

Decision-Making Processes Using WhatsApp

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Abstract	Article Info
<p>Smartphone applications have become increasingly popular, influencing functioning in all life domains. This study investigated the influence of the WhatsApp application on decision-making processes among kindergarten-managers. The research aimed to investigate the types of decisions made using WhatsApp. To examine this, a 3-phase mixed-method research was applied: (1) 23 semi-structured interviews with kindergarten managers. (2) Analysis of 74 WhatsApp managers-parents conversations. (3) A questionnaire administered to 324 kindergarten-managers. The managers reported a constant pressure for an immediate reaction and rapid decision making. Despite the pressure, managers claim they can limit the decision making to simple decisions and postpone complex decision making to off-line procedures. Yet, analysis of the questionnaire results indicate that this claimed ability to differentiate and limit the decision making to simple ones, is not the general case: managers who benefitted more from WhatsApp tended to broaden the decision-making scope to all types of decisions. The expectation is that, as WhatsApp benefits to managers</p>	<p>Article History: <i>Received</i> February, 09, 2019 <i>Accepted</i> June, 30, 2019</p> <hr/> <p>Keywords: Decision-making, Managerial decisions, WhatsApp, Kindergarten-managers, Complex decisions</p>



become more and more evident and the pressure to respond quickly increases, the barriers will tend to fall down, and more complex decision will be made on-line with the evident implications.

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Introduction

When the so-called 'Millennials' became parents to kindergarten students, they applied their communication skills and habits to the communication with the kindergarten-managers (Kiyici, Akyeampong, & Kiyici, 2013; Alazemi, 2017). This caused little researched influence on the administration work and decision making of those managers (Thompson, 2008; Flowers, 2015).

New communication channels have opened up between educators and parents (Gonzalez-DeHass, Willems, & Holbein, 2005; Andone, Dron, & Pemberton, 2009; Blau & Shamir-Inbal, 2016; Gikas & Grant, 2013; Heflin, Shewmaker, & Nguyen, 2017; Patrikakou, 2016; Gonzalez-DeHass, Willems, & Holbein, 2005). Knowledge concerning Smartphone-assisted educational management is still in its infancy and almost absent from literature on educational administration. There is especially a dearth of knowledge regarding the fast decision-making that takes place due to information that is uploaded by Smartphones.

There are many insights concerning decision-making processes (Head & Alford, 2015 ; Kahneman, 2011; Yang, Zhang, & Yang, 2017), (Yang, Zhang, & Yang, 2017) and the understanding of decision making of school principals and their considerations is well-established (Torres Jr & Chen, 2006; Frick, 2009; Shaked & Schechter,

2018; Findlay, 2015). However, literature has little to say about technology-assisted decision-making and its implications. The modern society, that offers always-on, always-available communication services (Lim, 2016) has impact on managerial processes. One of the most commonly adopted channels of communications is the WhatsApp application (Bouhnik & Deshen , 2014). This application is always on (Aburezeq & Ishtaiwa, 2013) and compels immediate response. WhatsApp provides status information unavailable by other means of communications such as text messages (Church & de Oliveira, 2013).

The research investigates decision-making processes performed by kindergarten-managers through WhatsApp. Through the help of 324 managers, a ground breaking qualitative and quantitative research was held, to shed light on the characters of the decisions and principals' considerations. As more and more of the communication is conducted through immediate messaging apps like WhatsApp, the importance of understanding the relevant decision- making processes and the characteristics of the decision makers increases.

Literature Review

WhatsApp in the Educational Management

Nearly all Smartphones owners take their devices with them wherever they go and treat them as an essential part of their lives (Anglano, 2014). The instant messaging applications such as WhatsApp have penetrated practically all smartphone user communities. WhatsApp appears to make the development of social presence easier than other forms of computer-mediated communications (Tang & Hew, 2017). WhatsApp, which is an instant messaging application that can be run on most mobile platforms, is



one of the most popular applications worldwide (Priyono, 2016). WhatsApp messages have become ubiquitous in everyday life. In December 2017, there were 1.5 billion monthly WhatsApp users worldwide (Statista, 2018).

The advantage of WhatsApp is being a reliable and fast communication method (Cetinkaya, 2017). WhatsApp enables full-time-working parents to constantly participate, as is encouraged by governments and education systems (Schilder, Broadstone, & Curenton, 2017). Parent-teacher relationships in kindergarten are multifaceted and included few dimensions support, undermining, endorsement, and agreement between staff and the families (Lang, Schoppe-Sullivan, & Jeon, 2017).

