INDONESIAN JOURNAL OF APPLIED LINGUISTICS
Vol. 9 No. 1, May 2019, pp. 67-75

Available online at:
http://ejournal.upi.edu/index.php/IJAL/article/view/16418

doi: 10.17509/ijal.v9i1.16418

Teaching English in the industry 4.0 and disruption era: Early lessons from the implementation of SMELT I 4.0 DE in a senior high lab school class

Didi Suherdi

Department of English Education, Faculty of Language and Literature Education, Universitas Pendidikan Indonesia, Jl. Dr. Setiabudhi No. 229 Bandung, West Java, Indonesia

ABSTRACT

Industrial revolutions always bring with them radical changes and, with various degrees, disruptive effects on the existing or ongoing technologies. In this conjunction, radical changes in doing education are now forthcoming, and some traditional ones are being disrupted. Many proposals are now being introduced to respond to the demands of the era. In relation to the teaching of English, the writer proposed a model, called SMELT I 4.0 DE, standing for a Synergetic Multilayered English Language Teaching for Industry 4.0 and Disruption Era. While the effects of each layer of the model (ICTC, SRLI, and TVCD) on students' ELT learning have been extensively reported, those of the layers in a synergetic whole are not yet well-investigated. Hence, a study on the use of SMELT I 4.0 DE is theoretically motivating and practically enlightening. For the very reason, a one-semester pilot project implementing the model in an English as a foreign language (EFL) class in Universitas Pendidikan Indonesia Senior High Lab School has been conducted in the first semester of 2018/2019. This paper is intended to present findings from the aforementioned SMELT I 4.0 DE pilot project. The data were collected through questionnaires, interviews, document analysis, and observations from a class of 29 students. It is shown that ICTC has been successful in (1) increasing students motivation and engagement, (2) giving them positive experience in utilizing students digital devices for educational purposes, and (3) encouraging students creativity; SRLI has triggered students self-regulation in planning, doing, and assessing their learning, self-selection of learning focus and materials, and strategies; and TVCD has enhanced students learning through self-discipline, honesty, confidence, collaboration, communication, and hardworking. In conclusion, the implementation of SMELT I 4.0 DE has resulted in significant progress in all aspects of students' learning under study.

Keywords: ICT cultivation; industry 4.0; self-regulated learning inculcation; transversal competence development

First Received:	**Revised:**	**Accepted:**
26 August 2018	17 November 2018	23 December 2018
Final Proof Received:		**Published:**
27 May 2019		31 May 2019

How to cite (in APA style):
Suherdi, D. (2019). Teaching English in the industry 4.0 and disruption era: Early lessons from the implementation of SMELT I 4.0 DE in a senior high lab school class. *Indonesian Journal of Applied Linguistics, 9*, 67-75. doi: 10.17509/ijal.v9i1.16418

INTRODUCTION

Industry revolutions (Hence, Industry n) have always, in various levels, brought with it significant effects. Industry 1.0, together with the invention of paper, changed the way people educate their children from oral to written tradition, whereas Industry 2.0 brought with it mass production and mass education. In the meantime, Industry 3.0, triggered by the invention of internet and ICT (information and communication technology) development led to online and borderless teacher-students interactions; and Industry 4.0 enhances the attainment by such synergetic linking technology as cloud computing, internet of things, with further enhanced artificial intelligence, and virtual and

Email: suherdi_d@upi.edu

augmented realities (Hocheng, 2018). This advancement has brought about new challenges and demands in today's education (Gleason, 2018). In the meantime, we believe that education is key to human success in this era (Cf. Gleason, 2018). Many proposals are now being introduced to respond to the demands of the era.

Seeing all the trends, the ways of doing teaching need to be suited to this changing nature of learning. The teacher will serve more as a mentor or a facilitator than a lecturer. Today's learning needs to involve ICT, encourage self-regulated learning, and strong and positive character. In other words, it needs a synergetic and multi-faceted model of education. In this conjunction, the writer developed a synergetic multi-layered model, called SMELT I 4.0 DE, standing for Synergetic Multilayered English Language Teaching in Industry 4.0 and Disruption Era, consisting of ICTC (ICT cultivation), SRLI (Self-regulated Learning Inculcation), and TVCD (Transversal Competence Development), and CSM (the Curriculum Subject Matter) taught.[i] While studies of each layer of the model have been extensive, those of the layers in a synergetic whole may by no means be easy to find.

In relation to ICTC in English teaching, many projects have been reported, Ahmadi (2018), for example, reviewed the literature of the use of technology in English language learning and found that "technology provides interaction between teachers and learners, provides comprehensible input and output, helps learners to develop thinking skills, makes learning and teaching becomes more student-centered, promotes learners' autonomy and helps them feel more confident, and increases learners' motivation to effectively learn a foreign language" (p. 122). Similar findings are also reported by Nomass (2013), Golonka *et al.* (2014), Parvin and Salam (2015), Hidayati (2016), and Gilakjani (2017). In the meantime, studies investigating the use of specific devices and platforms have also been reported including the use of WhatsApp (Alsaleem, 2014), Twitter (Clayton and Murphy, 2016), YouTube (Wang, Lai, and Wong, 2018), Edmodo (Purnawarman, Susilawati, and Sundayana, 2016), mobile phone (Stockwell, 2009), multimedia and language laboratory (Bachate, 2016), and Wiki technology (Lin and Yang, 2011).

