Abstract: A teacher is one element that is very vital in running education, which is one of the most important aspects in the 4.0 industrial revolution era. For that reason, the quality of a teacher will be a very contributing factor to the success of education in. In such an era, smart teachers should be equipped with innovations and creativity and are able to make a fun and interactive teaching and learning process. They are also expected to be able to encourage students to be active to participate in the learning process in order to make sure that the objectives of learning can be achieved. In this era, teachers’ role in developing students’ character is significant. This is because students will face this millennial era, which come a long with all chances and threat, and they should equip themselves with good characters as well as specific skills needed. The broad use of the internet will of course give some impacts to students’ characters, either the good and the bad ones. For that reason, character building at schools is really needed to avoid students from losing their identity. Building students’ character needs smart teachers who have four competencies, i.e. professional, paedagogic, personal, and social competencies. Having such competencies, teachers are expected to be able to build students’ good character and can help students to have the characters which go along with parents’ and community’s expectations. The efforts to build students’ characters can be realized through intra and extra-curriculair activities to facilitate students in developing the 18 characters as stated by Education and Culture Ministry of Indonesia.

Keywords: smart teacher, character building, 4.0 industrial revolution era
need and solve the problems of education that may occur in this era. As we know, teachers are the main factor of the success of education in this 4.0 industrial era.

As one of the determining factors of education, teachers are demanded to have the educational abilities to face this changing era and have a serious commitment to take their students to their success in this millenial era. In this era, students are demanded to be able to use the digital equipments and this means that the teachers, who should facilitate learning, should also be able to do so. Teachers’ performance in using digital equipments as well as the internet will influence how students face them as the ones to be modelled and trusted.

In this sophisticated 4.0 millenial era, every day, hour, minute, and second, teachers will always be connected with digital technology. Most teachers, both in the urban and rural areas, have a smartphone and use whatshap, facebook, and google to connect themselves to the virtual communities around the world. In the positive way, such a connection can be used to provide them with the possibilities to find any kind of learning materials so that they are relatively ready to manage the class. To meet the need of education in this era, teachers should master science and technology, so that the learning process will be easier, more effective, and more efficient. It is the teachers who will facilitate students to master science and technology and they should be able to handle all the chances, challenges, and threats of this 4.0 industrial era. In facing such a condition, the quality teachers of this era should have with four competencies, i.e. personal, social, pedagogic, and professional competencies. By having the competencies, teachers are expected to be ready to prepare their students to face this millenial era, which is characterized by modern and sophisticated technology.

As mentioned earlier, this 4.0 industrial era brings to us the advantages as well as disadvantages in every aspect of life. The ease that everybody can enjoy because of the invention of internet is also accompanied by the side effects of the uncontrolled information students may receive. In anticipating the negative effects of the internet, all elements of the society should be able to take roles. One of the most expected element to minimize the negative sides of this global era is school. A school is expected to be able to prepare its students in facing the globalization by building their characters through school cultures, intra and extra-curriculair programs. Character development at a school will help students to prepare themselves to face the millenial era and avoid them from the negative impacts this global era.

Science, as one of the the most important aspects of this era, should be developed simultaneously with characters to build smart and good charactered students based on Pascasila, the philosophy of Indonesian’s life. This meets what Mr. Habibie stated that a nation’s development should be like both of the two wings of an airplane, the right wing represents belief in God and piousness, while the left wing represents science and technology. Both of them should exist, which means that the absence of one of them means there is no existence of the airplane. From the above explanation it is clear that millenial generation should be prepared with strengthening them with character education. Kalibris Lalo (2018:72) suggested that schools should be ready to handle the students who live in an era of sophisticated technology by providing smart and innovative teachers completed with four teacher competencies. The more smart and innovative a teacher is, the more capable he/she faces the challenges of the millenial era. The smartness and innovativeness of a teacher in the learning process and in
building students characters can be applied in the intra and extra curricular activities, which is intended to facilitate students as the millenial generation to have adequate competencies, smartness, and good characters as well as existing in the global competition.