For quite a long time, mobile devices and collaborative learning environments have been used as common tools in education systems (Heflin, Shewmaker, & Nguyen, 2017). The education system increasingly uses social networks (Lim, 2016; Pachler, Ranieri, Manca, & Cook, 2012; Pimmer & Tulenko, 2015; Heath, Maghrabi, & Carr, 2015). (Pachler, Ranieri, Manca, & Cook, 2012) Kindergarten students' parents mostly belong to generations born after 1980 and are often referred to as "digital natives", "Millennials", or "the Net Generation" (Kiyici, Akyeampong, & Kiyici, 2013) and therefore expect kindergarten teachers to connect with them using the same technique. The use of cellular phones has begun to replace traditional means of communication between educators and parents (Lim, 2016), and enable parents' involvement (Fiorvanti, 2015). While social media allow users to share their thoughts and feelings with others (Waterloo, Baumgartner, Peter, & Valkenburg, 2017), the norms of social behavior are not yet well-established (Erreygers, Vandebosch,

Vranjes, Baillien, & De Witte, 2018), so that kindergarten teachers do not have any norms to rely on.

Yet, there is scant research on the influence of WhatsApp on the educational environment and it focuses mostly on the advantages of WhatsApp for educational process and less on managerial processes (e.g. (Alazemi, 2017; Allagui, 2014; Güler, 2017; Ngaleka & Uys, 2013; Robinson, et al., 2015; So, 2016). Use of Smartphones allows educators to provide emotional, cognitive and social support in synchronized simultaneous conversation between participants (Flowers, 2015; Ule, Živoder, & Du Bois-Reymond, 2015). The easy thought sharing of social media encourages use (Waterloo, Baumgartner, Peter, & Valkenburg, 2017).

The education system increasingly uses social networks (Gikas & Grant, 2013; Heath, Maghrabi, & Carr, 2015; Lim, 2016; Pimmer & Tulenko, 2015; Pachler, Ranieri, Manca, & Cook, 2012). Parents of kindergarten children also initiate contact through cellular phones to form message groups, and see Smartphone contact as an accessible and comfortable means to advance their children's education (Gong & Wallace, 2012; Hall & Bierman, 2015; Lim, 2016). Use of WhatsApp is very advantageous for those working in the education system. WhatsApp communication between teachers and parents can help to solve problems, with shared thinking and consultation and easy access to educational resources, despite physical distance between communicators and knowledge sources (Chipunza & Bere, 2013). The main disadvantage is the flood of unwanted information (Bouhnik & Deshen, 2014) and the mental effort that such dialog requires (Francisco, 2017).



Managerial Decision Making in Educational Systems

School principals' decision-making is not only influenced by their wish to leave a mark, but also by their preconceptions that influence their use of data (Buske & Zlatkin-Troitschanskaia, 2018), the individual interests and alliance partners (Walter, Kellermanns, & Lechner, 2012). Even though, the principals are not automatically comply to given policy and have their discretion (Torres Jr & Chen, 2006; Tamir & Grabarski, 2018) and can find themselves in a clash between personal beliefs and values and organizational or professional demands which lead them to variate decisions (Frick, 2009; Tamir & Grabarski, 2018).

Principals who are considered good at problem-solving and decision-making use advanced technology and insist on repeatedly examining the different possibilities on offer (Marke, 2016; McLeod & Richardson, 2013). Technology allows principals to share decision-making processes with their staffs (Sellers, 2005).

Complex Decisions

Problems in public organization might be considered "wicked" and therefore complex to resolve (Head & Alford, 2015). In complex decision-making tasks, participants lack the requisite knowledge to make quality decisions because task elements are highly interrelated, and the consequence of possible actions is often ambiguous. Those decisions usually based on "design problems and always ill-structured" (Grünig & Kuhn, 2017)p.10). The goals of complex decisions are unclear and too many (Morieux, 2011) and lead the decision-maker to concentrate on the end result rather than on the process (Yang, Zhang, & Yang, 2017). Education systems have

problems like these that include dilemmas, require comparison of many options (Klein, 2005).

The concept of problem complexity is subjective. Contrary to complex decisions, simple decisions are cognitively easy, and cause less cognitive strain so the decision-maker uses less effort to reach a decision (Kahneman, 2011). Problems may be less complex for the decider that quickly finds a solution because of the familiarity associated with repeated exposure, habituation and processing fluency that occurs when previously perceived stimuli are encoded (Montoya, Horton, Vevea, Citkowicz, & Lauber, 2017). When the decision-maker applies less effort in finding the solution, it is easier to find the right solution (Vergauwe, Dewaele, Langerock, & Barrouillet, 2012), and the same problems need less attention and less energy when the decider is skilled (Waskom, Frank, & Wagner, 2017).