The second layer, SRLI, is intended to develop "the ability to monitor and modulate cognition, emotion and behavior, to accomplish one's goal and/or to adapt to the cognitive and social demands of specific situations" (Berger, Kofman, Livneh and Henik, 2007: 257). The effort is important because SRL is considered to be a good predictor of learning achievement (See, e.g. Cheng, 2011, Metallidou, 2012 See also Zimmerman, and Schunk, 2011; Cf. Banarjee and Kumar, 2014). In connection with English teaching, studies on this layer are not yet well-documented, and the available ones are mostly concerned with written English. To mention some, studies by Protentep (2008), Kartika (2015), Nejabati (2015), and Zhao (2016) may exemplify the trend. Protentep's (2008) study is on SRL by Thai students in an extensive reading program; Kartika (2015) investigated Self-regulated learning in writing; Nejabati (2015) on the effect of locus of control training on students' reading comprehension, and Zhao (2016) on foreign language teachers' guide for postgraduate students in academic reading course are among a very few reports that may be found in the literature.

In the meantime, in the context of SRL in ICT-based teaching, many studies have been carried out. To mention some, studies by Dettori and Persico (2008), Çelik, Arkin, and Sabriler (2012), Mooij, Steffens, and Adrade (2014) are presented here. Dettori and Persico (2008) investigated the benefits of ICT tools in supporting the practice and development of SR and found that using ICT can help teachers to plan relevant activities and provide a guide for students who engage in the practice of self-regulation. Based on the result, Dettori and Persico (2008: 738) recommended that "it is necessary to raise both teacher and student awareness of the importance of all aspects of SRL. SRL should be explicitly included in the institutional aims, along with the learning of content knowledge, especially in teacher training programs". In the meantime, Çelik, Arkin, and Sabriler (2012), examine the nature of language learners' selective use of technology on their own to regulate the various aspects of their language learning experience, and found no differences between male and female participants' use of ICT for self-regulated learning, and between language levels of the learners; and Mooij, Steffens, and Adrade (2014: 10) with Self-regulated and technology-enhanced learning from a European perspective, and found that SRL in technologically enhanced learning environments has many faces, facets, and applications.

The third layer is transversal competencies development (TVCD, see UNESCO, 2015). TVC is an umbrella term to refer to different terms used in some different countries to refer to a complex set of competencies required to develop excellent quality of life combining skills, attitudes, values, and beliefs (UNESCO, 2015: 6), including 1) critical and innovative thinking, 2) interpersonal skills, 3) intrapersonal skills, 4) global citizenship, 5) media and Information literacy, and 6) others. In some Asia Pacific countries, this has been used under different terms such as 'zest for living' (Japan), 'non-cognitive skills' (Malaysia, Mongolia and India), 'life skills' (Thailand), 'character/values education' (Philippines and Republic of Korea), 'general capabilities' (Australia) and 'generic or key competencies' (Shanghai, China). In practice, these competencies have been integrated into three different ways: in a specific subject, cross-subject, and extracurricular (UNESCO, 2015: 3). This research takes the first way, i.e. integrating relevant parts of the aforementioned six domains in the teaching of English as a foreign language in Indonesia.

In connection to TVCD, Some research findings have been documented (e.g. Langa, 2015; Crașovan, 2016; and Ajraoui, Ben Kaddour, and Zeriouh, 2019). Langa (2015: 12) investigated the role of acquiring

transversal competences in forming the competences profile of the educational sciences specialist, who teaches in pre-school and primary-school and found that "the results of this study have led to the identification of the importance of acquiring transversal competences by students in order for them to become good specialists in the field of educational sciences. This aspect is all the more important so as persons with the same level and the same register of competences obtain different results in the activity, on the whole." The factors identified were related to the general elements of transversal competences, among which: personal development, lifelong learning, autonomy and responsibility, critical thinking and reflexive practice, cooperation, observance of professional deontology principles, communication and social interaction. In the meantime, Crașovan (2016: 177), investigating the ways TVC manifested in different ways of learning, found that TVCD may serve as "an opportunity to develop a set of transversal competencies (which are vital in the current labour market), to interact and learn together with students from different specializations, to customize their own learning paths and training, to choose according to their needs, interests and skills, and to encounter diverse approaches of teaching, learning and assessment, different from those previously used", and Ajraoui, Ben Kaddour, and Zeriouh (2019), investigating TVCD in vocational school confirmed that the findings display an overall positive response to the three transversal skills addressed, i.e. critical thinking skills, communication skills.

From the review in the previous paragraphs, it can be concluded that research findings confirm that research on ICT, SRL and TVC is now going on and some enlightening findings are now emerging and giving light to further research. However, none of them studied the three layers in a synergetic way together with English as the subject matter. In the following section, what emerges in the pilot study implementing SMELT I 4.0 DE in an English as a foreign language context in Universitas Pendidikan Indonesia Senior High Lab School will be presented and discussed.

METHOD

The context

The data in this paper is a part of a longitudinal study undertaken by a team[ii] of a school-university partnership aiming at improving teacher education quality in Indonesia. The team, which is part of a bigger team at the university level, agreed to implement SMELT I 4.0 DE in the teaching of English as a foreign language in a class in the school, i.e. Universitas Pendidikan Indonesia Senior High Lab School, which is one of the university lab schools. Named after the model, the research project is called SMELT I I 4.0 DE, standing for the Implementation of SMELT I 4.0 DE, which is designed to be longitudinal research in the coming three years (2018-2020). The research agenda has been segmented into six semesters, each with different targets of development. In other words, this paper is written to present the report of the first segment of the six.

