010). However, this risk can be interrupted by handwashing. Handwashing is defined as the process of removing dirt, soil, grease, microorganisms and other unwanted substances from one's hands. Handwashing with soap is largely recognised as a key cost-effective tool in preventing the risk of childhood infectious diseases and has also been found to significantly improve child developmental outcomes (Bowen, Ma, Ou, Billhimer, Long et al, 2007; Luby, Halder, Tronchet, Akhter, Bhuiya et al 2009).

Despite the benefits associated with handwashing, research has consistently found that rates of handwashing practices are low. In rural Bangladesh, a bivariate analysis by Luby et al (2009) revealed that only 18% of low-income residents washed their hands after fecal contact, and the likelihood was lower for children. Many diseases such as diarrhoea and cholera are transmitted through fecal-oral route, therefore not washing hands can be dangerous to children who are unaware of the risks. Currently, in Cox's Bazar, Bangladesh, over 120,000 Rohingya refugee children reside in overcrowded and cramped conditions following the civil war crisis in 2017. These emergency settings are usually scarce in water and sanitation facilities which can increase the risk of spread of infectious diseases. To address this, Unicef with partner organisations in the water, sanitation and hygiene (WASH) sector introduced roughly 2,500 learning centres or child friendly spaces (CFS) to teach children health and hygiene practices, including handwashing (Mohsin & Nayan, 2020). However, a project report by Morgan (2019) revealed that while children who attend the CFS have high knowledge of the health benefits of handwashing, their rates of practice were low.

The gap between knowledge and practice has been consistently reported in previous handwashing studies (Biran, Schmidt, Varadharajan, Rajaraman, Kumar et al, 2014; Curtis, Danquah & Aunger, 2009; Freeman, Stocks, Cumming, Jeandron, Higgins et al, 2014; Hirai, Graham, Mattson, Kelsey, Mukherji et al, 2016; Schmidt, Aunger, Coombes, Maina, Matiko et al, 2009). Behaviour change interventions have attempted to address this by focusing on education-based and knowledge-based messages about health, such as teaching participants about the health-related risks associated with germs. On the other hand, research indicates that health is not an effective motivator of behaviour change, unless in the presence of an outbreak (Watson, Dreibelbis, Aunger, Deola, King et al, 2019). The concept of motivation is highly relevant to promoting self-directed changes in hygiene behaviours as motivation is underpinned by biological, cognitive, social and psychological regulation (Ryan & Deci, 2000). For example, Curtis, Danquah & Aunger (2009) found that motivators such as disgust, comfort, nurture and affiliation could induce behaviour change. These non-health motivators were found to have a more important role in influencing behaviour change than health education itself.

In order for behaviour change to be successful, individuals need to be able to sustain the motivation or intention to hand wash at key moments, which can be achieved through increases in self-regulation and self-efficacy (Lhakang, Lippke, Knoll, & Schwarzer, 2015). Self-determination theory is particularly relevant here as it seeks to explain these psychological functions.

Moreover, there is a lack of studies on behaviour change specifically targeting children's handwashing in humanitarian emergency settings. If non-health motivators are more important in altering hygiene behaviours, it is vital to understand how children in these settings are motivated to learn before delivering handwashing messages. A recent qualitative multi-method study reported that play as a motivator to hand wash had the highest probability of being rated as an 'important' or 'very important' (56%) motivator to children in an internally displaced camp in Northern Iraq (Watson, Cumming, Aunger, Deola, Chase et al, 2020, p.9). It is widely accepted that play is integral to child development and that children play to satisfy basic, innate psychological needs (Crowley, 2014; Ryan & Deci, 2000). There is, albeit, a dearth of information surrounding how play acts as a motivator to alter children's handwashing. While this current research attempts to explore this, in practice, Clowns without Borders (CWB) in 2019 developed

a playful methodology for the Cox's Bazar WASH context to encourage children to learn about the importance of handwashing with the aim of increasing their practice. However, the evidence as to whether this type of methodology changed children's hand washing has yet to be amassed due to a lack of monitoring and evaluation, aside from collections of anecdotal evidence (Morgan, 2019). As a result, there is a need for research to be conducted into this area in order to identify how play as a motivator for behaviour change can commit children to practice handwashing.

To conclude, there is an urgency to address hand hygiene early on in childhood due to the high risk of mortality. According to the WHO (2009), handwashing patterns are established in the first ten years of life. Handwashing habits, however, in practice are often not inculcated at an early age (Curtis, Danquah & Aunger, 2009). There are indications that by motivating young children to hand wash early, they can learn to create behaviour habits that will serve their wellbeing and promote optimal development. The part that motivation plays in overcoming the bridge between knowledge and practice is central in this research.

1.2. Motivation from a Self Determination Perspective

Efforts are needed to empower children so that they are responsible for their own health. Focusing on motivating children to hand wash by developing their sense of autonomy, competence and relatedness could promote sustained behaviour change as it would support children to form behavioural intentions, and eventually habits, to adopt positive health behaviours (Lhakhang et al, 2015). As Ryan & Deci (2000) state, motivation is a critical variable in producing maintained behavioural change.

