Trends in Qualitative Research in the Japan Society for Educational Technology *

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The purpose of this article is to identify trends in qualitative research published in the journal of the Japan Society for Educational Technology (JSET) and discuss the value and issues concerning and outlook for qualitative educational technology research. We analyzed articles featured in the JSET journal between 2006 and 2017 (issues 30:1 to 41:1), arranged these articles into four categories: “primary, secondary, and preschool education,” “higher education,” “adult education,” and “other” and identified the trends in these categories. Studies that used qualitative methods accounted for 13% of the articles over the past 10 years. Despite this small percentage, these studies have helped extend the focus of educational technology research to the socio-historical aspects of learning and the subjective reflections of participants, that prior educational technology research have not addressed adequately. However, there are challenges for qualitative research in educational technology in terms of the consistency of its epistemologies and research methodology for capturing the dynamics of learning. The purpose and process of qualitative research vary depending on the approaches the authors adopt when analyzing qualitative data. Therefore, educational technologists who adopt qualitative approaches should clarify their epistemological stance as well the procedures and analytical methods deployed in their research.

Key words : educational technology, qualitative research, research trends, epistemology

1. INTEREST IN QUALITATIVE RESEARCH IN EDUCATIONAL TECHNOLOGY (Makiko Kishi)

Educational technology develops theoretical and practical frameworks in which one analyzes learner-related issues, and designs, develops, implements, and evaluates strategies for solving these issues. An example of a research outcome is the instructional design model. In instructional design, one examines the conditions of learning and then uses these findings to develop programmed instruction while incorporating a systems approach.

Japanese educational technologists traditionally focused on technology and education, highlighting the role of technology in education and the adaptation of technology to the learning process. A key research theme was how to develop learning programs that use these tools. However, from the 1980s onward, Japanese educational technologies started focusing on the role of educational engineering as a tool to improve understanding of learning processes. Learning and problem-solving processes themselves came to be viewed as educational technology. Such technology has become essential to the process of critically evaluating and improving lessons (education as technology). As such, educational technologists should study the dynamics that occur during classes.

During its development as described above,
educational technology research in Japan has encompassed four types of research. The first type of research involves studying an effective practice and generalizing the results. By repeating this effective practice, educational technologists aim to extract patterns and then establish a representative model. The second type of research involves putting theory into practice. This research is based on a theory–application paradigm, but the aim is to identify practical knowledge grounded in the situational context of a given learning environment. The third type of research involves ascertaining the latent functions in the learning environment, including the kinds of processes that create the practice, as well as the structures of such processes. The final type of research develops practice and theory in the learning environment dialectically. Described as “action research,” this type of research aims to construct knowledge through a collaborative process between the researchers and practitioners. The above types of research may involve quantitative or qualitative data, depending on the purpose of the study concerned.

Educational technology developed based on behavioral psychology, and during 1960s, logical positivism was the prevalent trend. However, the research themes broadened, and in the 1990s, the discipline became influenced by constructivism, which assumes that learning is a sociocultural phenomenon. Since research that identified the sociocultural aspects of learning was already underway under the prism of cultural–historical activity theory, the originator of which was Lev Vygotsky, educational technologists too were starting to explore the sociocultural aspects that learners embodied in a given learning environment and the meanings of their acts (e.g., Resnick 1994; Jonassen 1991, 1999; Kafai 1995, 1996, etc.)

As for the situation in Japan, while there were no qualitative studies at all in the 1990s (Kubota 2009), Japanese educational technologists were starting to be influenced by the view of constructivism on knowledge, and they were becoming increasingly aware of the need to introduce a new methodology (Kubota 1995). One impetus behind the rising interest in a new view of knowledge was a 1995 anthropological study by Jean Lave, in which she conducted fieldwork on a broad range of learning processes culminating in a compelling disquisition (Lave 1995). Lave explored a view of learning underlining school systems, and she presented several case studies to illustrate how learning is a sociocultural phenomenon. Following suit, Jun Nakahara produced a qualitative disquisition in 1999 from an ethnographical perspective in the JSET journal. This was followed by, gradually, other qualitative disquisitions attempting to identify a diverse array of learning processes and capture the sociocultural aspects of learning. This shift in the research is also evident from the theoretical models that these disquisitions referenced, among which were “Legitimate Peripheral Participation” (Lave and Wenger 1991), “reflective practitioner” (Schön 2001), “situational awareness” (Suchman 1999), “Zone of Proximal Development” (Vygotsky 2003), and “cognitive apprenticeship” (Collins 2006).