As slightly explained in the introductory section, SMELT I 4.0 DE consists of ICTC, SRLI, TVCD, and CSM. As suggested by the model name, the four layers are synergistically interwoven in a single synergy of SMELT I 4.0 DE. The model is intended to develop well-rounded whole persons who can competitively live Industry 4.0 and survive the disruptive effects brought about by the revolution. The operational implication of this model in the TLP will vary according to the characteristics of the students, classes, schools, and the surrounding environment.

The data collection

The data needed to answer the questions on SMELT I 4.0 DE were collected through observations, interviews, questionnaires, and performance assessment as well as Google Classroom (GC) analysis. The team members became participant observers of the TLPs. The observation data (Obs) were supported by videotape recordings (Vtr) carried out in all the TLPs. The videotaped data were needed to answer questions on how students engaged in classroom interaction, what kinds of behavior they did, and the texts they produced during the TLPs. In the meantime, the interviews were carried out to cater students' feelings about the SMELT I 4.0 DE and clarification on some important incidents in the TLPs, while the questionnaires were organized to get students' self-ratings on their learning motivation. Performance assessment was used to see the students' progress in English competence, and GC analysis to see the students' progress in ICT-related skills.

The data on students' English competence were also collected through students' communicative performance during the TLPs and their performance in their assignment completion. The data of students' communicative performance were needed to monitor and evaluate their classroom English development as a part of their learning tools and as a formative assessment. In the meantime, students' performance in their assignment completion was used to demonstrate their achievement of the materials taught. To sum up, through all of the instruments and procedures, the team hoped that the data required to answer all the questions on SMELT I 4.0 DE were comprehensive and exhaustive.

The data analysis

The data collected were then organized and analyzed in different ways depending on nature and the roles of the data in answering the research questions. The observation and interview data were recorded, organized, and analyzed through qualitative data analysis (See, e.g. Merriam, 2009; and Richards, 2009; Malik and Hamied, 2014): organization, categorization, pattern identification, and interpretation. In addition, students' engagement was analyzed through SMSLEFA (Suherdi, 2018). In the meantime, the data from the questionnaires and communicative performance assessment were analyzed through relevant descriptive statistic tests (Salkind, 2004; and Glenberg and

Andrzejewski, 2008).

FINDINGS AND DISCUSSIONS

The findings resulted from the data analysis will be organized in line with six research questions derived from the main question of 'how does SMELT I 4.0 DE help develop students learning?" All the questions and the relevant results of the data analysis are presented in the following organization:

Question 1: How does SMELT I 4.0 DE help develop students learning engagement?

The observation data show that the students demonstrated their improving engagement. This is indicated by both the number of negotiated exchanges and the number of students who participated in the TLPs (Cf. Suherdi, 2018). To illustrate, what happened in each meeting may be represented by the engagement developed in the first and second meeting. In the first meeting, students seemed to be reluctant and shy away from participation. Very few of them responded to the teachers' initiations. This is evident in the first videos [Obs_01_2018-Obs_03_2018]. They seemed to wonder about the ways, their roles, and anything about SMELT I I 4.0 DE. At the end of the sessions, however, smiles and joys were observable in some faces [Obs_03_2018-Obs_07_2018].

In the meantime, in the second meeting in which the use of GC was simulated, joyful interaction emerged [Obs_02_2018; Vtr_02_2018]. Students with good English began to use longer sentences [GS_Asg_01_2018]. Many of them demonstrated a willingness to participate [Obs_03_2018-Obs_07_2018; Qst_01_2018]. This was also observed in the sessions that follow [GS_Asg_02_2018-GS_Asg_07_2018; Vtr_02_2018-Vtr_07_2018]. Few students, however, till the report was written still struggled hard to be part of this promising trend.

Using SMSLEFA (Suherdi, 2018) to analyze the classroom engagement in all the meetings during the semester, the data show that the engagement developed is mostly characterized by a high level of learning interactions, behaviors and texts. The learning interactions were characterized by dominant skill-oriented, followed by knowledge-, and action-oriented exchanges; while the learning behaviors were dominated by language-oriented psychomotor behaviors; and in the textual perspective, texts were the dominant linguistic constituents in the TLPs. To sum up, qualitatively, it is clear that the students' engagement in SMELT I I 4.0 DE was, to a great extent, in high quality.

The data analysis results previously discussed are supported by the quantitative data from the questionnaires, especially those of students' attitude towards SMELT I I 4.0 DE. For the details, see Table 1. As shown in Table 1, 97% of the students felt satisfied with their learning through SMELT I I 4.0 DE, but they prefer to have teachers' rather than their own assessment. Twenty of them or 76% rated themselves to have a positive attitude towards learning, 72% rated that teaching methodology suited their interest and enjoyed working in groups. Hence, from both qualitative and quantitative data, students' engagement is generally facilitative to good success.

Table 1. Data on students' attitude towards SMELT I 4.0 DE

No.	Components	Freq.	%
1	Learning satisfaction	22	76
2	Method suitability	21	72
3	Positive attitude towards learning	25	
4	Teacher's assessment preference	26	89
5	Working in groups	28	97
6	Motivating power	24	69
7	Peer scaffolding	23	79
8	Teacher's scaffolding	22	76
9	GS helps control learning	16	55
10	Attitude towards GS	19	66

Question 2: How does SMELT I 4.0 DE help develop students learning motivation?

