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Exploring the Effect of Digital Storytelling on Employee Engagement: An Experiment Research

Yuni Ros Bangun*, Henddy Ginting, and Ratu Marlina Oktaviana Artini
School of Business and Management, Institut Teknologi Bandung

Abstract. *Employee engagement has been recognized as one of the strategies in delivering productivity and profitability growth in organizations. Working on to find the appropriate method to improve employee engagement, this study examines the effectiveness of digital storytelling as intervention method. This research is an experimental research where participants (n = 153) are assessed two times (pre-test and post-test) using two types of employee engagement assessment tools: questionnaire and text analysis. Experimental group accepts two times intervention of digital storytelling before post-test is given. A customized 12 dimensions of employee engagement is used in this experiment to construct the assessment tools. Paired t-test and independent t-test show significant improvement in the text analysis scores of employee engagement among participants with digital storytelling intervention, but not in the participant without the intervention. Further analyzes highlighted specific improvement in four dimensions (i.e., social support, work engagement, extra-role performance, and organization identity) from the 12 dimensions of employee engagement. Unfortunately, employee engagement assessment using questionnaire is insignificantly influenced by digital storytelling. This insignificant finding might be due to the ceiling effect of the questionnaire scores, but further investigation is needed to explained this results. This research demonstrate that digital storytelling is an effective method to improve employee engagement, and it is also efficient in time and cost.*

Keywords: *Employee engagement, customized employee engagement, digital storytelling, text analysis, experimental research.*

Abstrak. *Keterikatan karyawan dianggap sebagai salah satu strategi yang mendorong peningkatan produktivitas dan profitabilitas. Oleh karenanya, tingkat keterikatan karyawan menjadi penting. Dalam upaya menemukan metode yang tepat untuk meningkatkan keterikatan karyawan dalam perusahaan, penelitian ini menguji bagaimana efektivitas cerita digital apabila digunakan sebagai metode intervensi. Penelitian ini merupakan penelitian eksperimen, dimana peserta eksperimen (n=153) mengikuti dua kali penilaian keterikatan karyawan (pra-uji dan purna-uji) dengan menggunakan dua alat: kuesioner dan analisa teks. Kelompok eksperimen menerima dua kali intervensi cerita digital sedangkan kelompok control tidak mendapatkan intervensi. Pengukuran keterikatan karyawan pada penelitian ini menggunakan 12 dimensi pengukuran yang disesuaikan dengan tempat diadakannya eksperimen. Hasil uji paired t-test dan independent t-test menunjukkan peningkatan keterikatan karyawan pada kelompok eksperimen saat penilaian menggunakan analisa teks dan tidak pada kelompok kontrol. Hasil analisa selanjutnya menunjukkan bahwa peningkatan terjadi pada 4 dimensi pengukuran (dukungan social, keterikatan kerja, kinerja peran tambahan, dan identitas organisasi). Hanya saja peningkatan tersebut tidak terjadi pada kelompok eksperimen saat penilaian menggunakan kuesioner. Hal tersebut bisa dimungkinkan akibat dari ceiling-effect dari kuesioner. Walaupun demikian, penelitian lebih lanjut perlu dilakukan untuk menjelaskan hasil tersebut. Hasil penelitian ini menunjukkan bahwa cerita digital merupakan metode yang efektif untuk meningkatkan keterikatan karyawan dan efisien pada sisi waktu dan biaya.*

Kata kunci: *Keterikatan karyawan, keterikatan karyawan yang disesuaikan, digital storytelling, analisa teks, penelitian experimental.*

Introduction

Nowadays the concept of employee engagement has been crowned as one among variables that strongly drives directly to employee turnover intention (Scroggins, 2008; Business Wire, 2003; Shuck *et al*, 2013), innovative work (Krueger and Killham, 2008; Smith and Hughes, 2016) and employee performance (Gruman and Saks, 2011; Andrew and Sofian, 2012; J, Anitha, 2013). Going further, employee engagement also prove to have indirect influence to organization performance like profitability and productivity (Harter, 2002; Andrew and Sofian, 2012; Anitha 2012), the ability to innovate and to compete in the market (Welch, 2011; Macey and Scheider, 2008).

Despite of all the positive impacts of it, researchers are still put more focus on employee engagement definition (Robinson *et al*, 2004; Macey and Scheider, 2008; Shuck and Rose, 2013), dimensions that built employee engagement (Ginting *et al*, 2018; Chandari, 2016) and the relations of employee engagement to performance (Marcos and Sridevi, 2010; Harter *et al*, 2016; Ramadhiane and Sembiring, 2016) while among companies the issue of lacking engaged employee is still wide open (Momal, 2003; Keheller, 2011; Menguc *et al*, 2012). Gallup as one of human resource organization who focuses on employee engagement said that proportion of engaged employee is less than disengaged employee.

On the other side, companies are willing to have more engaged employees and need to be more exposed to methods that can help them improve their employee engagement level with expectation of having positive impact to organizations performance. Thus, finding the appropriate intervention method is important and necessary for organization (Vercic & Vokic, 2011; McMullen, 2013; Zajkowska, 2012).