Research Purpose

The purpose of this research was to investigate the types of decisions made by the kindergarten managers using WhatsApp. Specifically, the aim was to see whether the pressure caused by the immediate messages tool affects the type of decisions.

Research Context

The kindergarten-managers propose an excellent environment for the purposes of this research as they deal with a broad range of activities including setting curriculum and deciding on pedagogical issues (Mihai, Butera, & Friesen, 2017). In Israel, the kindergarten-managers independently run their organization (not part of a larger school) and therefore have managerial duties and need to perform managerial decision-making. The managers have pedagogical



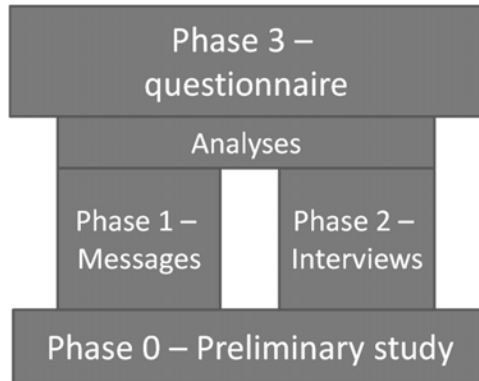
autonomy to choose content and methods of teaching and their work is supervised by regional supervisors (Sverdlov & Aram , 2016). They also have continuous contacts with the children's parents (Geiger, 2013; Harris & Barnes, 2009; Oplatka & Stundi, 2011). We assumed that the heavy burden and sparse resources in the kindergartens would constitute a motivational factor for the adoption of time-saving technology. Additionally, we knew that contact with parents was a significant part of these managers' work (Choy & Karuppiah, 2016). There was also another clear advantage – this is a relatively homogenous population in terms of their role definition and its incumbent tasks, a fact that reduced complications such as variations in the span of control, the number of entities with whom they maintain contact etc.

Methodology

The research is based on mixed method that involves interviews, transcript analyses and questionnaire. The triangulation of data from these different tools provided various viewpoints on the research theme (Miles & Huberman, 2014; Spillane, et al., 2010), (Spillane, et al., 2010). To optimize the benefits of each method, the research was performed sequentially, enabling better planning of each step. The structure of the research phases is depicted in figure 1 and is elaborated in the 'procedure' section below.

Figure 1.

Research structure



The preliminary study provided initial but rudimentary understanding of the problem. Because of the rudimentary nature of this phase, the researchers felt that the process was not yet sufficiently mature to begin a quantitative study. Therefore, a two-headed approach commenced. This approach provided information to form a comprehensive picture of the studied phenomenon. Initial data-collection from qualitative research allowed aspects and nuances to surface while reducing preconceptions concerning the research subject (Merriam, 2009). This also enabled attention to be given to the contextual richness of the data that emerged from this tool (Hallinger, 2011).

Following selection of the sample population, a preliminary learning stage was conducted, collecting information from a focus group. At the second stage interviews were held with a larger group of 21 kindergarten-managers. Given the data from these two stages, the next stage was documentary analysis of 74 WhatsApp transcripts, extracting raw data without the intervention of interviewees. The last



stage involved quantitative analysis of responses to a questionnaire from 324 managers.

The qualitative stages of the study (the qualitative analyses) left several questions unanswered. The limited sample, though providing valuable insights, helped to consolidate the questions for the quantitative part, crystallize the research hypotheses and to create an extensive questionnaire that could be sent to 324 managers for further analyses.

The Qualitative Research Procedure

Stage-1 – Preliminary Study

Two experienced kindergarten-managers (18 years' and 20 years' experience) participated in a focus group to clarify the research subject. They were asked about the characteristics of the managerial decisions reflected in their own WhatsApp communications. Following, they returned to the field and further discussed the subject with other managers, examining transcripts of their WhatsApp texts and those of their colleagues and collecting insights in shared discussions with the researchers. These insights served as material for the preparation of the next stage of the research. After this stage ended, it was possible to simultaneously perform the next two stages including collecting broader qualitative data collection.

Stage-2: Collection of WhatsApp Transcripts

Participants: 10 kindergarten-managers (including the two kindergarten managers that participate in the focus group) who corresponded over a period of 4.5 months with parents and the kindergarten staff members. The transcripts of their messages were collected. All the names of the participants, including mention of the

children's names were encoded to maintain anonymity by special objective assistant who blurred the identity of the participants and of all the people mentioned in the research.