The answer to the question is reflected in the patterns of students learning motivation that can be inferred from the description of students' learning engagement discussed in the previous section. This is well supported by the Questionnaire data. In general, the students felt that they were highly motivated. In the data, it was represented by 85%. Meanwhile, motivation was also evident in students' *editing before submission*, which was represented by 97% of the students choosing to say yes. *Self-efficacy* came in the second slot with the same percentage.

Table 2 Data on students' learning motivation

No.	Components	Freq.	%
1.	Editing before submission	28	97
2.	Self-efficacy	28	97
3.	Listening to the teacher's explanation	26	89
4.	Asking questions	26	89
5.	Self-motivation	26	89
6.	Low persistence	22	76
7.	Punctuality in submission	21	72
8.	Active participation	21	72
9.	Playing around during the TLP	17	59
10.	Out of classroom learning activities	15	52

Listening to the teacher's explanation came after self-efficacy; Asking questions when they felt that they did not understand the teacher's explanation or questions followed, and self-motivation came in the next slot. All these three items mentioned were reportedly done by the same number of students (89% of the subjects of the study). In the meantime, low persistence was reported by 76%, punctuality in submission by 72%, active participation by 72%, out-of-classroom activities by 52%, and in the lowest slots came playing around during the TLP (59%) and out of classroom activities (52%). To help readers understand the whole picture, see Table 2.

What we can infer from the data is that some indicators showed the students had high motivation (i.e. in editing works before submission, self-efficacy in performing, listening to explanation, asking questions,

and self-motivation); while some others medium (i.e. punctuality in submitting works and participation in classroom TLPs), and three of them indicated that a large number of students still had low motivation (i.e. in doing out-of-classroom activities, persistence in facing difficulties, and focus on the lessons).

Question 3: How does SMELT I 4.0 DE help develop students learning achievement?

In general, the students under study made good progress in terms of their English competence. This is indicated by the scores represented in Figure 1.

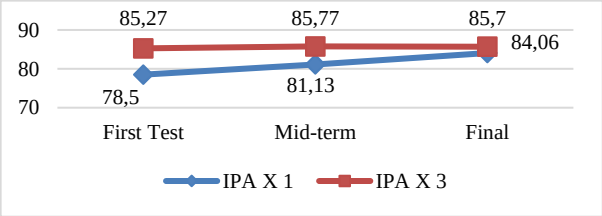

Figure 1. Data on the tendency of students' assessment results

As shown in Figure 1, the tendency of sample students' assessment results is increasing, from 78.5 (First Assessment) to 81.3 (Mid-term Assessment), and end up with 84.06 (Final Assessment). For the purpose of highlighting, the sores of IPA X 3 has been presented in the chart. This class has been chosen because they were taught and assessed by the same teacher as IPA X 1. It is clear that the progress made by the class under research was evidently improving.

In the meantime, the scores obtained by IPA X 3 students, though started with a relatively high score (85.27), did not make good progress. Indeed, it took a slight leap to 85.77 but then went down again to 85.7. Technically, there was no significant progress they made during the semester in terms of the increase of the assessment result scores.

More interesting data on the students' progress may be found in Figure 2.

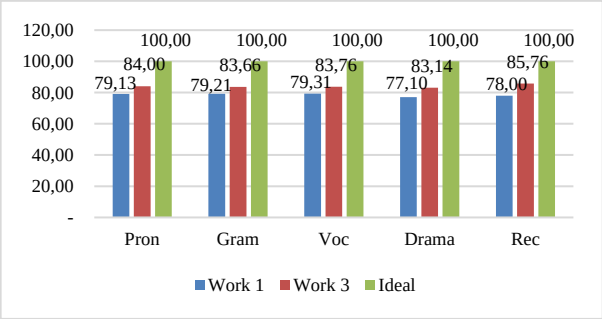

Figure 2. Data on students' progress in English conversations

A more detailed picture of students' progress may be found in students' progress in each language component assessed. In pronunciation, they made a big difference between their first assignment (78.55) and the second (84.06). The difference is 5.51. In the meantime, in grammar, they got 79.21 in the first and 83.66 in the second. In vocabulary, they got 79.31 and 83.76. The best improvement was made in the recording quality; the difference made reached 7.76; the second is in the drama with 6.03.

Question 4: How does SMELT I 4.0 DE help develop students ICT skills?

Students' skills in using ICT was not easy to measure. This is because they were already skilled in utilizing many digital tools for their daily routines. Hence, the data shown may be due to their existing skills, or at least most part of it, not purely because of the team's treatment. However, it is clear that implementing their existing skills in long-lasting learning activities was new to them. In addition, the scaffolding effects shared by students with low ICT skills are evident.

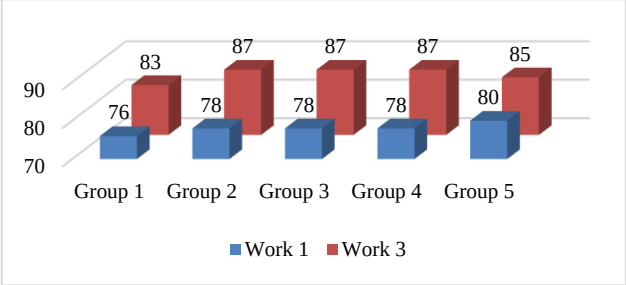

Figure 3. Data on students' progress in recording quality

A closer look at the data indicates that they learn to use new learning management systems, actively participate in the system, and share their knowledge with their friends. Those who were not accustomed to using such systems began to learn how to make use of systems for their learning, while those who were more knowledgeable of the systems went extra miles, maximizing their creative and innovative endeavors through the systems. For example, those who were skilful in using the line videos taught those who were not yet familiar with the technology. As a result, all the students used the technology for the assignment involving video recordings.