Practitioners and academician propose solutions such as providing positive environment, improving internal communication (Hayase, 2009; Mishra, Boynton & Mishra, 2014), rewards (Abraham, 2012; Scott & Hay, 2010), coaching (Crabb, 2011), and team building also to provide good career path (Scott & Hay, 2010; Abraham, 2012). Those efforts do bring greater level of employee engagement, but not giving the expected results.

Trying to contribute to employee engagement improvement, storytelling as the oldest method of delivering messages (Denning, 2005, Aurik *et al* 2018; Rosile *et al*, 2013) will be exercised in this research. Based on experiment by Aurik *et al* (2018), storytelling is specifically proven in improving employee engagement in some of its dimensions. In that experiment, Aurik *et al* (2018) used direct storytelling as intervention method. Direct storytelling is an attractive and effective way to influence people thoughts (Boje, 1991; Gabriel, 2015), but it is not always possible to conduct especially in large organizations. It would also cost and time ineffectivess.

In this digital era, many interventions can be digitalized, and it migh be possible for story telling intervention. To be more effective and efficient as well as compatible with large organization, this research investigated the effect of digital story telling intervention to improve employee engagement. As far as we know, there is no research in evaluating the effect of digital story telling to improve employee engagement in a large organization which has thousands employees spread in many branches located in many different islands.

The research's aim is to discover appropriate method to improve employee engagement. Digital storytelling is assumed to be fitted as an interventions method (Mitsikopoulou, 2014; Sarica & Usluel, 2016), especially for employee attitudinal changes.

Therefore, this research will tested whether digital storytelling can increase the extent of employee engagement or not. In this research we used experimental design which is considered to be more appropriate to test the effect of such intervention method. According to Rapoport and Zwick (2005), experimental method is suitable for designing an investigation to evaluate policy or intervention as proposed by an institution or organization as we suggested in this research.

Most previous researches in employee engagement field were applying a literature review analysis (Markos and Sridevi, 2010), survey (Vercic and Vokic, 2017), and case study (Kaliannan and Adjovu, 2015) as research methods. This research employed quasi experimental method by holding condition constant to control group and give treatment to experimental group and also by doing pre-test to establish group equivalent (Ross & Morrison, 2004; Kirk, Roger E., 2013).

This experiment was conducted to employees in one of Indonesian state-owned enterprise (SOE) to test digital storytelling as a method that can be applied practically by organizations to increase their employee engagement. This SOE has developed a customized employee engagement concept which is consisted of 12 dimensions. Based on those dimensions, Ginting *et al*. (2018) constructed a measurement tool which has been tested to be valid and reliable.

Further, we utilize two tools of employee engagement assessment for this experiment. First tool is questionnaire, a direct questions develop from twelve dimensions, and second tool is text analysis, an alternative assessment tool introduced by Aurik *et al*. (2018). We combined these two tools as multiple source of evidence in measuring employee engagement since questionnaire method often influenced by social desirability effect. Although text analysis is a new method in employee engagement measurement, it has been widely used in psychological and medical treatment, mainly to revealed deepest and unconscious mind.
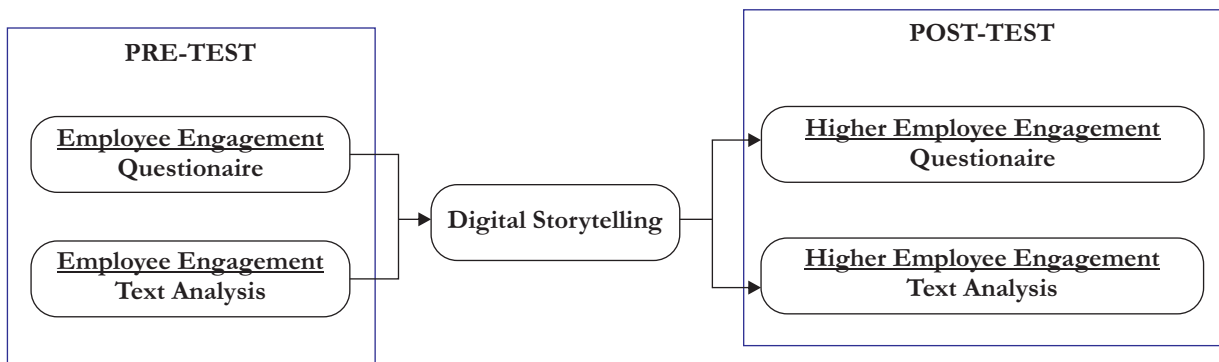

Figure 1.
Experiment Hypothesis

Table 1.
Employee Engagement Domains and Dimensions

DOMAIN	DIMENSION
Social Interaction	Quality Leadership
	Social Support
Membership	Organizational commitment
	Organizational identity
Job-meaningfulness	Job satisfaction
	Work engagement
Distress factor	Job demand
	Burn-out
Dedication	Extra-role performance
Norms and responsibility factor	Intra-role performance
	Innovative work behavior
	Organizational memory

Customization of employee engagement dimensions
The term employee engagement has been an interesting topic (Dajani, 2015; Bailey, 2017) for academic and practical to be discussed because of its important function in delivering better performance of organization (J., Anitha, 2013; Ramadhiane & Sembiring, 2016). Nevertheless, the various and different complexity of every organization give the term hard to be settled in single understanding, especially for dimensions that build employee engagement (Ginting, 2018; Chandani, 2014; Zajowska, 2012; Markos and Sridevi, 2010).