Stage-3: Semi-structured Interviews

Participants: 21 managers (to avoid bias, different from the 10 managers who participated in the focus group). During the interviews, the managers often exposed some of their WhatsApp transcripts to reinforce statements that they voiced in their responses to the interview questions. The managers were asked to retrospectively reflect of their acts and considerations through inquiries about the reasons to use WhatsApp, the types of requests and requirements made by parents through the tool, which decisions were made immediately using the application and which not, the response time and the pressure to respond quickly.

Findings from the Analysis of the Qualitative Research

The data from the 31 managers (the 10 of stage-2 and the 21 of stage-3) was analysed. The analysis displayed 4 distinct categories, that shed light on kindergarten managers decision- making characteristics as reflected by WhatsApp communications: Parental pressure to provide fast replies, Communication overload and the types of decisions made.

Parental pressure to provide fast replies ("getting rid of the green dot")

The managers felt pressure from parents to respond and decide quickly. Before the introduction of WhatsApp as a communication tool (the age of notice boards, notes and pre-arranged meetings) they



had time to pause for thought and prepare for the meetings before making decisions.

One manager (aged 46, 20 years' experience) reflected:

I already felt the pressure from the beginning, because mothers apparently have free time in the morning but not when I have free time ✨ and I also saw that they thought that I should response to each message.

One other manager (aged 41, 16 years' experience) commented on the pressure:

... With the mothers (of the children) it puts me under pressure: having to think and decide and write it correctly. I must re-read before sending, so that I don't make a mistake and that takes energy and patience that I don't always have.

There is pressure to react immediately and, in most cases, to make decisions before typing the answer. From the moment that WhatsApp was introduced in the group discourse, the messages arrive in real time, within seconds and parents can see when their message was read by the manager, and when she entered the application.

One manager (aged 47, 21 years' experience) explained:

On WhatsApp, I don't think that I fail to use discretion, but it demands serious focus. There is not a lot of time to type the text. Decision-making and thinking using mail are different, it's not immediate. There is more discretion used there.

Non-response by the managers may be interpreted as avoidance by the parents. Several managers claimed that they needed to "get rid of the green dot" as quickly as possible. Especially since the parents can see that the manager got the message, and a "countdown" till response starts. When they reply quickly, they cannot examine

alternatives for their decision in the manner that they would do if they had more time and they feel inconvenience.

Communication overload

The managers complained about the vast number of daily messages they had to read and respond to. They claimed to be "overloaded" by these messages. The frequency of the messages made things very difficult for the managers because they entered constantly, during the daily work and the managers felt they were never "up to date" with the communication and they found it tiresome to cherry-pick the important messages from the general hubbub. As one (aged 39, 10 years' experience) explained:

After that the babble didn't end and I receive 100 messages a day, I really was annoyed. (The parents' messages) were about insignificant matters, they asked 'should we come early?'; 'when does it end?'; 'can I bring his brother instead of a parent?'; 'do we have to pay'; 'what should we bring?'... and these messages were all sent after I had sent a detailed invitation...and what each one would bring. Its stressful with the mothers: having to write correctly, and reading the message again before I send it, in order not to make a mistake and that takes energy and patience that I don't always have.

Other managers reported similar frustration from the message overload and presented their WhatsApp correspondence history (number of messages per day) to demonstrate the overload and emphasize their claims. Oddly enough, some managers (the younger ones) did not even find it an unreasonable expectation.

Types of decisions made – simple and complex

When asked, the managers claimed they limited the decision making performed via WhatsApp to simple ones. Decisions felt by the managers to be simple included arriving at the kindergarten in warm clothing on an especially cloudy day or early closing of the



kindergarten due to severe weather. An example of such decision-making was sent by manager (aged 35, 8 years' experience):

Dear parents, good evening, it was decided that it would be possible to bring cake to the birthday.

Other subjects necessitate deeper discussion, such as interactions between the kindergarten staff and the child and his family. The managers prefer to discuss these matters in a telephone conversation or in face-to-face meetings intended to go deeper into the matter and to enable decisions to be made outside the application's arena. One example of dialogical correspondence between manager (aged 31, 6 years' experience) and parent:

The mother: What is wrong with our child N? He doesn't want to invite friends to our home and he is not invited by them. What do you think should be done? I don't know how serious this is and whether I should take him for treatment?

The manager: I suggest we meet and talk about this.

Although we managed to identify cases in which the managers did make complex decisions through WhatsApp, the managers were not eager to expose these cases, perhaps they were not prevalent, because the managers were cautious or because in their daily lives they make very few complex decisions and most of the decisions that they make are not complex. One example of this can be seen in a lengthy correspondence between a manager (aged 45, 19 years' experience) and a mother.