Quantitative data, though may not represent the whole picture of the skills, shows some significant improvements. As shown in the data presented in Figure 2, all groups made good progress, three of them even made outstanding leaps.

As indicated in the figure, Group 2, Group 3 and Group 4 made a very big leap from 78 to 87; the difference is 9; while Group 1 made a little smaller difference, i.e. 7 and Group 5 is the least, they made 5. As stated earlier, the recording may not represent IT as a whole; however, because the recording also involved internet communication and uploading processes as well as assessment, to this level, this has been taken and utilized in this section discussion.

Question 5: How does SMELT I 4.0 DE help develop students' self-regulated learning?

Self-regulated learning is by no means easy for Asian students, including the majority of Indonesian students. As has been long identified and reported that Asian

students tend to shy away from participation and passive, and that is why developing self-regulated or autonomous learning is hard for them. This was also the case for the subject of this research. This was indicated by how they responded to the teacher's elicitation in the first meetings of the class. However, as time went by, they began to take their own grasp on planning, doing, monitoring, revising, and finalizing their projects.

As expected, every time they were assigned to finish tasks, they planned the accomplishment of their tasks according to their potentials, available time for each of them, and their topics and goals [Obs_03_2018-Obs_07_2018]. They also executed their planning by themselves. Of course, there sometimes were some problems and some kinds of disagreement among them in executing their group learning tasks [Obs_04_2018]. However, they managed to solve most of the problems and disagreement [See Vtr_03_2018]. The students were given opportunities to monitor or self-assess their own learning and works. Using pre-determined rubrics, they self-assessed their performance in the recorded conversations and short drama settings [Obs_04_2018; Obs_07_2018]. They then presented the result of their self-assessment and planned to revise them.

Self-regulated learning qualities were also evident in the difference of the number of re-recordings of their performance, depending on how they perceived the quality of their performance and their targeted quality [Vtr_04_2018]. Hence, the time needed to finalize their projects varied, but because they had far more time than their counterparts doing English class in conventional ways, due to out-of-classroom learning activities, they had no difficulties in coping with the time required to finalize each learning tasks [Obs_05_2018-Obs_07_2018]. To sum up, self-regulated learning began to be part of their learning routine along with the series of class meetings this semester.

Question 6: How does SMELT I 4.0 DE help develop students' character development?

Last but not least, in relation to character development, the data show that the students demonstrate a relatively slower rate of development. Responsibility was among the most developed character. This was indicated by well-accomplished assignments and tasks. All groups finished all the thus far assigned tasks [See Asg_01_2018-Asg_04_2018]. However, discipline may serve as the least developed one. This was evident in the fact that there were always some groups submitting their works late, beyond the due date [GS_CW_01_2018-GS_CW_04_2108].

In the meantime, other characters such as honesty, fairness, and confidence may be considered to be fairly developed. As most of the performance was authentic and open to the public, it was hard for every student to cheat or even hide their weaknesses as well as strengths. Hence, being honest is the best choice [See Vtr_01_2018-Vtr_04_2018]. Fairness may somewhat be harder for them. Willingness to contribute to group works might have been their code of conduct. However, fairly contributing to group works were not their habit yet. This had been one of the reasons why some groups were not able to submit their works on time. Some of their members failed to show up in the rehearsal or shooting time. As a result, all other members had to suffer from their unfair response to group commitments.

From the two paragraphs, it can be concluded that it seemed that character needs a longer time to develop. However, it is clear that some evidence of development is observable in the data. The fact that the scores gained by the students under study (IPA X 1) were lower than the students taught by the conventional way (IPA X 3) does not eliminate the significance of SMELT I 4.0 in improving students' learning. There are two possible explanations for this phenomena. First, the more complex nature of the assessment instruments of SMELT I 4.0 DE may pose more complex demands for the IPA X 1 students than those of conventional assessment for IPA X 3. The SMELT I 4.0 DE assessment covered the elements of pronunciation, grammar, vocabulary, dramaturgical movement, recording quality as well as comprehension and fluency, while the conventional one only covered spelling, grammar, vocabulary, and comprehension (Cf. Bachman and Palmer, 2010). In addition, the nature of performing communicative tasks requires more challenging demands than completing written texts (Huxham, Campbell, and Westwood, 2012).

Second, the fact that IPA X1 students made better progress than IPA X 3 highlights the significance of SMELT I 4.0 DE with its disciplining nature of ICT, motivating nature of SRL practice, and confidence-building nature of TVC in improving students' learning, and, in turn, students' progress. The fact that IPA X 3 students did not make evident progress may represent the absence of this synergetic power of the teaching model applied (Tleuzhanova and Khamzina, 2015). To sum up, it is clear that there has been evidence emerging in the development of the six elements of SMELT I I 4.0 DE under discussion.

Based on the findings presented under the six questions, we may highlight the lessons offered by SMELT I I 4.0 DE. For that purpose, the rest of this section will be devoted to highlighting those lessons. A synergetic interweaving interrelationship among all the six elements discussed in the previous section is evident throughout the data display and their corresponding discussions in the previous section. Students' engagement and motivation may be accounted for the drive for students' self-regulated learning through a series of steps from planning, doing, monitoring, revising, and finalizing their learning, which is also interwoven with the development of such transversal competences as responsibility, honesty, fairness, confidence, and discipline. In general, these synergetic interrelationships among the variables are evident throughout the teaching-learning processes in the SMELT I 4.0 DE, and to give readers deeper sense of this synergy, all the findings will be highlighted in details in this section.