Therefore, the organization where this study was conducted has been develop a customized employee engagement measurement to replace the previous model. The prior model was using a general dimensions which eventually insufficient in assessing its employee engagement (Ginting, 2018). Although stated that customized employee engagement to fit different organization is important, Ginting *et al* (2018) also emphasized that it is not for every organization to be made. The development of customized employee engagement dimensions in this organization is proper to be done because of this large organization of Indonesia meet several criteria. First, the size of it is large and complex. Being one of the longest run and biggest organization in Indonesia,

this organization has typically characterized with Indonesian culture that contextually different from western organization. Second, it has set a clear code of conducts of employee engagement (Van Riel and Balmer, 1997) that based on Indonesian values and have highly emphasized to social relationship of employees due to Indonesian collectivistic culture (Ginting *et al*, 2018).

The development of customized employee engagement is still following the existing theory of employee engagement with several customization, and it also has experienced changes from time to time. The latest employee engagement measurement consists of twelve dimensions that belong to six domains: social interaction, membership, job-meaningfulness, distress factor, dedication, and norms and responsibility factor, which was only belongs to five domains in 2016 (Ginting *et al*, 2018). The complete employee engagement dimensions and domains applied in this research are shown in table 1. Developing a customized employee engagement dimensions, Ginting *et al* (2018) still emphasized the complexity and the costly taken to do it. The research accentuate that even though it is very beneficial for this organization, particularly for the Indonesian cultural context which accentuate the social

relationship of employees due to Indonesian's collectivistic (Ginting *et al*, 2018), less complex and small organization should follow the existing model for employee engagement, e.g Gallup or Hewitt model or make minimal customization to avoid complicated measurement.

Corporate Storytelling and Digital Storytelling (DST)
Storytelling plays an important role in the world of organisations and business (Denning, 2005; Gill, 2011; Brendel & Chou, 2016). Corporate storytelling is a form of storytelling which organised in purpose by corporation. According to many theories, corporate storytelling contains a message that could create a new point of view of employee about anything related to corporation corresponding to the purpose of the corporate storytelling, and even it could reinforce an opinion or expected behaviour (Gill, 2011) through motivation which strong enough for employees to take action (Prusak, 2001; Kaye, 1996).

Digital storytelling (DST) is an updated with technology method of telling stories. Lambert (2009) described DST as using digital method as another method in delivering storytelling besides face-to-face method. The Digital Storytelling Association defines digital storytelling as the modern expression of storytelling by using various digital technology. While Roland (2006) goes to a more technical matter by saying that DST is photography, video, animation, voice, music, text, and narrator combined together into one storytelling. Overall, it can be concluded that DST is using digital technology in the making and delivering storytelling. The essential of DST in no different with conventional storytelling where narrative, story plots, meeting audience and making connection with audience are importantly needed. DeNatale (2008) who use DST mostly as learning tool, emphasize the advantage of digital tool in digital storytelling for authors, which is the easiness to construct multi-dimensional stories that are conveyed through a combination of

hyperlinked, multidimensional words, images, motions, and sounds. Seeing from another angle, Lambert (2009) find one of DST advantages is a technological advance method which make DST has the ability to be kept and accessible in some other time.

Furthermore, the advantages of DST can be viewed from two angles: audience side and maker side. Many researchers have proved that DST have these advantages for its audience, especially in formal education (Figure 2): improving visual memory capacity and writing skill on primary students, problem solving, cooperative learning, motivation, achievement, critical thinking (Sarica & Usluel, 2016). While as the maker, the advantages of DST are having impact to memory, improve literacy (digital, global, technology, visual, informational), improving academic skill, and improving writing skill (Miller, 2010). Regarding to writing skill, Miller (2010) described that by making DST, students are able to learn the art of writing a good story, which is the harmony of text and art integration, by using technology creatively.

Most of DST utilization is in the field of learning and education (Taylor, Tayar & Marrone, 2017; Robin, 2006, 2008, 2009; Narica & Usluel, 2016; Sadik, 2008) to help make abstract or difficult concepts more understandable and to facilitate discussion on certain issue (Ohler, 2013; Robin, 2008). DST is also becoming more familiar to be used in health context (Lee & Prue, 2019; Tsui & Starecheski, 2018) where evidence, education, and advocacy are central. Although not as many research in education and health context, DST has been acknowledge to be use in strengthening community towards their goals (Sarah & Aldo, 2018) and voicing community value (Marcuss, 2003). Nowadays, learning from its benefits, organization started to utilize DST in many forms like sharing product knowledge (Zammit, Gao & Evans, 2016) and employer branding (Crisan & Bortun, 2017).

Figure 2.
Advantages of DST to Audience

Digital storytelling as Intervention for Employee Engagement

Employee engagement in this competitive era is still having a massive attention, for at least, that companies do not want their investment in human capital wasted by having people come and go, and by far companies want to achieve their best performance generated by their engaged employee. Thus, researchers and practitioners attempt methods to improve employee engagement. By far, some methods have been found and occupied, like coaching, improvement in leadership for top positions, rewards (Scott, 2010), team building (Abraham, 2012), payment structures (Scott, 2010), role (Abraham, 2012), and internal communication (Zajkowska, 2012; Vercic & Voic, 2017).