Teacher’s role in the character building is really significant. Character building, which is intended to guide the students in facing the global era, is expected to be able to make students hold the basic moral values in their social relationship and in selecting the unlimited information exposed to them through the internet. In fact, smart students have high curiosity in everything and it can be easily found in the internet.

The significance of teachers’ role in character building at school is in line with what was stated by Roqib (2011: 99). He argued that a teacher has duty to smarten students in their life as a member of a nation and state. Smart teachers are really needed. They should have not only four teacher competencies as mentioned above, but also science and technology mastery. All aspects should support one another to enable the teachers to face this millenial era, which is becoming more global and sophisticated. In this millenial era, people will face digital activities in every aspect of their life and this may bring not only the positive influence, but also negative impacts as well. Following the negative impacts is the occurance of problems, especially related to self identity. For that reason, building self identity of students as the millenial generation is a must. By having a tough identity, students will be able to select the values which are in line with the nation identity.

Millenial generation has a specific characteristics that rae different from the previous one. Their are very young age, and in the they will take a very important role in the next ten years. Central of Statistics Bureau released the data that 50% of the the citizens are in their productive age of the millenial generation, and will turn to 70% of the citizens in 2020 to 2030. In the perspective of Absher and Amidjaya (2008), millenial generation are those who were born between 1982 to 2002 and experience google generation, net generation, generation Z, echo boomers, and dumbest generation. Tapscott (2008) stated that millenial generation is often called the Z generation, which has the characteristics of loving freedom and personification, depending on the fast and instant information, enjoying learning and working in an innovative atmosphere, collaborating actively, and hyper technology. Kalfaris Lalo (2018:72) suggested that by the existance of millenial generation, teachers expect parents’ participation in controlling their children in facing this global era because they are the next generation. Parents’ participation will help them avoid the negative impacts of this era such as drug abuse, free sex, LGBT, which will endanger the nation.

B. Theoretical Review
1. Definition of Teacher

In the Act of National Edcuation System of Indonesia, guru (teacher) is also named tenaga pengajar (agent of teaching). This term represents educators whose main duty is to teach. In elmentary and secondary education, this profession is names guru (teacher, while in higher education, it is named dosen (lecturer). In the Act of Teacher and Lecturer (Undang-Undang Guru dan Dosen) of Indonesia, it is mentioned that a teacher is a professional educator whose main duties are to educate, train, assess, and evaluate his/her students of nursery, elementary, and secondary formal education. Roqib and Nurfuadi (2011: 22) explain that a teacher is a figure who has the responsibility as an educator in running his/her duties and functions as a professional teacher to be modelled by his/her students. This is
because teachers hold an important factor in determining the success and quality of a student. A teacher should not only be a professional in teaching, but also have good personality represented in his/her daily behaviour and life (Roqib and Nurfuadi, 2011: 23-24).

2. Four teacher Competencies
   a. Pedagogic Competency
      Pedagogic competency is the ability of a teacher to create various atmosphere and learning experiences in managing their students based on the determined (Suwito dan Nurfuadi, 2012: 76). This competency includes: (1) the understanding of educational insights and principles; (2) the understanding about the students; (3) the ability to develop curriculum/syllabus; (4) the ability to plan learning; (5) the ability to perform educational and interactive learning; (6) the ability to evaluate learning results; (7) the ability to develop students in actualizing their potentials (Musfah, 2011: 31).
   b. Personal Competency
      Personal competency of a teacher should include the following characteristics: (1) having good character; (2) tough, stable, and mature; (3) wise and understanding; (4) can be modelled; (5) able to perform self-evaluation; (6) able to make self-development; and (7) religious (Musfah, 2011: 42-43). Teacher’s personal competency will be represented in the tough personality that is able to be the source of subject intensification. This means that a teacher should have a personality that can be modelled by his/her students, and this is in line with the very famous advise from Ki hajar Dewantara that a teacher should have this character: “Ing Ngarso sung Tulodo, Ing Madya Mangun Karso, Tutwuri Handayani” (Uno, 2016: 69).
   c. Social Competency
      Social competency represents teacher’s ability in actualizing his/her role as a part of social community. This competency includes the ability to: (1) perform verbal and written communication; (2) use information and communication technology functionally; (3) build effective relation with students, education staff, and parents; (4) build mannerful relationship with the community around the school (Musfah, 2011: 52-53). This meets what Uno states that social competency shows that a teacher are able to build social interaction either with students, colleagues, the principal, and other school communities (Uno, 2016: 69).
   d. Professional Competency
      This is the competency which covers teacher’s broad and in-depth mastery of learning materials, which includes: (1) concepts, structures, and methods of science/technology/art related to earning materials; (2) learning materials which meet the curriculum; (3) the conceptual relationship among the related subjects; (4) the implementation of scientific concepts in the daily life; and (5) professional competency in global context with keep conserving national values and cultures (Musfah, 2011:54). Social competency requires teachers to have wide knowledge of subject matter to be taught and the mastery
of methodology of teaching and learning (Uno, 2016: 69).