The concept of autonomy, competence and relatedness derives from Self Determination Theory, which posits that individuals seek to meet these three basic psychological needs in order to facilitate optimal functioning to engage in self-determined or motivated behaviours with regards to their social development and personal wellbeing (Ryan & Deci, 2000). Autonomy refers to individuals feeling in control of their own behaviours and actions, whereby actions that are self-initiated increase the feelings of being self-determined. Competence refers to the extent to which individuals feel self-efficacious in carrying out a task, for example, the need to learn and master

new skills. Lastly, relatedness refers to the need for individuals to feel a sense of belonging and attachment to others.

Social and environmental factors can also affect self-motivation, as it can influence individuals to be proactive or passive through social conditions that either foster or thwart personal wellbeing and social functioning (Ryan & Deci, 2000). Motivation from a self-determination perspective postulates that individuals can either be motivated from a personal commitment to excel because they value an activity or reasons external to the self (Ryan & Deci, 2000). As such, behaviour can be motivated through either extrinsic or intrinsic goals.

Intrinsic motivation with regards to health behaviour change is largely studied as a desirable concept (Langener, Cruz-Martinez & Braakman-Jansen, 2019) because the goal is to encourage individuals to make positive decisions based on their self-interest to maintain good wellbeing, which is more likely to be achieved from intrinsic rather than extrinsic values. Behaviour that is intrinsically motivated is linked to enhanced performance, persistence, and creativity, so is desirable in education and learning as the purpose is to self-initiate and engage individuals in activities that have interest to them (Ryan & Deci, 2000). Cognitive Evaluation Theory (CET), a sub-theory of Self-Determination Theory, further presents the idea that intrinsic motivation can either be facilitated or undermined depending on social and environmental factors.

According to CET, individuals must not only experience competence or efficacy, they must also experience their behavior as self-determined for intrinsic motivation to be evident (Ryan & Deci, 2000). Intrinsic motivation is characterised by high levels of competence and autonomy, both of which are essential for individuals to self-initiate tasks (Niemic, & Ryan, 2009). According to Patrick & Williams (2012), autonomous self-regulation is important for health behaviours as the more that an individual feels they have autonomous regulation towards a behaviour, the greater the effort, engagement, persistence and stability the individual is likely to feel in that behaviour. Therefore, individuals who feel autonomous and competent exhibit higher levels of intrinsic motivation and are more willing to carry out behaviours, especially those that are engaging and enjoyable.

1.3. Play as a Motivator of Behaviour Change

Behaviours are engaging and enjoyable to an individual when the individual derives pleasure from an activity. For children, play is often cited as a motivator for learning because children are naturally inquisitive about the world. Piaget (Crowley, 2014), for example, viewed play as integral to children's intellectual development, encouraged by interacting with objects in their environment. However, humanitarian crises deny children the chance to learn due to disrupted education, where children's right to education is most at risk and where children experience higher levels of toxic stress, affecting their psychosocial health to learn or play (Yogman, Garner, Hutchinson, Hirsh-Pasek & Golinkoff, 2018). The evo-eco approach was developed as a behaviour change model with this in mind, and recognises play as one of the postulated 15 human motives for human behaviour which states that children are motivated to interact with objects to eventually develop the skills for their intended use (Aunger & Curtis, 2014).

Aunger & Curtis (2014) further suggests that in order for handwashing to be highly motivated, and for behaviour to be affected, handwashing requires evolutionary benefits. Despite the benefits to handwashing, Aunger & Curtis (2014) explains within the Evo-Eco approach that there is a lack of uptake for handwashing to be considered psychologically rewarding. A lack of uptake refers to an object in the environment that does not provide stimulation, such as a bar of soap. If an object is not providing stimulation, it reduces the desire to carry out a behaviour. This could explain why handwashing in the Cox's Bazar context is low because according to this approach, using soap in itself is not enough to provide children the stimulation to hand wash. Therefore, the use of soap needs to have a perceived value in order to be attractive enough to increase its uptake. This approach implies a use of extrinsic value and research was conducted into this approach by Watson et al (2019).

Watson et al (2019) designed a controlled before-and-after study with the concept of adding perceived value to soap. They deployed a toy-in-soap method to incentivise children to hand wash, based on the evo-eco motives of play and curiosity. Their results indicated that handwashing had increased, illustrating that an intervention based on the motives of play and curiosity could increase rates of handwashing in this type of setting. In spite of this finding, a critical point to address is

the extent to which children would be motivated to hand wash if they used regular soap without a clear, physical reward to reach to. Moreover, a follow up was only conducted a month after the initial intervention was established whereby the toy soap was still in use. There was no indication that children continued to hand wash with regular soap in the long term, and the extent to whether motivation levels to hand wash either increased or decreased after the toy soap was finished. There is also the issue of sustainability, for instance, the extent to whether a toy-in-soap can be deployed consistently over a long period of time.

While the study is the first of its kind to formally focus on using the motive of play as a mechanism of behaviour change to increase children's handwashing, there is a necessity to shift away from external rewards to increasing levels of intrinsic motivation if behaviour change is to be sustained in the longer term. As Ryan & Deci (2020) argue, externally rewarding children for behaviour may have the opposite effect to the desired intention. As such, if the focus shifted to encouraging children to be self-determined by nurturing their intrinsic motivation, this may have a far more profound impact that might have sustainable outcomes for children, as theoretically, it would encourage them to feel self-determined enough to engage in handwashing.