The students' status as digital natives (Cf. Prensky,

2001) may be responsible for triggering their motivation in participating in the teaching-learning processes facilitated by GS. Their familiarity with and habit of using cellphones in their daily life, as well as their enjoyment using the devices, motivated the students in learning English. Positive prior knowledge and enjoyable experience are believed to lead the students to this success (Kalyuga, 2005; Amadieu et al., 2009) Motivated learners are very rare in Indonesian English classes (Suherdi, 2015). Hence, the fact that the students are well-motivated indicates that using students' background knowledge and prior experience as well as interest is facilitative to successful learning (Tobias, 1994, 1995; Thompson and Zamboanga, 2003, 2004). In other words, the students' status as digital natives helps motivate them in learning English in SMELT I 4.0 DE. As a result, the ICTC layer in the model takes good advantages of the situations.

ICTC with ICT's inherent characteristics (accurate, transparent, open, timed, etc.) led students to develop relevant attitude and character. Hence, the aforementioned students' motivation, together with ICT's characteristics, may be responsible for developing students' responsibility for their learning. This is indicated by all the well-accomplished assignments in the program. In addition, most of the students seemed to enjoy the processes of accessing, learning, utilizing, creating works and assessing digital resources (Cf. Jager and Lokman, 1999; Jolls, 2008; and Chan, Bernal and Camacho, 2013). Some students were, however, still struggling with these new ways of learning English.

In SMELT I 4.0, the students evidently enjoyed the lessons more and felt more comfortable than when they were taught in conventional ways. This finding is in line with the results of previous studies. Furthermore, this kind of enjoyment and comfort is reported to lead to some productive habit of using metacognitive strategies (Beetham and Shape, 2013; Ariza and Suarez-Sanchez, 2013). The nature of project-based learning applied in the model encouraged them to develop careful and thoughtful planning of their projects. In addition, high demands on accuracy and transparency motivated them to establish their planning with optimum care, monitor their quality, and revise some unexpected results, and finalize their works with good responsibility (Cf. Beetham and Oliver, 2010). The fact that uploaded works on the internet open to the public 'forced' them to put a good grip on quality. In other words, the main characteristics of self-regulated learning begin to grow and develop within most of the students (Cf. Ariza and Suarez-Sanchez's (2013). Ariza and Suarez-Sanchez's (2013) found that learning that integrates metacognitive control strategies, and ICT-enhanced independent activities in the context of beginners' language learning 'not only contributes to the development of student's language proficiency but also provides them with insights of themselves as learners. This experience can be transferred to other situations of learners' academic lives and is key to long life learning (p. 168).

The synergy of enjoyment and comfort and self-regulated learning further led to the emergence of good character and non-cognitive skills such as responsibility, honesty, fairness, confidence, disciplined, working in groups, respect for others, creativity, and innovative endeavors-oriented attitude (Cf. Ariza and Suarez-Sanchez, 2013). These transversal competences began to have their base for good development. This seems to be an automatic, logical consequence of the aforementioned qualities (enjoyment and comfort, good planning, execution, monitor, revision, and finalization) in the course of thus far teaching and learning the journey of the class. This is reasonable because as many researchers believe that ICT-based teaching seems to demand more responsibility on behalf of students (Ariza and Suarez-Sanchez, 2013), and independence, self-motivation, and self-evaluation (Beetham and Oliver, 2010).

CONCLUSION

This paper has been successful in presenting the nature of Industry 4.0 and Disruptive Era and its consequences for the teaching of English, including in Indonesian contexts, and SMELT I 4.0 DE as an alternative model for the teaching of English in the era. The synergetic and multilayered nature of SMELT I 4.0 has been explicated and sufficiently discussed, and some implications have been recommended at the end of the paper. In conclusion, synergetic interweaving nature of SMELT I 4.0 DE has been evident in SMELT I I 4.0 DE. ICTC has played its role in triggering and sustaining students' motivation as well as laying alternative pathways for students to go through their English learning endeavors to maximize their achievement. Using the assignments, all of which involved ICT, as their target, they planned, executed, monitored, revised and finalized their works. In this conjunction, the synergy between ICT and SRLI impacts are again evident. At the same time, they developed a better sense of responsibility, honesty, fairness, confidence, discipline, working in groups, respect for other students, and commitment. Hence, the synergy of the three layers is now clear. To sum up, the synergetic and multilayered nature of SMELT I 4.0 DE and its benefits to boost students' learning quality have been evident in SMELT I 4.0 DE data analysis findings. Hence, it is reasonable to develop hypotheses on the effectiveness of SMELT I 4.0 DE and its corresponding improvement in line with the length of its implementation time.

Based on the findings, some further steps are recommended, including conducting similar studies in different subject areas, and testing its applicability in different contexts and different subject areas, developing synergetic assessment tools to better portray the effectiveness of the model in accomplishing its missions as well as testing relevant hypotheses on SMELT I 4.0. In addition, teachers' preparation to best meet the challenges of this era, and redesigning teacher education curricula need to be done to meet the demands and the challenges.

REFERENCES

Ahmadi, M. R. (2018). The use of technology in English language learning: A literature review. *International Journal of Research in English Education, 3*(2), pp. 115-125.