Mother: ... R (the assistant-manager) told me that my daughter did not agree to go to the toilet, even when they initiated this and asked her. I know that you told me not to make a fuss about it and, that this would pass, but it is difficult for me not to be worried about this, and it is already three weeks since this began. What do you think?

Manager: ... I suggest we allow the assistant to give her positive reinforcements, when she does not wee in her pants, and continue to suggest that she go to the toilet. If she agrees then she will give her a hug and kiss and for example she will tell her dad about this, in her presence.

Additionally, most interviews, the managers mentioned they told those who participated in the WhatsApp group that they should comply with the boundaries that they determined for the discussion, e.g. avoiding sending jokes, offending participants, and flooding the group with irrelevant pictures/video-clips etc. These stipulations had led in the past to the creation of writing codes for the use of WhatsApp. Writing in a WhatsApp group quickly took on the character of public discourse, the manager-parents correspondence became more liberated and intimate and the virtual boundaries were not so strictly or cautiously applied.

Background to the Quantitative Research

The several stages of the qualitative research provided interesting data on the assimilation of WhatsApp among the managers. It was clear that despite the disadvantages of this medium, its contribution and the pressure from the parents overcame the managers' hesitation and the discomfort. Yet, the reports received from the managers, regarding the need to "get rid of the dot" and to reply swiftly, led us to the hypothesis that the immediacy of the tool pushed the managers to take decisions "on their feet". The impressions that emerged from the conversations formed a complex picture that was not without internal contradictions. On one hand, the managers reported significant pressure to provide instant answers. On the other hand, they explained that they took care to make immediate decisions only when simple decisions were needed. When more complex decisions were required they delayed the



decision until they could consider the matter more comprehensively. A different picture emerged from the transcripts of their conversations - according to which, some complex decisions did receive a response, even rapidly. The researchers' assumption is that during the interviews they preferred not to admit that complex decisions were made under pressure of time. To test this point, they decided to administer a questionnaire, so that they could find the parameters that led the managers to be willing to make complex decisions "on their feet".

The researchers suspected that the managers demonstrated some sort of defensive behavior that made them reluctant to report that they made complex decisions using WhatsApp. Especially, since they all reported a significant pressure to react and decide and particularly because the tendency of the parents towards full disclosure is known to contribute to that pressure (Baruh & Cemalcıla, 2018). This hypothesis could not be accurately examined by qualitative tools (yielding "more of the same" results) and a different, quantitative approach, was needed. We therefore decided to draw on a very broad sample, both in terms of a large number of participants and regarding the number of questions in the questionnaire (so that there would be no obvious spotlight highlight on the questions relating to decision-making). In addition, the broad scope of the questionnaire allowed us to collect much information on the assimilation of the use of WhatsApp by the managers.

- Participants: included 324 managers (with a response rate of 69%).
- Distribution of the research tool: The questionnaire was administered to the managers through Google Docs.

- Validation of the questionnaire: this was performed by turning to managers with many years of role experience (25 to 30 years' experience; in the first batch that was administered to 50 managers we asked for their written remarks on the questionnaire, and according to these responses we amended the drafting of the questions)
- The questionnaire structure: the participants were asked to fill in basic data concerning their age, years of role experience, type of kindergarten in which they taught and their education. They were asked to grade their level of agreement with a series of statements on a scale of 1-5.

Summary of the Findings

The most salient (and not surprising) finding (depicted in Table 1) was that the managers reported that the WhatsApp tool was helpful for them (more than 90% of the managers marked 5 for the statement "The use of WhatsApp is very convenient for me" and an even higher percentage for the statement "I use WhatsApp because of the speed with which information is transferred"). In other words, despite the complaints that we heard during the qualitative study, in general, the managers reported their satisfaction with this tool. It is interesting to note that the statement "The use of WhatsApp saves me much work-time" received less approval than the two previous statements (although it was awarded a high mean of 4.02. If we had merely sufficed with the qualitative study that included a substantial sample of interviews, we would not have been able to identify this difference and we would assume that saving time was the reason for use of the tool, however this finding apparently indicates that time saving, despite its importance was not the only or most important



value that the managers found in WhatsApp. This supposition is strengthened due to the sweeping support given to the statements “I use WhatsApp because the technology is friendly for parents” and “I think that the parents are satisfied with the use of this channel”. To our surprise, it transpired that the statement: “I think that WhatsApp helps me to manage the kindergarten in a more effective way” was only awarded a mean of 3.48. Perhaps this is because communication with the parents is not perceived as “management”, rather as complementary activities.

Table 1.