1.4. Play-Based Learning & Intrinsic Motivation

Researchers acknowledge that children are naturally inquisitive, curious and playful (Crowley, 2014). The concept of intrinsic motivation thoroughly describes this natural tendency towards assimilation, mastery, spontaneous interest, and exploration that is essential to cognitive and social development (Ryan & Deci, 2000). Moreover, intrinsically motivated activities are referred to those that are inherently fun or playful. Play has been found to enhance brain structure and function and promotes executive function, such as the process of learning (Yogman, Garner, Hutchinson, Hirsh-Pasek, & Golinkoff, 2018). Therefore, intrinsic motivation serves as an adaptive function by energising physical, cognitive and emotional development. Children naturally and perpetually seek to explore and assimilate their psychological and environmental states (Ryan & Deci, 2020). Play-based learning is largely recognised to be effective in promoting children's cognitive, social, emotional and physical development because they construct their ideas through play and hands-on activities (Crowley, 2014). This learning leads to language development, social and emotional

awareness, self-regulation and also promotes problem solving and decision-making skills, which are useful for nurturing self-determination.

From a neurodevelopmental perspective, play allows for increased feelings of pleasure which drives the repetition of the pleasurable activity (Perry, Hogan & Marlin, 2000). Through this repetition, a child learns to master new skills and this mastery develops a child's confidence in partaking in the activity that allows for a sense of accomplishment. White (1959) asserts that children seek to interact effectively with their environment. Through mastery, a child experiences a feeling of efficacy, recognised as an intrinsic motive. Therefore, by turning handwashing into an activity that is playful, children are likelier to engage in this activity because it feels fun, thereby encouraging a habit if regularly pursued. The purpose of making handwashing playful then is to incentivise children to hand wash from an intrinsic, autonomous need to hand wash.

Thus, the play and laughter methodology by CWB seeks to encourage behaviour change by teaching children the need to hand wash through play-based learning. Understanding the process in which this methodology influences intrinsic motivation, though, is important to research as it will provide data regarding the value of using play-based learning methods, and the implications thereof.

1.5. Current Research

Several concepts have been identified from the literature, including the role of self-determination on behaviour, intrinsic motivation and the value of play-based learning to support handwashing promotion. This current research aims to provide some insights into how play promotes children's intrinsic motivation to hand wash. This research thus attempts to address the main research question, *how can play increase intrinsic motivation to hand wash?* and the following sub-questions:

- How is play used in the CWB intervention?
- How do children respond to playfulness?
- What barriers exist to implement a playful intervention to promote handwashing messages?

2. Methodology

2.1. Design

This research had a qualitative design in order to research the CWB playful methodology implemented in Cox's Bazar, Bangladesh, which allowed the researcher to gain an in-depth account of why certain activities were chosen for this specific context, how children responded to the activities and the barriers of implementing the intervention. A phenomenological approach (Creswell, 2013) was used to study the phenomenon of play influencing children's behaviour as well as to research how the CWB playful methodology attempted to address the gap between knowledge and practice and how focusing on increasing intrinsic motivation could be used to address this gap to support handwashing. This was the best approach because it allowed the researcher to understand the lived experience of the children in the camps in order to describe the type of activities experienced in the intervention and how it was experienced, leading to a contribution of how children learn and understand handwashing through play-based learning.

2.2. Participants

Participants consisted of individuals at the organisational level, in particular, those working in the NGO sector and humanitarian aid organisations with field experience in the intervention, and Rohingya refugee children in video format. The video set was built for the purpose documenting snapshots of the activities to be shared amongst facilitators. A mixture of convenient and theoretical sampling was used to identify interview respondents due to the cost effectiveness and the ease of access of obtaining respondents to participate in the study. A mix of respondents were chosen based on their role, experience, knowledge and involvement with the intervention or those who had initially developed the playful methodology. This ensured that respondents were knowledgeable about the CWB intervention and related topics. Respondents were recruited from the researcher's own contact via CWB.

The respondents came from different institutions and had various roles. Respondents were involved in different aspects of the intervention, from the development of the playful methodology to artistic leads who engaged with the training of community camp facilitators. Initial contact was made by e-mail, in which respondents were asked to participate. A consent form was then provided which included details of the nature of the research. Six respondents were approached to participate

in the study, with four agreeing to participate. Video data of the children during the implementation of some of the activities was then provided by CWB. The video set consisted of 38 videos.

2.3. Operationalisation

For interviews, the following concepts were operationalised based on literature and discussions in the field: playfulness referred to activities that were child-centred or activities that used play based learning materials. Motivation was defined as behaviour that was self-initiated. Handwashing was defined as the act of using water and soap to clean ones' hands. Lastly, barriers were defined as the type of challenges that may have influenced the implementation of the intervention such as social or environmental factors, including attitudes, resources for play materials and the training of hygiene promotion officers. For video observations, the researcher used a previous guide from literature to study children's response and engagement to play using the following concepts: attention, persistence, enthusiasm and positive or negative affect.