Gill (2011a, 2011b, 2013) develop a continuing research in storytelling benefits to organization. According to Gill (2013) literatures reviewed, storytelling as part of public relation (PR) internal communication strategy can develop stronger employee engagement. Recent researches confirm Gill theory. Gustomo, Febriansyah, Ginting and Santoso (2018) through an experiment research, find that experimental group with

corporate storytelling intervention produce a better employee engagement score compare to control group with no intervention. The latest experiment by Gustomo *et al* (2018) was using a direct corporate storytelling, where corporate storytelling was being told a story teller to group of employee. Although it is proven to effectively improving employee engagement, direct storytelling is not suitable in term of cost, time and mobility concern. Thus, DST with its benefits and advantages which could be used for different purposes in different contexts (Sarica and Usluel, 2016) is proposed to substitute or to complement direct storytelling.

Research Methodology

Following Ross and Morrison (2004), the experiment started by selecting a topic until the data analyses method. But overall this experiment has five phases: preparing the tools for the test; pilot test; pre-test for both control and experimental groups; intervention for experimental groups (two times separated in two weeks); and post-test for both control and experimental groups (Figure 3).
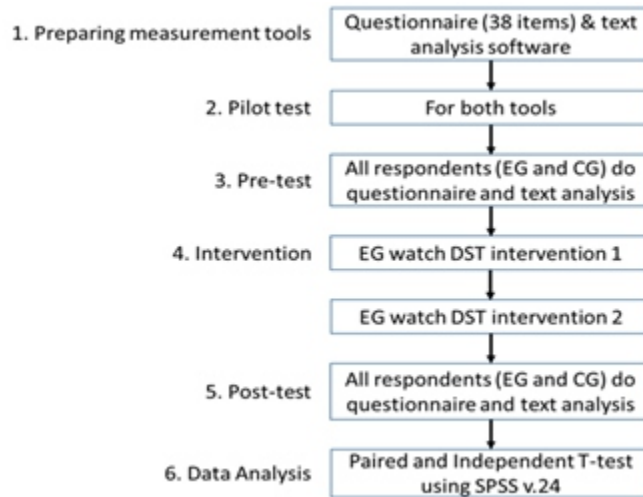
1. Preparing measurement tools	Questionnaire (38 items) & text analysis software
2. Pilot test	For both tools
3. Pre-test	All respondents (EG and CG) do questionnaire and text analysis
4. Intervention	EG watch DST intervention 1
	EG watch DST intervention 2
5. Post-test	All respondents (EG and CG) do questionnaire and text analysis
6. Data Analysis	Paired and Independent T-test using SPSS v.24

Figure 3.
Research Design

Participants

This experiment was conducted in an Indonesian state-owned organization. The organization is one of the largest organization with employees that spread all over Indonesian districts. Holding important assignment from Indonesian government, this organization is willing to improve its employee engagement in order to accomplish its objectives and eager to participate in the experiment. West Java Area was chosen to be the experiment place for several reasons: (1) West Java Area has several divisions with several branches; (2) It is close to head quarter who had the program – making the coordination easier; and (3) employee engagement level in West Java Area are various thus make the sample has a normal distribution. The sampling technique used in this experiment was stratified random sampling, considering grade level of employee, division and branches. According to Table of Isaac and Michael, from 886 employees in West Java Region, with an error rate of 5%, the number of adequate samples is 251 participants. However, since this experiment was an online experiment, which need several technical requirements that could not be fulfill by all branches and divisions, the sample size used was 153 participants. All participants were divided into two groups consisting of 73 participants of control group and 80 participants of experimental group coming from four divisions in West Java Region.

Measures

Employee Engagement refers to positive emotion of employee to the organization where he works which resulting better performance towards organization goals and vision (Ginting *et al*, 2018, 2019; Saks, 2006; Gruman and Saks, 2011). In this experiment employee engagement measurement is a customized construct which consists of twelve dimensions: quality leadership; job demand, social support, burn-out, job satisfaction, organization commitment, work engagement, extra-role performance, in-role performance, innovative work behavior, organizational memory, and organization identity. The model asserted to be highly emphasize to social relationship which corresponding to Indonesian culture and has been tested by Ginting *et al* (2018) to be a reliable measurement for employee engagement for the organization. So there will be thirteen measurements in this experiment – a total of employee engagement score and its twelve dimensions

Measurement Tools

Using questionnaire is a common tool for assessing employee engagement. Although it is recognized to be a valid tool, some surveys do not get expected result for some reasons. Therefore, in an effort to having a companion result that support survey result, this experiment assessed two measurement tools: questionnaire and text analysis. The purpose of using different type of tools was to give a deeper understanding of the employee engagement measurement. While questionnaire is a common tool for measuring employee engagement, text analysis is an alternative measurement tool that show enlightenment in the result. The main different between these two tools are the level of consciousness.

Questionnaire for employee engagement assessment
Organization usually assess employee engagement through questionnaires, which consist of several questions represent every dimensions of employee engagement (Scott, 2010). Having the efficient way of collecting data in term of time money and result operating (Patten, 2017; Saunders, 2005) as the advantages, questionnaire also have some limitation that should be aware of. The low rate of response rate, force researcher to collect double or triple participants in order to achieve targeted participants. For particular research, questionnaire would not be sufficient because it provides only a portrait of participants answer whereas the particular research need to analyze deeper and broader when trying to answer the "why" and "how" research question (Saunders, 2009). According to Ginting *et al* (2019), questionnaire in state-owned enterprises (SOEs) is a very common tool that frequently given by management to employees for measuring different things, from leadership survey, management performance survey, job satisfaction survey and many other surveys. Thus, the results of survey in employee engagement could be biased because of the reluctant of participants to fill up another survey.