3. The definition of character

In Indonesia, the term character is generally equalized with the term jati diri (self-identity) of an individual as a member of a nation. In fact, character has a wider meaning than jati diri. Philosophically, the nation-characterized Indonesian people are those who have Pancasila-based characters, i.e. human being who actualizes the five principle in Pancasila, namely Ketuhanan Yang Maha Esa, Kemanusiaan yang adil dan beradab, persatuan Indonesia, kerakyatan yang dipimpin oleh hikmat kebijaksanaan dalam permusyawaratan perwakilan, and keadilan bagi seluruh rakyat Indonesia (KemdiKNas, 2010:20). Character is the values cultivated in an individual through education, experience, sacrifice, and surrounding influence, combined with inner values of human beings, and eventually become intrinsic values manifested in struggling system as the basis of thought, attitude, and behaviour. Character is not an instant process, instead it is consciously and intentionally built based on each self-identity (Ningsih, 2015: 21-22)

4. Character Values

In strengthening the implementation of character education in each unit of education institutional, there have been identified 18 characters sourced from values in religions, Pancasila, cultures, and the objectives of national education. The 18 characters are as follows: (a) religious, (b) honest, (c) tolerant, (d) discipline, (e) collaborative, (f) creative, (g) independent, (h) democratic, (i) curious, (j) nationalistic, (k) patriotic, (l) appreciative, (m) friendly/communicative, (n) loving peace, (o) loving reading, (p) attentive to environment, (q) attentive to society, and (r) responsible (Source: Pusat Kurikulum dan Perbukuan, Pedoman Pelaksanaan Pendidikan Karakter Kemdikbud 2011).

According to Zuchdi, as quoted by Ningsih (2015:66), character education has three main functions, namely:

a. Forming and strengthening potentials

Education functions to form and develop the potentials of human being/Indonesian citizens to have positive thinking, positive attitude, and positive behaviour based on Pancasila as the nation philosophy.

b. Improving and Strengthening Characters

Character education functions to minimize the negative character of human and Indonesian people as well as to strengthen the role of family, unit of education institution, society, and the government to participate and be responsible in developing human potentials to achieve a characterized, leading, independent, and prosperous nation.

c. Selecting

Nation character education functions to prefer the values of national cultures and to take only the positive values of foreign cultures to be the characters of dignified human and Indonesian citizens.

5. The definition of 4.0 Industrial Revolution

4.0 industry is a name of otomation trend and current data exchange in fabric technology. This term includes physical-cyber system, internet for all, cloud computation, and cognitive computation. 4.0 industry produces smart fabric. The smart fabric has
modular structure; physic-cyber system monitors the physical process, creates the copy of physical world virtually, and makes uncentered decisions.

Through Internet of Things (IoT) the cyber-physic system can communicate and build networking with one another and with human being simultaneously. Through cloud computing, internal and cross-organization services are provided and utilized by various parties in the value chain (Wikipedia).

Actually what is meant by the revolution of Industry 4.0? briefly the notion of industry 4.0 is a trend in the world of industry that combines automation technology with cyber technology. In this industry 4.0 manufacturing technology has entered the automatic and data exchange. These include cyber-physical systems, internet of things, cloud computing, and cognitive computing. This trend has changed many areas of human life, such as the economy, the world of work, even the human lifestyle itself. In short, Revolosi 4.0 instills intelligent technology that can connect with various human lives (Viranda Tresya, https://www.maxmanroe.com/revolusi-industri-4-0.htm).