After operationalising these concepts, the researcher studied prior theoretical and practical work in the field in order to gain examples of how these concepts were measured in the past and the indicators used to measure them. For example, for interviews, the researcher considered the frequency of handwashing, such as the amount of times children used tippy taps, and whether this changed as a result of attending the intervention. For videos, the researcher considered the length of time a child focused on an activity to measure attention.

A question guide was then developed for the interviews in order to answer the sub questions related to the type of play activities and the barriers to implementation. Questions were adjusted depending on the role of each participant. After conducting all the interviews, the observation guide was developed to analyse children's engagement in response to the activities.

2.4. Data Collection

Interviews were first conducted to obtain detailed accounts from respondents involved in the intervention. Video observations were then conducted to analyse how children responded to the playful activities. By using two methods to gather data, methodological triangulation was achieved

as it allowed the researcher to check whether what the respondents said corresponded to what was observed in the videos (Cohen & Manien, 2000).

2.4.1. Interviews

Four out of six interviews were conducted. 3 respondents were from Clowns without Borders and 1 respondent was from Plan International. The other two respondents could not find time or were too busy to participate in the research due to the sudden outbreak of COVID-19. Interviews were semi-structured to allow for open ended discussions regarding the importance of the playful methodology, types of play activities, handwashing in the camps, the concept of motivation and barriers to implementing the playful methodology. Interviews were recorded with the computer recording software Audacity. Interviews lasted for an hour and were conducted remotely via the telephone. Interviews were conducted over the course of two weeks depending on the respondent's availability. After all interviews were conducted, they were transcribed via AmberScript.

2.4.2. Videos

A total of 38 videos were provided for analysis. Of this, 15 were randomly selected to analyse. An inclusion and exclusion criteria was then applied to this subset of videos based on the length of videos. For example, videos between 15 seconds and 5 minutes were included for the analysis. Videos that were too short were excluded as they did not document sufficient behaviour to be analysed. Videos over 5 minutes were excluded due to the researcher's time constraints. This left 11 videos in total for analysis. The average length of the videos was 2 to 3 minutes. The videos provided documentation of children's responses to the play activities, which could then be interpreted by analysing children's observed level of engagement (Gottfried, 1983).

2.5. Data Analysis

After the interview data was transcribed, they were exported into the computer software QSR Nvivo 12. Interviews were then open coded using a mix of deductive and inductive coding. Deductive codes were developed before the interviews took place and were derived from the literature to create a codebook that was used to analyse the transcripts. Inductive coding took place to search for patterns that were not identified in the literature but established during the transcript coding. After open coding the transcripts, axial coding was conducted to break down the themes

identified in the open coding and were compared to the deductive codes. From this, selective coding took place after the core variables in all the data were identified to create themes. Data that related to the core variables were selectively coded and placed under umbrella terms that represented mechanisms, which could then be applied to Self Determination Theory.

After the transcripts were coded, videos were closed and open coded using QSR Nvivo 12. A sample of 10 seconds were observed every 30 seconds to measure children's levels of engagement and responses to the play activities. Observations were recorded in written form based on what could be seen and heard in the videos, with a focus on verbal and non-verbal behaviours. Closed coding was then conducted and codes were organised into four pre existing categories based on previous literature relating to children's attention, persistence, enthusiasm and positive or negative affect. Open coding was conducted to search for other behavioural traits, such as mimics.

2.6. Validity and Reliability

To ensure internal validity, triangulation was used by first conducting interviews and then using this data to open code for some behaviour patterns that could be observed in the videos. This allowed the researcher to observe the phenomenon from both the perspective of the organisation as well as the children. This research also had some ecological validity because it is generalisable to similar humanitarian emergency contexts where WASH services are being implemented, whereby the playful approach is adaptable and could have some implications for practice in other countries, implying some transferability. Furthermore, by randomly selecting the videos for analysis, researcher bias could be reduced thus increasing internal reliability.

2.7. Ethics

Informed consent was obtained throughout this research. Respondents were given consent forms prior to the interviews detailing the nature of this research and were allowed to withdraw at any time. Before the start of each interview, respondents were asked to be audio recorded, which they consented to. CWB allowed access to use video data for observational purposes. Information of the children in the videos was not disclosed to the researcher and children could not be personally identified by name, thereby enhancing their anonymity. This data will not be shared or published.

3. Results

The purpose of this research was to investigate how play can be used to increase the level of intrinsic motivation in Rohingya refugee children to increase their hand washing practice. In this chapter, the results will be presented in relation to the order of the research questions in the introduction. Firstly, the use of play will be discussed, followed by children's responses to the activities, the barriers highlighted by respondents and lastly, the mechanisms identified that influence how play can increase intrinsic motivation.

3.1. *The use of play in the CWB intervention: Play Activities*

In order to explore how play increases intrinsic motivation, it was first important to analyse the type of playful activities that were implemented by CWB. Six different categories of play activities were identified across the interviews. Respondents highlighted the following categories: transition activities, check-in activities, stories, arts and crafts, games and songs. The next paragraph details descriptions of what these activities are as described by the interview respondents.