Furthermore Ginting *et al* (2018) figure out that some of the participants in this experiment have explicitly mentioned that they were thinking that participating in the survey are wasting working time and boring, which lead to chance of carelessly in answering the survey. Using a five likert scale, 12 dimensions of employee engagement were transcribed into 3 to 4 items per dimension, that make a total of 38 items of employee engagement survey (cronbach alpha = 0,84).

Text analysis for employee engagement assessment
Interview, especially semi-structured interview could definitely deliver a better result to measure employee engagement. However, interview also has limitations, especially in honesty and trust. Moreover it happens if participants feel that, either, they could not trust the interviewer, or embarrassed to tell the truth or even afraid of being caught to people (Patten, 2017). In an effort to extract employee engagement where a lot of employee's emotions take part of it, neither questionnaire nor interview are sufficient enough to assess employee engagement. Ginting *et al* (2018) contribute to data collecting for employee engagement by introducing text analysis as a tool to assess employee engagement. Text analysis at the beginning was acquainted for psychological area as an intervention to illness people, physically and psychic (Pennebaker, 1986). Participants are required to write their deepest thoughts, usually related to trauma in 3 or 4 days consecutive days. Comparing to interview, which can collect in-depth, but has limitation in participants skeptical for becoming under the shadow, text analysis can be an alternative to still go deep on the thoughts, but also being anonymous that lead to honesty and expressive thoughts of participants. The way of psychological field value text analysis are through psychologist analysis. It is certainly fit to small group of people, but in this organization it is not effective and efficient in cost and time taken.

Therefore, the organization utilize computer technology by developing a software that can simplify the tabulation. This software works as language machine that can read and interpret the writings. The reliability of text analysis measurement is 0.723 which exceeded the minimum value of cronbach alpha 0.7 (Burton, *et al*, 1998).

DST Intervention
Digital storytelling that used in this experiment came in form of video. Following Lambert (2009) the process of creating the video as DST intervention are owning your insight, owning your emotion, finding the moment, seeing your story, hearing your story, assembling your story, sharing your story. DST intervention was given two times within two weeks. In first DST intervention, experimental group participants were having one among five produced videos, given randomly by the software. The five videos were distributed equally to all experimental participants. There was not data collection or assessment after the first intervention. Two weeks after the first intervention, participants had their second DST intervention. Although still using the same five videos, every participants were computer arranged to have different video from the first intervention. After this intervention, participants had their post-test immediately.

Data Collection
The process of data collection unfolded in two phases. The first phase incorporated a pre-test that was designed to measure employee engagement score to both control and experimental group before any intervention. Participants were invited through email that contained a hyperlink lead them to experiment's website. Instruction of the experiment were given in form of video and also in form of narrative. Participants were asked to write down a story of 500 characters minimum guided by a five pictures set. worked a set of questionnaire and followed by text analysis. All responses were collected online.

After two weeks from first phase, experimental group participant got another email which contained a link to a video as first digital storytelling intervention (DST). The next two weeks after first DST intervention, EG participant got third email which contained a link to the second DST intervention which after watching the second video they were directed to post-test link. In the meantime, CG participant also got their second email that directed them to post-test link only (without DST intervention). Here, both groups did the post-test – questionnaire and text analysis. All process were online, where questionnaire were using google form, and text analysis were using a tested-developed software.

Data Analysis
The effectiveness of DST in improving employee engagement was tested by comparing the result of (1) pre-test and post-test for experimental group; and (2) post-test of control group and experimental group. A t–test for independent samples would be implied for comparing post-test of experimental group (with digital storytelling intervention) to post-test of control group (without digital storytelling intervention) on an interval-dependent measures (score of employee engagement). While paired t-test would be implied for comparing between pre and post-test for each group to seek the effectiveness of digital storytelling in improving employee engagement. All data was analyzed using SPSS version 24.

Results and Discussion

Paired T-test
Table 2 and table 3 present the result of pair t-test to experimental group – with the difference that table 2 calculated the result of questionnaire data, and table 3 calculated the result of text analysis data. A paired sample T-test was conducted to compare employee engagement before and after given DST intervention.

The result shows when using questionnaire as assessment tool (table 2), there was not a significant difference in the scores of total Employee Engagement between DST intervention (M = 119.43, SD = 9.082) and without DST intervention (M = 120.94, SD = 9.929) conditions: t(80) = 1.737, p = 0.086. In line with total employee engagement test, all twelve dimensions also show that there are no significant differences in experimental group before and after given DST intervention with significance for each dimensions > 0.05. On the other side, different results are shown in experimental group that using text analysis as employee engagement assessment tool (table 3).