Millennials, sometimes also called Y generation, are a group of people born after X Generation, namely people born in the 1980-2000s. So, millenials are young people aged 17-37 this year. Millennials themselves are considered special because this generation is very different from the previous generation, especially in matters relating to technology (https://rumahmillenials.com/siapa-itu-generasi-millenials/).

C. Discussion
1. Smart Teachers in Forming Characters in the Industrial Revolution Era 4.0

Forming the character of students in the millennial era 4.0 is a teacher’s task at school. In addition to the family, the teacher is the main guard in shaping the character of the student. The teacher is a model at school. What the teacher does will be followed by students. Therefore, the teacher must have creative innovation and be smart to face the millennial era 4.0. This millennial era is an era that is global, either in economic, cultural, educational, and most especially in technological aspects. At the time when the millennial’s birth, color TV, cellphones, and the internet have already reached the village. So, this era is an era of very significant change for the community. Schools must realize that this era is a world without borders. So, the school must shape the character of students to face this era of industrial revolution.

In facing the era of industrial revolution 4.0 teachers as social beings who have competence in themselves are able to develop competencies possessed by individuals. Individual competence is a way to develop the abilities possessed by someone in getting maximum results. The individual competencies will carry out their development in accordance with what is owned by the individual. However, to develop individual competencies must be in accordance with the rules and norms that apply in society. As said by Hamzah Uno (2016: 61), individual competencies can also be formed because of the potential innate and the surrounding environment. The theory underlying this thinking is the theory of convergence pioneered by Willem Stren. According to
this theory, personal development and one's competence are the result of a process of collaboration between heredity and environment. Each individual is a combination or convergence of internal factors (potential within the individual) with external factors (environment including education). No matter how good heredity is, if the environment does not support and develop it, the good heredity will just be an undeveloped potential. And the vice versa, even though the environment of heredity is not good, but the environment allows and supports, the ideal competencies will be achieved. Therefore, the development of competencies possessed by individuals will develop according to their capabilities. Teacher competence is the ability of teachers in the learning process to achieve learning objectives. According to Hamzah B Uno (2016: 64) teacher competence does not stand alone, but is influenced by educational background, teaching experience, and length of teaching. Professional teacher competency, according to education expert Soediarto, requires teachers to be able to analyze, diagnose and prognosis the educational situation. Teachers who have professional competency need to master the following aspects: a) scientific disciplines as material for learning, b) teaching materials, c) knowledge of student characteristics, d) knowledge of philosophy and educational goals, e) knowledge and mastery of teaching methods and models, f) mastery of the principles of learning technology, g) knowledge of assessment, being able to plan, and lead, for the educational process.

Smart teachers will master the four basic competencies that must be applied in education. Thus, in anticipating the era of industrial revolution 4.0 teachers will not experience difficulties in developing knowledge in the learning process so that learning objectives are achieved. Smart teachers are creative teachers who are full of innovation and are creative in making and using media adapted to learning materials. The media are not only digital but also media that are made from used materials. By using the media, learning will run smoothly so that the learning objectives expected by the teacher are achieved and the students' scores are above average. The media created will not be inferior to digital media. However, with the presence of digital media, teachers are expected to master digital media, because this millennial era is a digital era. Teacher's abilities must be improved, not to the teacher's ability to be left behind by students. Teachers are expected to use more strategies so students understand what is taught to support the millennial era. Thus, the teacher's skills in teaching students are in accordance with teacher professionalism. The teacher understands the material, media, and learning strategies.

The gentle personality of the teacher and being a substitute for parents at school will become a demand of this era. With the love they have, the teacher will be able to guide students in the era of industrial revolution 4.0 to become a millennial generation capable of facing various challenges in the fields of technology and various fields other. Mastery of increasingly sophisticated technology will be a challenge for teachers. To deal with these challenges, teachers need to think anticipatively and proactively and continuously learn as an effort to renew their knowledge. This can be done by doing research often through literature review and
conducting classroom action research (2012: 76). The teacher becomes aware that in an increasingly globalized era, teachers are expected to improve their competencies and be able to prepare students in this millennial era as the teacher’s responsibility as an educator because the outline of education goals is to encourage children / students to grow as adults, understand themselves and people others, and able to solve life problems faced and continue to develop and change (Miller, John P. 2002: 67).