Ajraoui, T. E., Kaddour, K. B., & Zeriouh, M. (2019). Transversal skills in vocational education and training: The case of ENSAM engineering students. *European Scientific Journal, 15*(8), 237-254. doi:10.19044/esj.2019.v15n8p237

Alsaleem, B. I. A. (2013). The effect of "WhatsApp" electronic dialogue journaling on improving writing vocabulary word choice and voice of EFL undergraduate Saudi students. *Arab World English Journal, 4*(3), 213-225.

Amadieu, F., van Gog, T., Paas, F., Tricot, A. & Mariné, C. (2009). Effects of prior knowledge and concept-map structure on disorientation, cognitive load and learning. *Learning and Instruction, 19*, 376–386.

Ariza, A., & Suarez-Sanchez, M. (2013). Effectiveness of the integration of ICT tools and activities to foster awareness as the first stage to reach learning autonomy. *Gist Education and Learning Research Journal, 7*, 154-172

Bachate, A. K. (2016). Teaching of communication skills using multimedia and language laboratory. *The IUP Journal of Soft Skills, X*(3), 48-53.

Bachman, L., & Palmer, A. (2010). *Language assessment in practice.* Oxford: Oxford University Press.

Banarjee, P. & Kumar, K. (2014). A study on self-regulated learning and academic achievement among the science graduate students. *International Journal of Multidisciplinary Approach and Studies, 1*(6), 329–342.

Beetham, H., & Oliver, M., (2010). The changing practices of knowledge and learning. In R. Sharpe, H. Beetham & S. de Freitas (Eds.), Rethinking learning for a digital age: How learners are shaping their own experiences (pp 155-169). New York: Routledge.

Beetham, H., & Sharpe, R. (Eds.) (2013). *Rethinking pedagogy for a digital age: Designing for 21st Century learning.* New York: Routledge.

Berger, A., Kofman, O., Livneh, U., & Henik, A. (2007). Multidisciplinary perspectives on attention and the development of self-regulation. *Progress in Neurobiology, 82, 256-286.* doi: 10.1016/j.pneurobio.2007.06.004

Cazen, A. M. (2012). Self-regulated learning strategies: predictor of academic achievement. *Precedia Social and Behavioral Sciences, 33*(2), 104-108

Çelik, S., Arkin, E., & Sabriler, D. (2012). EFL learners' use of ICT for self-regulated learning. *The Journal of Language and Linguistic Studies, 8*(2), 98-118.

Chan, D., Bernal, A., & Camacho, A. (2013). Integration of ICT in higher education: Experiences and best practices in the case of the University of Baja California," in *Proceedings of the Edulearn13* (pp. 1040–1049). Barcelona, Spain.

Cheng, E.C. (2011). The role of self-regulated learning in enhancing learning performance. *The International Journal of Research and Review, 6 (1), 1-16*

Clayton, K., & Murphy, A. (2016). Smartphone apps in education: Students create videos to teach smartphone use as tool for learning. *Journal of Media Literacy Education, 8*(2), 99–109.

Crașovan, M. (2016). Transversal competences or how to learn differently. *Series: Philosophy, Communication, Media Sciences Volume: Communication Today: An Overview from Online Journalism to Applied Philosophy* (pp. 171-178). Retrieved from: https://trivent-publishing.eu/books/philosophy/communicationtoday/17.%20Mariana%20Crasovan.pdf

Dettori, G. & Persico, D. (2008). Supporting self-regulated learning with ICT. In A. Cartelli & M. Palma (Eds.), *Encyclopedia of Information and Communication Technology* (pp. 735-741). Hershey: Idea Group.

Gilakjani, A. P., & Sabouri, N. B. (2017). Teachers' beliefs in English language teaching and learning: A review of the literature. *English Language Teaching, 10*(4), 78-86.

Gleason, N. W. (Ed.) (2018). *Higher education in the era of the fourth industrial revolution.* Singapore: Palgrave Macmillan.

Glenberg, A. & Andrzejewski, M. (2008). *Learning from data: An introduction to statistical reasoning* (3rd ed.). New York: Lawrence Erlbaum Associates.

Golonka, E. M., Bowles, A. R., Frank, V. M., Richardson, D. L., & Freynik, S. (2014). Technologies for foreign language learning: A review of technology types and their effectiveness, *Computer Assisted Language Learning, 27*(1), 70-105 doi: 10.1080/09588221.2012.700315

Hidayati, T. (2016). Integrating ICT in English language teaching and learning in Indonesia. *Journal of English Education and Linguistics Studies, 3*(1), 38-62. doi: 10.30762/jeels.v3i1.173

Hocheng, H. (2018). Crossing-border journey of e-learning in higher education. A keynote speech in *eLFA2018 (e-Learning Forum Asia 2018 "e-Learning for the Future"*, held in National Taipei University of Business, Taipei, Taiwan, 23-25 May 2018.

Huxham, M., Campbell, F., & Westwood, J. (2012). Oral versus written assessments: A test of student performance and attitudes, *Assessment & Evaluation in Higher Education, 37*(1), 125-136. doi: 10.1080/02602938.2010.515012

Jager, A. K., & Loman, A. H. (1999). Impacts of ICT in education. The role of the teacher and teacher training. Paper Presented at the *European Conference on Educational Research*, Lahti, Finland 22 - 25 September 1999.

Jolls, T. (2008). *The impact of technology on character education.* Prepared for: U.S. Department of Education Character Education Symposium 2008

Kalyuga, S. (2005). Prior knowledge principle. In R. Mayer (Ed.), *Cambridge handbook of multimedia learning* (pp. 325–337). New York: Cambridge University Press.