There was a significant difference in the scores of total Employee Engagement with DST intervention (M = 61.786, SD = 9.082) and without DST intervention (M = 53.458, SD = 5.977) conditions; t(79) = 1.737, p = 0.000. When we investigate deeper to dimensions, the result show that eight of twelve dimension have significance difference: QL with p = 0.001; SS with p= 0.044; JS with p = 0.006; OC with p = 0.006; WE with p = 0.005; ER with p = 0.008; IWB with p = 0.049; and OI with p = 0.001. These eight dimensions score increase after given DST intervention. While the other four dimensions: job demand, burn-out, in-role performance, and organizational memory have significance less than 0.05 indicate that those dimensions do not have a significance improvement after DST intervention.

Tabel 2.
Paired T-Test DST (Questionnaire)

| | Paired Differences | | | | | | | |
	Mean	Std. Deviation	Std. Error Mean	95% Confidence interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Pre Test QL - Post Test QL	0,325	1,784	0,1995	-0,0721	0,7221	1,629	79	0,107
Pre Test JD - Post Test JD	0,375	2,553	0,2854	-0,1931	0,9431	1,314	79	0,193
Pre Test SS - Post Test SS	0,213	1,144	0,1279	-0,0421	0,4671	1,661	79	0,101
Pre Test BO - Post Test BO	0,025	1,653	0,1848	-0,3429	0,3929	0,135	79	0,893
Pre Test JS - Post Test JS	-0,012	1,153	0,1289	-0,2690	0,2440	-0,097	79	0,923
Pre Test OC - Post Test OC	0,238	1,460	0,1633	-0,0875	0,5625	1,455	79	0,150
Pre Test WE - Post Test WE	0,075	1,016	0,1136	-0,1511	0,3011	0,660	79	0,511
Pre Test ER - Post Test ER	-0,200	1,529	0,1710	-0,5404	0,1404	-1,170	79	0,246
Pre Test IR - Post Test IR	0,175	1,167	0,1305	-0,0847	0,4347	1,342	79	0,184
Pre Test IWB - Post Test IWB	0,125	1,107	0,1237	-0,1213	0,3713	1,010	79	0,315
Pre Test OM - Post Test OM	0,012	1,248	0,1395	-0,2652	0,2902	0,090	79	0,929
Pre Test OI - Post Test OI	0,163	0,961	0,1074	-0,0513	0,3763	1,513	79	0,134
Pre Test Total EE - Post Test Total EE	1,513	7,787	0,8706	-0,2204	3,2453	1,737	79	0,086

Tabel 3.
Paired T-Test DST (Text Analysis)

	Mean	Std. Deviation	Std. Error Mean	95% Confidence interval of the Difference		t	df	Sig. (2 - tailed)
				Lower	Upper			
Pre Test QL - Post Test QL	-2,669	9,066	1,0136	-4,686	-0,651	-2,633	79	0,01
Pre Test JD - Post Test JD	-1,241	11,689	1,3069	-3,842	1,360	79,000	79	0,345
Pre Test SS - Post Test SS	-2,755	12,050	1,3472	-5,437	-0,074	-2,045	79	0,044
Pre Test BO - Post Test BO	-2,142	10,701	1,1964	-4,523	0,2396	-1,790	79	0,077
Pre Test JS - Post Test JS	-3,447	10,846	1,2127	-5,861	-1,034	-2,843	79	0,006
Pre Test OC - Post Test OC	-2,953	9,306	1,0408	-5,025	-0,881	-2,837	79	0,006
Pre Test WE - Post Test WE	-3,483	10,754	1,202	-5,876	-1,089	-2,897	79	0,005
Pre Test ER - Post Test ER	-3,524	11,577	1,294	-6,1001	-0,947	-2,722	79	0,008
Pre Test IR - Post Test IR	-0,481	10,389	1,1615	-2,360	2,264	-0,041	79	0,967
Pre Test IWB - Post Test IWB	-2,172	9,978	1,089	-4,339	-0,005	-1,995	79	0,049
Pre Test OM - Post Test OM	0,396	8,691	0,972	-1,538	2,330	0,408	79	0,685
Pre Test OI - Post Test OI	-4,369	10,779	1,205	-6,767	-1,970	-3,625	79	0,001
Pre Test Total EE - Post Test Total EE	-28,40	51,375	5,744	-39,84	-16,974	-4,946	79	0,000

Independent T-Test

Ensuing pair t-test is independent t-test to compare the post-test between control group (n=73) and experimental group (n=80). All groups were calculated two times, using questionnaire and text analysis tool. The result as shown in table 4 and table 5, quite similar to paired t-test result. The 80 participants who received DST intervention (M =119.43, SD = 9.082) compared to the 73 participants in the control group (M = 117.45, SD = 9.461) assess using questionnaire (table 4) demonstrated no significance difference, t(151) = -1.316, p = 0.190, the remain twelve dimensions also showed that there are no significance difference with all p>0.05.

With text analysis as assessment tool (table 5), the 80 experimental group participants (M =61.786, SD=6.908) compared to the 73 participants in the control group (M=34.932, SD = 4.088) demonstrated significance better score of employee engagement, t(151) = -3658, p = 0.000. Come along the same result are social support dimension, t(151) = -3.58, p = 0.000; work engagement dimension, t(151) = -3.157, p = 0.002; extra-role performance dimension, t(151) = -3.261, p = 0.001; and organizational identity t(151) = -3.373, p = 0.001, while other eight dimensions have significance <0.05, indicate no difference between experimental and control group.