3.1.1. Check-in & Transition Activities

Check-ins were defined as activities to check in with the emotional state of the children as well as to measure their levels of energy and mood. These activities allowed for children to express their emotional state by reflecting on how they were feeling and what they had learned as well as to facilitate communication and trust between the children and facilitators. It also helped the facilitators adapt and make decisions regarding the type of activity that would follow on from the last. Transition activities were defined as short, fun non-hygiene related activities and were used to transition between different activities such as from a game to a song. One respondent remarked that the repetition and routine of transition activities throughout the workshop helped children to feel safe and secure.

3.1.2. Stories

Stories were defined by one respondent as “*the anchors of the activities*” because of the cultural tradition of the Rohingya community, in which storytelling is prevalent. As storytelling was already part of the culture, stories were either developed by CWB and incorporated elements of the Rohingya culture, or adapted from existing stories from the Rohingya culture. At least one

hygiene point was covered in the stories. An example of a story as told by respondents involves a girl who goes to the market to purchase bananas to prepare a banana curry for her family. Shortly after the family eats the curry, they become sick. Children are openly asked about why the characters in the story became sick without being prompted about handwashing.

Stories were used to put emphasis on a character or third person which made it easier for children to openly talk about their own experiences as to why they did not hand wash. This is because it allowed children to have the opportunity to vocalise their bad hygiene practice or knowledge without the risk of failure or judgement. Furthermore, two respondents explained that by using stories, open questioning with no right or wrong answers could allow children to imagine different solutions as to why the character in the story did not hand wash, which could reflect their own experiences. These open questions could also allow the facilitator's to test children's understanding and knowledge on handwashing as well as to allow the children to provide new, unforeseen possibilities. One respondent indicated that open questioning had the ability to empower children as it could make them feel knowledgeable and important.

“Asking questions where it really put the power in the children's hands. It gave them the power to teach us. So, in that way, they felt special and important and empowered and clever and knowledgeable, which feel like all things that would encourage them to make positive decisions for themselves and encouraging their friends to do the right thing.”

3.1.3. Arts & Crafts

Arts and crafts were tied to the stories with the purpose of creating a quieter moment for children to stay focused, calm and creatively express their feelings, thoughts and experiences. An example of an arts and crafts activity included drawing germs on two hands, which could open up the discussion around the topic of the visibility of germs and the importance of hand washing with soap to get rid of germs and bacteria.

3.1.4. Games

Games were developed to encourage physical movement. Activities were designed to energise and stimulate children in order to promote emotional, physical and cognitive development.

Respondents mentioned that games were useful for instilling confidence, trust, awareness and cooperation, which are essential for affective learning. However, certain movements that involved physical contact were not considered appropriate to the Rohingya community. An assessment was made as to what kind of physical movements were to be included in a game due to the restrictions and limitations relating to how a child could move their body depending on their gender.

3.1.5. Songs

Songs were developed to allow for verbal and non-verbal expression. Songs were translated into the local language of the community and were adapted to cover either hygiene related activities or child related activities, the latter described as songs that were sung for fun and did not incorporate hygiene messages. Respondents mentioned that songs allowed for actions to be introduced, so, for example, children could practice the action of handwashing while singing a thirty to forty second song.

3.2. *Children's response to playfulness*

Next, it was useful to gain insights into the way in which children responded to the playful activities as a means of identifying their perceived motivational levels based on their engagement in learning. That is, if children are motivated to learn, they will show interest in the activity by engaging with the people around them and responding to the stimuli presented. Level of engagement was measured by examining attention, persistence, enthusiasm and energy and positive or negative affects.

Attention to facilitators and others:

In all of the observations, children showed high levels of attentiveness to the facilitators. Most of the children in the videos looked in the direction of the facilitator as they were telling stories or playing games that required them to follow some kind of instruction. Children would repeat these instructions. In a few observations, children would look towards the ground or the other children around them for a period of time, but would eventually focus their attention back to the facilitator unprompted, suggesting some levels of attentiveness. Children also engaged with the facilitators by responding to their questions and repeating phrases, especially in songs where children and facilitators sang using a call and response technique. In one game, children were standing in a

circle and had to take turns following a sequence of an action based on the action of the previous child, therefore, attention to the group was key. While going around the circle, all children were quick to respond when it was their turn to engage in the sequence, highlighting high attentive behaviour.

Persistence

Persistence could only be measured for videos longer than thirty seconds because this category pertained to children remaining engaged for longer periods of time. Persistence was documented in 3 out of 11 observations. For example, children remained persistent when they would actively show engagement by modeling the facilitator's behaviour or showing attentiveness to the activity throughout the duration of the activity. Eye contact with the facilitator again determined whether children were persistent enough to stay focused on the activity, with some observations showing that most children maintained eye contact, whereas others did not. Some children looked around the environment during the storytelling observation, indicating a lack of focus.