Questionnaire answers

Statement	Number of respondents					Mean	SD
	1	2	3	4	5		
In our group WhatsApp is only used for text messages	156	35	45	25	62	2.39	1.58
I often use it to send the children's pictures to parents	87	43	59	38	95	3.04	1.59
I often use it to send messages to parents	41	31	59	56	136	3.66	1.42
I often use it to send video-clips to the parents	173	62	46	17	25	1.94	1.26
I often use it to send audio messages to parents	284	16	16	4	4	1.23	0.71
I believe that WhatsApp improves communication with parents	50	24	47	78	123	3.62	1.44
I think that parents are satisfied with the use of this channel	18	12	40	87	165	4.15	1.13
I set clear rules regarding the times for sending messages	106	29	41	28	118	3.08	1.72
The contents of the messages are limited to information only	42	20	41	45	173	3.90	1.44
I use WhatsApp because it is convenient to use	10	5	20	53	234	4.53	0.92
I use WhatsApp because its use is friendly for parents	24	15	27	53	202	4.23	1.23
The use of WhatsApp saves much work time	25	24	39	65	168	4.02	1.28
WhatsApp demands a lot of time at the expense of the time with the children in the kindergarten	182	51	37	16	38	2.00	1.39

Statement	Number of respondents					Mean	SD
	1	2	3	4	5		
I use WhatsApp because of the speedy transmission of messages	10	6	14	51	239	4.57	0.91
WhatsApp is very convenient for me to use	12	13	25	64	207	4.38	1.04
My connection with the parents on WhatsApp is very formal	46	18	71	83	104	3.56	1.36
I spend time in order to properly compose my text messages	30	21	43	75	152	3.93	1.31
I prefer to answer on WhatsApp only when it involves decisions that seem simple to me	51	30	67	61	113	3.48	1.45
I reply on WhatsApp even when it involves a complex decision	28	18	45	68	163	3.99	1.29
I think that the media of WhatsApp helps me to manage the kindergarten more effectively	56	39	72	74	83	3.27	1.41
After a period of WhatsApp use I am satisfied with the use of this tool	29	6	17	35	234	4.37	1.24
The disadvantage of WhatsApp is the blurring of formal boundaries between work time and private life	36	16	42	77	151	3.90	1.34
I am unwilling to discuss subjects relating to my professional authority as a kindergarten teacher on a group WhatsApp	175	54	49	24	22	1.96	1.27
After using WhatsApp, I think that this media helps me to communicate with the parents	50	30	61	61	120	3.53	1.45
I don't limit the time when parents can send me messages	106	22	51	48	96	3.02	1.65

In contrast to the qualitative study, the level of the managers' dissatisfaction with the tool was not especially high – the level of agreement with the statement relating to the blurring of formal boundaries between private and work life, was a medium result of 3.27. "Time-demanding" was awarded an even lower result: 2. In other words, although the managers recognized that the tool demanded time, this consideration was not given an especially important place in comparison with the advantages of the tool. The researchers assumed that there was a correlation between managers



who limited the times for sending messages and the managers who reported a blurring of boundaries between their private and work lives (managers who felt that there was an interfering invasion into their private lives would tend to set time limits for the sending of messages). However, no such correlation was found.

Demographic Aspects

The researchers' basic assumption was that the acceptance level for the tool (as appeared from the level of agreement with statements concerning convenience, use in kindergarten-management, timesaving, friendliness for parents and parents' satisfaction) would correlate positively with the managers' demographic characteristics. They expected that the managers with more education would know better how to utilize the tool and that we therefore expected that they would have a higher acceptance level. Other expectations was that the younger generation would be more likely to accept the new technology. Surprisingly, no significant correlation was found between the above-mentioned statements and these demographic parameters, except for negative correlations with the level of education (depicted in table 2). It transpired that more highly educated managers were not convinced that the tool helped them to save time or helped them to manage the kindergarten effectively.

Table 2.
Pearson correlations and Significance.

Statement	Education		Years of experience in kindergarten		Kindergarten managers. ages in years	
	Pearson Correlation	Sig. (2-tailed)	Pearson Correlation	Sig. (2-tailed)	Pearson Correlation	Sig. (2-tailed)
I use WhatsApp because it is convenient to use	-0.032	0.573	-0.079	0.153	-0.034	0.537
I use WhatsApp because the technology is user-friendly for parents	-0.044	0.442	-.128*	0.021	-0.055	0.322
The use of WhatsApp saves much work time	-.139*	0.014	-0.071	0.205	-0.035	0.532
The use of WhatsApp is very convenient for me	-0.084	0.139	-0.080	0.152	-0.041	0.458
I think that this media of WhatsApp helps be to manage the kindergarten in a more effective manner	-.184**	0.001	-0.055	0.326	-0.047	0.403

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Apart from a single finding regarding senior managers with more experience who claimed less that they used the tool because it was technologically friendly for parents, no significant correlations were found with age or years of experience. It can be assumed that this indicates that the technology was already mature at the time of the research, so that there is no significant difference between more senior or more experienced managers and new/younger managers.