Kartika, H. D. (2015). A Learner's Self-Regulated Learning in Writing. *Indonesian Journal of English Education, 2*(2), 120-131. doi:10.15408/ijee.v2i2.3085

Langa, C. (2015). The contribution of transversal competences to the training of the educational sciences specialists. *Procedia-Social and Behavioural Sciences 180*, 7-12. doi: 10.1016/j.sbspro.2015.02.077

Lin, W.C., and Yang, S.C. (2011) Exploring students' perspectives of integrating Wiki technology. *English Teaching Practice and Critique, 10*(2), 88-103

Malik, R. S. & Hamied, F. A. (2014). *Research methods: A guide for first time researcher*. Bandung: UPI Press.

Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation*. CA: Jossey-Bass.

Metallidou, P. (2012). Epistemological beliefs as predictors of self-regulated learning strategies in middle school students. *School Psychology International, 34*(3), 283-298. doi:10.1177/0143034312455857

Mooij, T., Steffens, K., & Adrade, M. S. (2014). Self-regulated and technology-enhanced learning: A European perspective. *European Educational Research Journal, 13*(5), 519-528.

Nejabati, N. (2015). The effect of locus of control training on EFL students' reading comprehension. *Journal of Language Teaching and Research, 6*(6), 1343-1348. doi: 10.17507/jltr.0606.23

Nomass, B. B. (2013). The impact of using technology in teaching English as a second language. *English Language and Literature Studies, 3*(1), 111-116.

Parvin, R. H., & Salam, S. F. (2015). The effectiveness of using technology in English language classrooms in government primary schools in Bangladesh. *Forum for International Research in Education, 2*(1), 47-59. doi: 10.18275/fire201502011049

Prensky, M (2001). Digital natives, digital immigrants. *On the Horizon, 9*(5), 1-6.

Protentep, S. (2008). Self-regulated learning by Thai university students in EFL extensive reading program. *Journal of Humanities, 2*(1), 26-37.

Purnawarman P., Susilawati, S., & Sundayana, W. (2016) The use of Edmodo in teaching writing in a blended learning setting. *Indonesian Journal of Applied Linguistics, 5*(2), 242-252. doi: 10.17509/ijal.v5i2.1348

Richards, L. (2009). *Handling qualitative data: A practical guide* (2nd ed.). London: SAGE.

Salkind, N. (2004). *Statistics for people who (think they) hate statistics* (2nd ed.). Thousand Oaks, CA: Sage.

Stockwell, G. (2010) Using mobile phones for vocabulary activities: Examining the effect of the platform. *Language Learning & Technology, 14*(2), 95–110.

Suherdi, D. (2015). Multimodal Pedagogy in TEFLIN Contexts. In *The 62nd TEFLIN International Conference 2015 Proceedings: Teaching an Assessing L2 Learners in the 21st Century.*

Suherdi, D. (2018). SMSLEFA: An alternative synergistic multilayered analysis of students' learning engagement in EFL context. *Indonesian Journal of Applied Linguistics, 8*(1), 11-20 doi: 10.17509/ijal.v8i1.11457

Suherdi, D. (2019). SMEMFLE I 4.0 DE: A Synergetic Multi-Layered Educational Model for Learning Excellence in Industry 4.0 and Disruption Era. *Series:Advances in Social Science, Education and Humanities Research Proceedings of the 3rd Asian Education Symposium* (pp. 439-445). Atlantis Press. doi https://doi.org/10.2991/aes-18.2019.100

Thompson, R.A., & Zamboanga, B.L. (2003). Prior knowledge and its relevance to student achievement in introduction to psychology. *Teaching of Psychology, 30*(2), 96–101.

Thompson, R.A., & Zamboanga, B.L. (2004). Academic aptitude and prior knowledge as predictors of student achievement in introduction to psychology. *Journal of Educational Psychology, 96*(4), 778–784.

Tleuzhanova, G. K., & Khamzina, A. S. (2015). Synergetic approach to fostering learners'information and langauage autonomy. *Modern Science and Practice Journal, 3*(57), 235-239. DOI: 10.17277/voprosy.2015.03.pp.235-239.

Tobias, S. (1994). Interest, prior knowledge, and learning. *Review of Educational Research, 64*(1), 37–54.

Tobias, S. (1995). Interest and metacognitive word knowledge. *Journal of Educational Psychology, 87*(3), 399–405.

UNESCO. (2015). *Transversal competencies in education policy and practice (Phase I). Asia-Pacific education research institutes network (ERI-NET).* Paris and Bangkok, UNESCO. http://unesdoc.unesco.org/images/0023/002319/231907E.pdf

Wang, S., Lai, P., & Wong, L. (2018). Automatic generation of transcripts of student English presentations using YouTube for teaching academic speaking. A presentation at *eLFA2018 (e-Learning Forum Asia 2018 "e-Learning for the Future")*, held in National Taipei University of Business, Taipei, Taiwan, 23-25 May 2018.

Zhao, W. (2016). Academic English teaching for postgraduates based on self-regulated learning environment: A case study of academic reading course. *English Language Teaching, 9*(5), 214-224. doi: 10.5539/elt.v9n5p214.

Zimmerman, B. J., & Schunk, D. H. (Eds.) (2011). *Handbook of self-regulation of learning and performance*. New York: Routledge Press.

[i] SMELT I 4.0 DE is developed based on SMEMFLE I 4.0 DE as the generic base for various curriculum subjects. See Suherdi (2019).
[ii] The team consists of a university professor, a school teacher, and two student teachers.