Enthusiasm and energy:

The observations revealed that children were highly enthusiastic by the play activities and this could be observed by the amount of times children would laugh, smile or jump in excitement. In one observation, children were encouraged to sing songs and were observed to be shy because they sang the handwashing song softly. The facilitator would engage children by making big gestures and using a loud voice. When sitting in a circle, some children sat up straight, expressing a form of eagerness. Energy varied across the observations as it depended on the type of activity. For example, children had higher levels of energy when they were engaged in games but showed lower levels when the activity centred around a story or a song. In the activities where energy was lower, children typically sat on the ground in a circle but maintained attentive to the facilitator directing the session. In contrast, games allowed children to have the space to move around and showed more physical energy through these increased and exaggerated movements.

Positive/negative affect:

No negative affect was analysed from the observations. None of the children in the observations showed frustration or disruption. However, the interactions between children themselves were not

copious. Interactions mainly existed between the facilitator addressing the whole group rather than two or three children interacting with each other. Only one video showed children in small groups partaking in an activity where they held hands to make a flower. Children mostly had positive emotions towards activities by showing eagerness, enjoyment and excitement through physical movements or yelling. Children often mimicked each other and the facilitators. For instance, one child raised their arms in response to the facilitator, and the child next to them copied this behaviour. Children often showed positive affect through happiness by laughing and smiling.

3.3. Using Play to Increase Intrinsic Motivation: Mechanisms

From the analysis, the researcher identified codes that were grouped under the following mechanisms that could influence intrinsic motivation: knowledge and understanding, psychosocial health and peer-to-peer learning.

3.3.1. Knowledge and Understanding

The respondents highlighted the need for children to engage in play first and foremost before delivering handwashing messages as playing for the sake of having fun was important for encouraging children's development, knowledge and understanding. For example, respondents explained that children understand and interpret the world around them through play. Therefore by playing, children could learn about the need to hand wash. One respondent expressed that due to the high toxic stress that Rohingya refugee children are dealing with, handwashing techniques were less likely to be memorised and learned. Therefore, playful activities were used to alleviate stress and to create a relaxing environment to contribute to better learning.

Learning theories were also influential in the design of the playful methodology in order to promote the understanding of handwashing. One issue that was mentioned by respondents related to the hygiene promotion sessions being didactic and unexciting before the implementation of the CWB methodology. Therefore, while children might have learned about handwashing, they did not understand why they needed to do hand wash. Therefore, translating the concept of why handwashing is important was a key factor for incorporating simple, positive messages or actions to encourage children to hand wash after key moments. For example, a germ game was played in

which children were asked to embody what a germ was in a visual way. Children were grouped into three and created statues of a germ by one child climbing on top of the other two. Through this, they could imagine what a germ is through their body expression and express this to the facilitator. Children were able to reflect that they understood what germs were, and were able to tell facilitators that germs stick onto people.

“...they [children] need a lot of repetition and practice to actually sort of inhibit certain behaviors. And of course, creative methodologies are perfect for that. Think about role plays. Think about short drama exercises. Think about dance or physical exercises that help the hand washing routine.”

3.3.2. Psychosocial Health

From the analysis, it was revealed that playfulness helped to improve the psychosocial health of the children because play increased the level of trust, feeling of empowerment, and raised their self-confidence and self-esteem. This in turn helped to improve the reception of handwashing information and the willingness of children to receive this information.

Building trust was one of the key aims of the CWB methodology. Respondents indicated that the building of trust was a vital aspect of the intervention as they cited the issue of trust violation as being extremely prevalent in the camps due to the high levels of insecurity and violence the children have experienced. For example, arts and crafts activities helped children to express feelings, thoughts and experiences in a safe, non-verbal way. As one respondent indicated, play allows children to experiment with new ideas and make connections in a safe environment, such as through role playing games. In addition, these games and creative activities such as arts and crafts were used for various reasons: to increase children’s self-confidence, to allow them to become aware of their feelings, to build trust with other children to eventually make friends and connections with each other. This made it easier to integrate some of the handwashing messages after children were able to feel relieved of their stress and more positive and open to receiving those messages.

Additionally, respondents stated that the play methodology empowered children because the activities valued their expression. For example, encouraging children to engage in arts and craft activities to express their feelings in a non-verbal way, or allowing them to express their imagination when asking open questions gave children the opportunity to feel valued, knowledgeable and important. By feeling important and valued, this could increase their motivation to make positive decisions for themselves such as to hand wash at key moments. With this sense of empowerment, a respondent remarked that children would be more likely to “*do the right thing,*” in regards to handwashing at key moments with their friends. Respondents also believed that play empowered children as they could direct the way in which they wanted to play outside of the CFS, for instance, creating and adapting their own games and songs.

3.3.3. Unexpected Result: Peer-to-peer learning

All respondents recognised the importance of using the playful methodology to influence the socialisation of the children in the camps. Respondents stated that the playful methodology could allow children to build relationships and make connections with each other, such as through singing songs together or playing games that encouraged interactions. Since the camps are big and the sessions in the Child Friendly Spaces can vary in size, delivering hygiene information through play can be spread in a way that encourages peer-to-peer learning. Respondents said that children learned songs and stories and shared this with other children or played the learned activities that have incorporated a handwashing or hygiene message within them with each other outside of the CFS. In particular, one respondent felt that stories had a big impact on peer-to-peer learning due to the ability to transmit them in various ways in different contexts, such as a storytelling session, child-to-child interactions or on the radio. Video observations revealed that all activities involve children participating and playing together.