Changes in students in education are nothing but teacher factors to bring students to be mature and jump directly into the community and accepted by the community. The social attitude that teachers have in solving social problems in schools and in the community is a role model for students so that students dare to compete with others in welcoming the era millennial 4.0 with characteristics that have been implanted by the teacher.

2. The Role of Teachers in Forming Student Characters through Intracurricular and Extracurricular Activities in Schools on the Era of Industrial Revolution 4.0

The era of industrial revolution 4.0 was an globalization era without limits. This era is an era in which humans experience change from the previous era to the millennial generation 4.0, which is a human in the super-sophisticated era. This generation sees the world not directly but in a different way, namely by surfing the internet, so they know everything. Starting from communicating, shopping, getting information, and other activities. Millennial generation is a very modern generation, more than their parents, so they often teach technology to parents. (Https://www.hitsss.com/kenali - more-characteristic-millennial generation-passing-7-points-this / 3 /).

Millennial generation is a challenge for the teacher to become good characterized human, so that this generation will not forget its identity. Therefore, this generation requires the character building in school. Character building in schools is very important in the era of industrial revolution 4.0 because this era is the era of millennial generation which is all-digitalized. Students still need guidance from parents and teachers. Preparing millennials is not as easy as what is imagined by the school, parents, and the community. In addition to teaching science to receive digital sciences, students' character is also built so that their cognitive, affective, and psychomotor domains run together to meet the era of industrial revolution 4.0 towards this challenging millennial generation. Millennial generation is a globalized generation. Students will know an increasingly sophisticated outside world in the increasingly globalizing field of technology. Therefore, the inclusion of new technologies that come uninvited and unavoidable has had a profound effect on all human lives both young and old, so that all parties involved must be able to adjust to that change.

The technology applied is not only able to change the work system but also demands more creative and innovative human resources. Skills are a challenge for Indonesia's human resources to be anticipated. According to Feisal, Amir Yusuf (2002: 129) creative and innovative human resources will be ready to accept an age without limits. Therefore parents, schools, and communities of education users must realize that with the industrial revolution 4.0 character of students
needs to be prepared, that is by instilling character. Students' characters are formed through intracurricular. All teachers insert characters in learning through all school subjects, such as social studies, Civics, Indonesian Language, and religious education, to build students' character. The role of teachers here is very important as stated Tutuk Ningsih (2015: 157) that the teacher as the spearhead of the learning process in school has an important role in shaping the character of students through the learning process and through the exemplary attitude that the teacher shows in daily interactions in school and even in the community. Students' character is formed through learning or through intracurricular schools. Where the teacher gives a good example or as a role model for students. The teacher is a role model for students. At school, every time the teacher meets a student, he must always reprimand by greeting and reaching out to shake hands. As the learning progresses, he gives a smile and starts learning by praying first. Good examples are always given before the students. Such habits will become a culture at school. School culture must indeed be carried out so that the character formation of students is stronger and internalized and becomes a reference in daily behavior, so that good behavior is created at school, home, and society. In this era teachers are expected to be smart, innovative and creative teachers. Thus, the goal of education in schools is achieved. Creative teachers are teachers who are able to make creative and fun learning innovations, teachers who are loved by their students, not only in classroom learning activities, but also in activities outside the classroom, teachers who can love their students like parents to their children (Kurniawan, 2016: 140). Learning innovations in schools in this era of teaching as a substitute for parents in school bring students to meet the digital era with love and guidance from parents. This is because this era is an era of openness of the world that can be seen through the internet through mobile phones, laptops and more. Therefore, teachers who have an attitude of affection will be accepted by students at school. On the contrary, teachers who are fierce will be defied by students. This shows how important teacher's role in school is. As said by Heru Kurniawan (2016: 150) one of the important roles of teachers in learning is that teachers as creative persons should able to take parents' role for students at school. No wonder there is the term school as a second home for children. This means that at the school the students also get good treatment from their teachers. Teachers must give loving care in educating and guiding children. To get maximum results in shaping students' character, the teachers should give attention that is full of affection as parents. The teachers represent a model in the school so that the expected results to build good character can be achieved.