Findings Relating to Simple/Complex Decision-making

As noted the main reason for the inclusion of a questionnaire was to examine the subject of decision-making. For this purpose, the questionnaire included two statements dealing with simple and complex decision-making: (1) I prefer to respond only when decisions



that seem simple to me are involved. (2) I respond on WhatsApp even when complex decisions are involved.

In order to understand which factors influence the managers' willingness to make complex decisions on WhatsApp, a process of stepwise regression was performed, to find the predictor for statements that were relevant to decision-making. As we had thought from the beginning, a large population was indeed needed to identify these correlations. The regression analysis (table 3) shows that there were only two statements that explain the statement regarding complex decisions: (1) Using WhatsApp saves much work-time. (2) I believe that the use of WhatsApp improves communication with parents.

Table 3.

Regression: "I respond on WhatsApp when complex decisions are involved"

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
	B	Std. Error	Beta			Zero-order	Partial	Part
1 (Constant)	1.075	.226		4.748	.000			
Q.17 The use of WhatsApp saves much work time	.221	.054	.224	4.119	.000	.224	.224	.224
2 (Constant)	.922	.237		3.886	.000			
Q17 the use of WhatsApp saves much work time	.158	.062	.160	2.557	.011	.224	.141	.138
Q9 I believe that the use of WhatsApp improves communication with the parents	.112	.055	.128	2.049	.041	.208	.114	.111

a. Dependent Variable: q31 "I respond on WhatsApp when complex decisions are involved"

In other words, insofar as the managers saw the tool as a medium that assisted their connection with parents then they were more inclined to increase their decision-making on complex issues. Managers who saw the tool as a mean to save time, tended to expand its use for more complex subjects. We assume that in the balance between saving time and resistance to expanding the use of the tool for more complex issues, managers for whom the tool saves time, agreed to be more flexible regarding the making of complex decisions. To supplement these data, an identical analysis was performed for the statement on simple decision-making (table 4). The analysis revealed that there were three explaining statements: (1) I prefer to examine things in depth before I respond on the group WhatsApp. (2) I invest time in order to draft the content of my messages correctly. (3) I do not limit the parents to a particular time for sending messages. It can be seen that the managers who perceived WhatsApp as an official communication tool tended also to invest time in composing their messages and these two statements were in line with a tendency to restrict decision-making to the simple level.



Table 4.

Regression: "I prefer to reply on WhatsApp only when this involves decisions that seem simple to me"

Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.	Correlations		
	B	Std. Error	Beta				Zero-order	Partial	Part
1 (Constant)	1.540	.371			4.152	.000			
Q23 I prefer to examine everything in depth before I reply on the WhatsApp group	.441	.080	.292		5.486	.000	.292	.292	.292
2 (Constant)	1.312	.373			3.518	.000			
Q23 I prefer to examine everything in depth before I reply on the WhatsApp group	.309	.090	.205		3.451	.001	.292	.189	.181
Q29 I invest time in order to correctly compose the content of my messages	.210	.066	.189		3.180	.002	.284	.175	.167
3 (Constant)	.997	.384			2.601	.010			
Q23 I prefer to examine everything in depth before I reply on the WhatsApp group	.281	.089	.186		3.156	.002	.292	.174	.164
Q29 I invest time in order to correctly compose the content of my messages	.218	.065	.196		3.339	.001	.284	.183	.173
Q11 I don't restrict the times when parents can send me messages	.136	.046	.154		2.950	.003	.174	.163	.153

a. Dependent Variable: Q30 "I prefer to reply on WhatsApp only when this involves decisions that seem simple to me"

Discussion

The research investigated the assimilation of WhatsApp among kindergarten managers and the effects it had on their decision-making. A series of studies was conducted, beginning with semi-structured interviews followed by analysis of transcripts of WhatsApp conversations and concluding with a focus on a restricted number of questions in questionnaires. Five findings emerged from the research:

- (1) The managers felt they were under constant pressure to read and reply fast to the incoming messages. Since the kindergarten manager is based significantly on interactions with the parents and there is an embedded will to increase parent involvement to improve the children achievement (Bassok, Magouirk, Markowitz, & Play, 2018; Murray, McFarland-Piazza, & Harrison, 2015) and since the parents are the ones choosing the specific kindergarten, is it understandable why the managers felt they needed to maintain good parental communication and respond accordingly.
- (2) Not only did the managers felt they needed to reply constantly, they were very reluctant to limit the communication to work hours. The lack of well-established code of conduct for WhatsApp conversation left (Pielot, de Oliveira, Kwak, & Oliver, 2014) the managers exposed to parents' expectations for quick response almost all day long. Most managers could not effectively separate the work hours from their private time.
- (3) Most managers reported that they could not stop the "flood" of incoming messages. The parents, being of the "Y-generation", expect the kindergarten managers to communicate via WhatsApp and to be "nearly-constant-available". Furthermore,



this is something that some managers (being millennials themselves) felt that it was a reasonable expectation. This correspond with the well-known phenomenon of message-overload and online fatigue (Dhir, Yossatorn, Kaur, & Chen, 2018; Shin & Shin, 2016) especially when received information was not requested by the receiver (Derks & Bakker, 2010). Since the managers have a lot of daily tasks and demanding workload, they needed to balance the need to attend to their tasks and the will to reply. This increased the load of message handling in their “private” time. This overload in known to lead to cognitive load and problems in multi-tasking (Vannucci & Ohannessian, 2019).

- (4) The managers reported that they manage to limit the decision-making to simple decisions, despite the pressure to react immediately. They asserted that although there was pressure to react quickly in the computerized era ('to get rid of the green dot') and a heavy burden was imposed on them to respond more quickly than they would like to, they were able to cope with this and delay complex decision-making. Despite the claim that the managers cope well with pressure and not to make complex decisions on WhatsApp, it appears that increasing pressure on them nevertheless leads them to do so. This was seen at the interview transcripts. A questionnaire that was administered to examine this phenomenon discovered that despite their declarations concerning this subject, the managers did make complex decisions on WhatsApp. Managers that attributed high significance to saving work time and believed that WhatsApp improves connection with the parents, were less reluctant to use the tool even for complex decisions, thus compensating for the lack of information and time by relying on intuition and personal experience (Grünig & Kuhn, 2017). That might be explained by

their wish to retain control on the occurrences (Buske & Zlatkin-Troitschanskaia, 2018), and to leave their fingerprints (Schechter & Shaked, 2017). On the other hand, cautious managers who preferred to deeply check the messages' content before sending and invest time in phrasing, showed less tendency to use WhatsApp for complex decisions (also, these managers did not think it important to limit the parents' messaging to specific times).

- (5) Age difference – apparently, the younger kindergarten managers are less disturbed by the infiltration of WhatsApp to their private time and are also less annoyed by the need to respond quickly. It seems that the millennials perceive these behaviours as more acceptable and a mere extension to their social lives, since their social lives are occur mainly in the digital arena anyhow (Hon, Cui, & Na, 2016; Soto, Almarza, & Wilkinson, 2017).

This study is one of the first relating to acceptance of instant messaging technology and online synchronic discussion groups as a tool for decision-making in the education system.

Contribution to Decision Making and Educational Technology

The research sheds a new light on the social arena where the kindergarten managers have to perform. The modern technology and the rapid means of communication force the kindergarten manager to expand their managerial duties to the social-media arena.

The characteristics of this specific social-media arena (immediate responses and constant availability) force the managers to make even complex decisions without giving them enough consideration. The managers yet need to learn how to distinguish between the simple decisions, that can be made "on the feet" (though, sometimes even



these are less recommended) and complex decisions that require time and thought not suitable for this arena. A code of conduct that separate these issues is yet to be developed and accepted by both parents and managers, since obviously the managers intuition fails to make this distinguish when under pressure.

As the main drive for these phenomena is the parental pressure, it may be worth to consider central regulation from the ministry of education to help the kindergarten managers. This directive may be especially important as the millennials (and in the future, generations Y and Z) become a majority among the managers.

Future Research

Additional research is needed to further explain the influences of this technology on decision-making at the different managerial levels of this system. The finding that the managers who attributed more importance to time-saving and efficiency were the ones who were less likely to limit WhatsApp to simple decisions suggests that as the importance of time-saving becomes more common, the barriers against making complex decisions on WhatsApp will weaken. Beyond the speed of the WhatsApp tool, it has other characteristics, such as the ability to collect many opinions from many users and to decentralize decision-making sharing it with all the members of the group. It would be interesting to examine whether this tool does indeed bring the managers to share their decision-making with group members, i.e. instead of making the decisions by themselves, they allow group wisdom to contribute to their decision-making.

The research limitations are the specific population – the kindergarten managers, and it would be advisable to expand the research to other managers of the educational systems and even

beyond. Furthermore, the managers are well rooted in the local culture, which is a composed of heavy WhatsApp users. The code of conduct of using instant messages is still in its infancy and, thus, may alter as time goes by.

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