Furthermore, another respondent indicated that CARE, an active organisation in the WASH sector, have assembled a group of children who are knowledgeable on all the songs, stories and games that go around the camp sharing the play activities with children who may not have had hygiene promotion sessions at the CFS. Respondents noted that older children may be caregivers of younger children and therefore are responsible for teaching younger children how and when to

hand wash. Finally, according to respondents, children were found to sing the handwashing songs at home with their parents, indicating that peer-to-peer learning extended beyond just the children but included their parent or guardians as well.

“...if children are motivated to learn through playful methods, then I feel like they'll be more motivated to share that with their friends, especially if the hygiene information comes in the form of a story or a song.”

3.4. Barriers to Implementation

Respondents were asked if there were barriers to implementing the playful methodology. Barriers to implementation were not necessarily reported. However, respondents explained that there were challenges surrounding the attitudes towards allowing children to play for the sake of playing before teaching them about handwashing. One respondent remarked that organisations wanted to focus on delivering WASH messages and there was a lack of support from organisations who did not believe the play methodology was appropriate, and expressed the need to have backing for a playful approach. There was also an issue regarding resources, such as training enough people from the community to become hygiene promotion officers to supervise children in order to implement activities, considering the groups of children at the CFS were usually large. Furthermore respondents mentioned that culturally, it was not easy to convince adults in the community to allow the interventionists to engage with children as opposed to *“the head of the household.”* Further remarks were made about the appropriateness of using play to discuss serious issues such as saving lives through stopping preventable diseases.

Culture in general as a challenge was also cited by other respondents. For instance, the conservative culture of the Rohingya community meant that play activities needed to be made culturally appropriate. Certain activities could not be carried out which meant that they had to be changed, adapted or removed completely. Nevertheless, as one respondent acknowledged, *“there is not anywhere in the world where you can't engage in play or creative arts,”* conveying that implementing play activities in these circumstances was not impossible as they were adaptable given the context or situation. Other challenges that respondents acknowledged concerned child

participation. For instance, not all of the children in the camp could be reached or were allowed to attend the sessions at the CFS, meaning that the children who have not had hygiene promotion sessions were less likely to understand the importance of handwashing. Parents were less likely to allow their children to leave their homes to attend the CFS. As one respondent stated, the support of parents is crucial because a lack of support for attending the play sessions could increase the risk of household infections and poor hygiene, especially if that household rarely engaged in handwashing to begin with.

4. Discussion

The objective of this research was to understand how play increases the level of intrinsic motivation to hand wash. While there is some knowledge in the field about the use of play to encourage children to hand wash, there is a lack of research so far that considers how play is a mechanism of behaviour change in humanitarian crises settings and thus, how play can increase intrinsic motivation to encourage children to become self-determined to hand wash. Research on changing children's hygiene and handwashing behaviour in humanitarian settings is already scarce, so this research has some implications for practice. This section will briefly discuss the answers to the research questions, the mechanisms through which play increases intrinsic motivation, applying this to the framework of Self-Determination Theory and lastly recommendations for future research.

Firstly, in relation to how play is used in the CWB intervention, six main categories of play activities were identified: stories, songs, games, check-ins, transitions and arts and crafts. The activities usually last between one to two hours, where each group of children participate in the sessions twice. The activities are ongoing, meaning that there is comprehensive material and training with the local camp facilitators so that the implementation of the intervention continues over a long period of time, long after CWB leaves the camp. This is vital for the sustainability of the intervention as it means that the playful methodology can be implemented by trained community staff, which is necessary to affect behaviour change in the longer term. By acknowledging the activities used, recommendations for activities that promote self-determination through problem solving, decision making, self-regulation, and self-management skills can be made, thus to increase children's intrinsic motivation to hand wash.

Secondly, children responded to the activities with positive affect and were observed to be highly engaged in the activities. High levels of engagement indicated that children were motivated to learn about handwashing. It was important to research what children responded to the most in order to provide insights into what children liked playing, and the activities they found more engaging to motivate their learning. Only the use of songs, games and stories were observed in the videos, so it was difficult to comment on how children responded to transition, check-in and arts and crafts activities. However, interview respondents indicated that these activities were developed due to

children responding positively to them. Thirdly, challenges surrounded attitudes about allowing children to simply play before delivering hygiene promotion learning and the need for backing and resources from organisations to implement a wider approach. These answers to the sub-questions have implications for the main research question, *how can play increase the intrinsic motivation to hand wash?* because it acknowledges the type of play activities that can promote intrinsic motivation, how children respond to these activities and what this means in terms of their self-motivation to learn and lastly, the obstacles that need to be addressed to allow for a wider implementation of the CWB methodology.

Next, several mechanisms were identified through which play increases intrinsic motivation. These mechanisms can be attributed to the framework of Self-Determination Theory. Firstly, play teaches children in a way that enables them to develop their knowledge and understanding about preventing the spread of infections and the importance of hand washing because play promotes executive function (Yogman et al, 2018). By providing children this knowledge using a child friendly approach, such as through telling stories about the consequences of not washing hands or songs that encourage the hand washing routine, their levels of competence can increase, thus allowing them to learn the skill of handwashing, why it is important for their health and to eventually master that skill (Ryan & Deci, 2000).