Tabel 4.
Independent T-Test (Questionnaire)

	Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.	Lower	Upper
POST_K_QL	2,260	0,135	-1,07	151	0,287	-0,347	0,325	-0,990	0,295
POST_K_JD	0,242	0,624	0,313	151	0,755	0,114	0,364	-0,605	0,833
POST_K_SS	0,025	0,874	-0,346	151	0,730	-0,078	0,225	-0,522	0,367
POST_K_BO	0,632	0,428	0,214	151	0,831	0,053	0,246	-0,434	0,539
POST_K_JS	0,047	0,828	-1,989	151	0,049	-0,451	0,227	-0,899	-0,003
POST_K_OC	2,917	0,090	-0,866	151	0,388	-0,195	0,225	-0,640	0,250
POST_K_WE	0,013	0,908	-1,595	151	0,113	-0,332	0,208	-0,743	0,079
POST_K_ER	0,069	0,793	0,041	151	0,967	0,010	0,241	-0,467	0,486
POST_K_IR	0,701	0,404	-0,568	151	0,571	-0,110	0,194	-0,494	0,274
POST_K_IWB	0,137	0,711	-0,848	151	0,398	-0,202	0,238	-0,672	0,269
POST_K_OM	0,005	0,942	-0,941	151	0,348	-0,189	0,201	-0,587	0,208
POST_K_OI	0,482	0,489	-1,118	151	0,265	-0,245	0,219	-0,677	0,188
POST_TOT_K	0,321	0,572	-1,316	151	0,190	-1,973	1,500	-4,936	0,990

Tabel 5.
Independent T-Test (Text Analysis)

	Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.	Lower	Upper
POST_QL	3,054	0,083	-1,69	151	0,093	-2,286	1,350	-4,9533	0,382
POST_JD	2,106	0,149	-1,03	151	0,303	-1,396	1,350	-4,0634	1,272
POST_SS	8,307	0,005	-3,58	151	0,000	-5,972	1,669	-9,271	-2,673
POST_BO	10,72	0,001	-0,969	151	0,334	-1,503	1,551	-4,568	1,562
POST_JS	0,439	0,508	-1,382	151	0,169	-2,418	1,750	-5,875	1,040

Tabel 5. (continue)
Independent T-Test (Text Analysis)

| | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
| | | | | | | | | 95% Confidence Interval of the Difference | |
	F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.	Lower	Upper
POST_OC	0,000	0,988	-0,941	151	0,348	-1,398	1,485	-4,3322	1,536
POST_WE	0,001	0,973	-3,157	151	0,002	-4,596	1,456	-7,472	-1,720
POST_ER	6,163	0,014	-3,261	151	0,001	-4,731	1,450	-7,597	-1,865
POST_IR	1,362	0,245	-0,292	151	0,770	-0,324	1,108	-2,514	1,865
POST_IWB	6,833	0,010	-1,593	151	0,113	-2,283	1,434	-5,116	0,549
POST_OM	5,019	0,027	1,613	151	0,109	1,993	1,235	-0,448	4,434
POST_OI	2,147	0,145	-3,373	151	0,001	-5,153	1,528	-8,171	-2,135
POST_TOT	14,83	0,000	-3,658	151	0,000	-30,067	8,220	-46,308	-13,826

DST Intervention to improve employee engagement
The first aim of this experiment was to investigate whether digital storytelling (DST) intervention could improve employee engagement. Based on the literature, it was expected that DST intervention would produce a higher level of employee engagement. Calculating the difference with paired t-test between pre and post-test and independent t-test between control group and experimental group show a significance difference when assessed using text analysis method. It means that the hypotheses is accepted, DST intervention could be used as method to improve employee engagement. This finding enriches the beneficial of organised storytelling in organization. DST in conventional method of direct storytelling is one of ancient way of communicating and delivering message that frequently applied by management in organization to improve performance (Kaye and Jacobson, 1999; Mathews and Wecker, 2007; Kalid and Mahmood, 2016).

Some of many benefits of organised storytelling has been studied previously and resulting the beneficial as follows: supporting organizational transformation (Brendel and Chou, 2016), knowledge management processes (Gouvea *et al.* 2019; Kalid and Mahmood, 2016), marketing strategy (Pulizzi, 2012), and also to maintain employee loyalty (Gill, 2011). Bottom line, storytelling, based on literature review has crown to be one among effective methods of corporate internal communication strategy that bring positive results within organization.

Related to this experiment, DST intervention is taking part as internal communication with specific goal of achieving higher employee engagement. Many forms of internal communication persuade to play important role in increasing employee engagement (Vercic and Vokic, 2016; Bakker and Demerouti, 2008; Kowske, & Herman, 2010).

The easiness of electronic media in delivering messages within corporation (Ozaeta and An, 2014; Men, 2014) has been the underlying reason. Especially for massive corporation with many employees that scattered in many branches, not to mention digitalization support the mobility business held nowadays digital storytelling would suit the needs. Exploring deeper to dimensions, although eight of twelve dimensions are evidently raised significantly through paired t-test (text analysis) but only four employee engagement dimensions are proved have significant result in independent t-test. These four dimension in independent t-test are also appear to have positive result in paired t-test. Thus, we recommend that only four dimensions, social support, work engagement, extra-role performance and organizational identity, strongly proven to have significance difference. These four dimensions according to Ginting *et al* (2018) belong to social interaction, membership, job-meaningfulness, and dedication domain (table 1). Only two domains – distress factor and norms and responsibility factor – have no significance change. This could indicate that these four dimensions represent most of employee engagement domains that eventually create a higher employee engagement.