The role of the teacher in the classroom is as a facilitator in the learning process. In the classroom the teacher is expected to become a director so the class becomes fun and students like the learning process that occurs. The teacher acts as a reliable leader. A good leader is not always in front of the class, gives orders, and commands, but gives more space and opportunity for students to develop. The development of children in the industrial industry 4.0 era depends on the teacher as a director of learning and character formation in
the class that produces character values (Kurniawan, 2016: 94).

Extracurricular activities are essentially not only a place to channel students' competencies, interests and talents, but also an inseparable part in forming student character. Extracurricular activities can build interaction between people who need character or value of mutual respect, abandon selfishness, accept the opinions of others, be responsible, cooperate, not apathetic, and other good values. These values must be realized by students so that these activities can run well and in accordance with expectations (Ningsih, 2015: 198).

School is an interaction between students and students, students and teachers, and teachers and teachers. Thus, the learning process requires two-way interaction in character building in the school environment, both in class and outside the classroom, because classes and schools are miniatures of life, like a portrait of people's lives with all their problems. For children, the school is a laboratory for learning in society. The fact is that society is pluralistic, so a pleasant school must also turn on plurality and maintain the uniqueness of each child (Farida et al., 2014: 95). So that this laboratory is used as well as possible by teachers to bring students towards the millennial generation era that is increasingly open. Everyone or the whole world will see our behavior as human beings through the internet.

Extracurricular activities are activities carried out by schools in supporting the process of planting character values of students. Forming the character of students can be done through scout activities, PMR (Young Red Cross organization), spirituality, sports, arts, and recitations.

Intracurricular and extracurricular activities in schools produce 18 characters, namely: (1) religious, (2) honest, tolerant, (4) discipline, (5) cooperation, (6) creative, (7) independent, (8) democratic, (9) curiosity, (10) national spirit, (11) love for the motherland, (12) respect for achievement, (13) friendly / communicative, (14) love for peace, (15) love to read, (16) care for the environment, (17) social care, and (18) responsibility. These values are the ones expected by the school, family, and society. The formation of high nationalist character and spirit needs to be improved in the era of industrial revolution 4.0. Therefore, character building through intracurricular and extracurricular activities is very important to be carried out to achieve the education objectives as mandated in Law No. 20 of 2003 concerning the National Education System.

D. Conclusion

Smart teachers are expected figures in the era of industrial revolution 4.0. They must try to change the learning process by using increasingly sophisticated technology and changing the way of teaching. Changes made by teachers in learning process are important in managing the class. In this era, teachers should innovate in education because the education sector is the spearhead in educational innovation and is the front guard in welcoming the millennial 4.0 era.

Smart teachers are expected to master four competencies in facing the era of industrial revolution 4.0. With the mastery of these four competencies, teachers will be able to answer educational problems, especially the formation of student character in this era. The role of the teacher in shaping the character of students in this revolutionary era is very important.
Character formation must be implemented so that students do not lose direction in their social relationship. In this revolutionary era 4.0, smart students always want to know what is and is happening at this time. Teachers can shape their character through intracurricular activities. They play a role as facilitators or leaders who have compassion and can be role models by showing good personality and high social characteristics so that students who learn in the classroom do not feel depressed. The teacher must create pleasant classes so that the process of learning and character building through intracurricular results can produce good results.

Forming characters in the era of industrial revolution through extracurricular activities is very important. Students are expected to be human beings who have the following characters: (1) religious, (2) honest, tolerant, (4) discipline, (5) cooperation, (6) creative, (7) independent, (8) democratic, (9) curiosity, (10) national spirit, (11) love for the country, (12) respect for achievement, (13) friendly / communicative, (14) love for peace, (15) love to read, (16) care for the environment, (17) care for the social, and (18) responsibility. These character values are the values expected in schools, families, and communities to be possessed by students.

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