Secondly, play was found to increase children's psychosocial health because it enabled children to feel empowered by expressing how they felt through arts and crafts or check ins, increased their levels of trust with the children and adults around them through storytelling sessions, songs and role playing games whereby they could interact with each other in a safe space, and developed their self-confidence and self-esteem by partaking in these activities. For example, by empowering children through arts and crafts, children raise their levels of self-efficacy and competence. Niemiec & Ryan (2009) state that satisfaction of both autonomy and competence needs is essential to maintain intrinsic motivation. The results indicate that the playful methodology encourages this satisfaction by raising both the children's autonomy to engage in activities and their competence through activities that empower their knowledge.

Thirdly, an unexpected result that was reported was the mechanism of peer-to-peer learning. As Ryan & Deci (2000) stipulate, social and environmental factors affect levels of intrinsic motivation as motivation is both influenced by external and internal factors. The CWB play methodology was found to encourage peer-to-peer learning, and as demonstrated by the observations, children learn in tandem with each other - not only regarding handwashing, but other useful skills that are vital for their development such as socialising with each other. Furthermore, through role playing exercises, children were able to adapt their behaviour and mimic this amongst each other, indicating that play is a useful mechanism of behaviour change as play can greatly influence their behaviour (Crowley, 2014). The importance of trust building acts as an integral part of the CWB methodology. Through games, relatedness between children and between children and adults is increased. Feeling a sense of belonging is paramount to feeling self-determined (Ryan & Deci, 2000), therefore the peer-to-peer learning that the playful methodology encourages exemplifies that the approach can increase children's intrinsic motivation to hand wash.

From the results, it is evident that the framework of self-determination theory is applicable to the CWB methodology with regards to nurturing intrinsic motivation. Applying these mechanisms from the researcher's interpretation of the analyses, it seems that the need for competence is nurtured the most, as the mechanism for knowledge and understanding appeared numerous times in interviews as being the key reason for why the play methodology was created, which is the main goal of the intervention. That is, the intervention seeks to teach children why they should hand wash, therefore, with the aim increasing their competence. Further to this, one respondent mentioned that play allows children to practice and repeat behaviours, reflecting competence and mastery motivation. Moreover, respondents indicated that play could empower children to make positive decisions for themselves as they feel valued through play. With this sense of empowerment, the respondent remarked that children would be more likely to "*do the right thing,*" in regards to handwashing at key moments with their friends, reflecting the need relatedness, vital to intrinsic motivation as social factors can affect self-motivation (Ryan & Deci, 2000).

4.1. Strengths and Limitations

This research had several strengths and limitations. Firstly, this study provides some theoretical evidence that by using play as a mechanism of behaviour change to increase intrinsic motivation, children can become self-determined to hand wash at key moments and possibly create habitual patterns. Secondly, by achieving triangulation through the use of two methods to conduct qualitative research, reliability could be achieved. This research also provides some ecological validity as the results can be generalised to similar humanitarian contexts. This is because children in crisis settings who are suffering from toxic stress and low psychosocial health can always benefit from a play-based learning methodology. The CWB playful methodology indicates that it is adaptable to any context, as evidenced by the adaptation made to be culturally sensitive to the Rohingya context.

There are several limitations to this research. Firstly, due to COVID-19, field data could not be obtained. This meant that the researcher had to rely on video observations to analyse levels of intrinsic motivation instead of measuring this concept in the field, which this research would have benefited from. Secondly, handwashing could not be measured, therefore the extent to which play increases the self-determination and intrinsic motivation to hand wash remains empirically unclear. Thirdly, a low level of respondents were approached due to the sporadic nature of COVID-19, impacting on time and availability for individuals to commit to being interviewed.

4.2. Implications for Professional Practice

Despite these limitations, this research is highly relevant in the context of COVID-19 and therefore has implications for professional practice. For one, this research provides the WASH sector with theoretical evidence that play-based methods are useful to children's learning of handwashing and hygiene practices, based on the theory of Self-Determination. Secondly, this research considers that the CWB methodology can be adapted to any context. Further qualitative and quantitative research in the field is required to measure the concepts intrinsic motivation and handwashing to gain strengthened data of this phenomenon, as well as to examine the influence of social and environmental factors on intrinsic motivation.

Nevertheless, the researcher recommends that play should be considered as a mechanism of behaviour change in similar settings. Play increases the need for competence, relatedness and autonomy, and making handwashing fun will also increase the urge for children to master this skill in order to fulfil these basic psychological needs because a, children understand why they need to do so and how to do it, thus increasing their competence, b, it allows them to relate to other children in their social world, where children can teach and learn from each other and c, they partake in the act by their own volition depending on the circumstances in their environment and social world.

Nurturing self-determined behaviour is a sustainable way for children to continue to hand wash long after an intervention is deployed. The question now lies in whether this behaviour is thwarted as a result of resources, the scarcity of soap and water and other environmental influences that can impact on the motivation to hand wash. However, children are resilient, and will always find a way to do what is best for them through the most challenging of times.

5.0. References

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