The next important thing regarding DST intervention is the organization of the making. The story boards (five story boards) were created by team of experts containing twelve dimensions, which in the process the story boards went back and forth between experts and management team until they are approved by all teams. The topic of all five are about contributions of employee to organization and nation and contributions of organization to employee – such as living, appreciations – and also to nation which most likely happened to employees.

The stories were aimed to evoke emotions of employee, which are nostalgic emotion, grateful feeling, hope and optimism which Seligman (2002) believe to contribute to better resistance to depression, better performance and also to psychological health.

According to Brendel and Chou (2016), delineation of memorable story not only can remind people but also can inspire people. In summary, organization of story board should include these aspects: objectives of the story (in this experiment are twelve dimensions of employee engagement), share positive memorable experiences, and contain hope and optimism.

Employee Engagement Tool
The results of the current study however, show a various interpretation. By using two different assessment tools, different results are perceptible. Questionnaire as a common tool to assess employee engagement did not show significance difference before and after DST intervention. It could mean that DST intervention could not stir up the positive emotion of participants to engage more. It has contrary result with text analysis assessment. It generates inquiry to investigate further between two tools.

The first tool – questionnaire, contains of 38 items, with 3 up to 4 items for each dimension has been tested in several tests: (1) pilot test for its validity and reliability; (2) Cronbach Alpha of dimensions at the least is 0.542 (p=.000); and last is (3) correlation between this experiment employee engagement measures with Gallup and Aon-Hewitt (two robust employee engagement measurements) are 0.809 (p=.000) and 0.603 (p=.000). Those tests are sufficient for the establishment of this customized employee engagement measurement. So we believe that the construct of the questionnaire was not the matter in this different result. Further, we collected information regarding questionnaire test from participants and management. Some participants said that they were frequently given surveys by management with various themes. They were quite fed up, thus triggering employee indolent in filling surveys. It is understandable that companies are struggling to perform in a very competitive business world and among their efforts to become better is to know current condition from their employee.

Questionnaire is often chosen to be the appropriate tool to figure it out, considering time effectiveness, cost effectiveness, easiness to analyse and better in visualisation. Nevertheless, there are also disadvantages of questionnaire like dishonest answer, dissimilar interpretation of questions which can cause to misleading answers, and also questionnaire fatigue. Pre-test result of all groups in questionnaire have already proceeded high scores, which result in little improvement in post-test. According to Rogerberg *et al* (2000) people have tendency to give positive score answers to surveys related to theory of reciprocity norms and expectancy theory (Vroom, 1964) which might also happened to this experiment.

The proposed alternative tool – text analysis, could balance questionnaire results. The significance different between pre and post-test of experimental group confirming the proposed hypothesis of DST intervention effectiveness in improving employee engagement. Significance different of post-test between control and experimental group also confirming that DST intervention proved to be effective for employee engagement.

Text analysis, as described by Ginting *et al* (2020) is a potential tool to acorganization questionnaire to reveal emotions and feelings of participants that could not be obtained through questionnaire. Originate as expressive writing (Pennebaker, 1993), the pattern of language, word choices, and language composition used by people disclose their personal emotions and cognitive thinking strategy. Ginting *et al* (2018) utilized the logic of expressive writing in text analysis software and validate that language is a reliable way to express internal thoughts and emotions of people (Tausczik and Pennebaker, 2010). This tool has several advantages in measuring employee engagement for instance: repeatable, time effective, reveal unconscious mind (internal thoughts and emotions) and could be the antidote to employee survey fatigue. Moreover it is more efficient comparing to interview which takes more time to gather the data and not to mention to analyse the data.

Nevertheless, a valid and reliable text analysis software is crucial, where accuracy of reading and interpret participants text writing is important. In this experiment, validity and reliability of text analysis software used has been proved by Ginting *et al* (2020). Based on the literature review and finding in the field, questionnaire is still workable and trustworthy, but append an alternative tool like text analysis is strongly advice to adhere questionnaire disadvantage.

Conclusion

The result from this experiment supports the concept that DST intervention has a prospective role to improve employee engagement. Reinforced by literature reviews, we believe that a well design of DST intervention can be part of management strategy to a better organization performance. It could be an effective method of official internal communication to deliver the vision, mission and objectives of organization, but particularly according to this experiment is effective to improve employee engagement. Digital storytelling compare to direct storytelling will benefits in: (1) more effective in time and cost substances; (2) suitable for large organization who has massive employees; (3) suitable for organization who has many branches that spread in distance; and (4) repeatable.

An alternative assessment tool - text analysis, is strongly advice to be used for employee engagement assessment to diminish exhaustion of participants in filling surveys and to reveal unconscious mind of participants. Even when repeatedly done, text analysis give a beneficial effect of therapeutic to employee towards positive habit. An automatic machine is suggest to support text analysis tool in order to easiness and objectiveness of the assessment. To discover more specific conditions of optimal DST intervention, in future research, it could be made a repetitive intervention to determine the optimal session of DST intervention.

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