Amid this shift, many Japanese educational technologists developed the view that knowledge does not reside in the minds of individuals, but is socio–culturally constructed. Japanese educational technologists are now increasingly interested in the sociocultural aspects of a range of learning processes and instructional models, and they are increasingly influenced by models of knowledge acquisition. However, their research presents problems regarding the consistency of the epistemological frameworks and methodology of studying knowledge and learning, and Kubota has criticized the researchers’ simplistic eclecticism (Kubota 2009). Table 1 presents the three epistemological frameworks of knowledge and the research approaches for each (Minoura 2009). The dominant approach in educational technology is the logical positivist approach. The logical positivist approach aims to generalize knowledge. In the context of educational technology, this means presenting prescriptive findings that anyone can use. Educational technologists first analyze the problems and needs in a given setting and set a goal for resolving them. They then develop practices or systems to meet this goal and then refine them through repeated tests and evaluations. This process should yield rational findings. In contrast, researchers who adopt an interpretive approach will present descriptive findings to clarify in detail what is happening in the given environment. As used in educational technology, this approach involves focusing on the processes and interactions in a range of environments, and then carefully examining the characteristic processes and structures thereof through a qualitative analysis, using the findings to design learning environments. Educational technologists taking this approach will present specific case studies, together with an
explanation of the context, to provide comparable and translatable findings. It is then left to readers to decide how best to use these findings. As for the critical approach, in the educational technology context, this corresponds to action research. Educational technologists and practitioners work together to find solutions to problems affecting real schools and classrooms. Educational technologists taking this critical approach will analyze how things are and compare them with how things could ideally be. They then conduct practice as an action (intervention) with the aim of ushering in the necessary reforms.

All three approaches have plenty of application scope in the field of educational technology; each has been used for designing systems, including interface design, ascertaining the cognitive and learning processes studied in cognitive science, or proposing principles for lesson design. As such, one can find educational technology studies for each of these approaches. However, there have not been enough discussed on the value and issues of qualitative research in educational technology so far. Therefore, the present paper analyzes the qualitative studies that featured in the JSSET journal with the aim of ascertaining the distinctive features of qualitative research in educational technology and discussing the value of, and issues concerning, said research.

2. RESEARCH PURPOSE AND METHOD
(Jumpei Tokito)

2.1. Research Purpose
In this article, we identify the trends over the past ten years in qualitative educational technology research and discuss the nature of them. In this way, we aim to show the distinctive features of qualitative educational technology research in Japan and discuss the value of and issues concerning it.

<table>
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<th>Table 2: Results of Analysis of Articles</th>
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<tr>
<td>Category</td>
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<tr>
<td>Primary, Secondary, or Preschool Education</td>
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<tr>
<td>Higher Education</td>
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<td>Adult Education</td>
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<td>Other</td>
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2.2. Method for Analyzing Trends in Qualitative Research
To identify the trends in qualitative educational technology research in Japan, we analyzed qualitative articles from issues of the JSET journal going back ten years. Specifically, we analyzed all articles in the Japanese-language issues excluding general overview articles, survey articles, and short notes. We ultimately analyzed 440 articles from issue 30:1 to issue 41:1, covering the years between 2006 and 2017. We classified these articles into four categories: 1. quantitative design, 2. qualitative design, 3. mixed-methods design, and 4. not applicable. When classifying the articles, we used three criteria: 1. the kind of data the study obtained (whether the data was qualitative), 2. the way the study analyzed the data (whether the data was analyzed qualitatively), and 3. the purpose of the study (whether the purpose was to highlight details of the research sample such as the specific context or their cognitive behavior). Articles that met all three criteria and analyzed only qualitative data were assigned to the qualitative design category, those that used a mix of qualitative and quantitative data were assigned to the mixed-methods design category, and those that used no qualitative data at all were assigned to the quantitative design category. Articles in which the research technique was unclear or where the purpose was not to obtain and analyze any data (such as in review articles) were assigned to the not applicable category.

2.3. Method for Analyzing Distinctive Features in Qualitative Research
We classified the articles that used qualitative data into four categories: 1. primary, secondary, or preschool education, 2. higher education, 3. adult education, and 4. other (see Table 2). We then highlighted the distinctive features of each category. To this end, we adopted two perspectives: 1. trends in research themes and 2. method of the qualitative data analysis.

3. RESULTS
3.1. Trends in Qualitative Educational Technology Research
Of the 440 articles taken from 10 back issues of the JSET journal, 113 used either a qualitative or mixed-methods design. Of these, 56 (13%) used a qualitative design and 57 (13%) used a mixed-methods design. Figure 1 presents the composition ratios for the 440 articles and the trends over time.

Of the articles in the JSET journal, 13% adopted a qualitative design, 13% adopted a mixed-methods design, and 70% adopted a quantitative design. This finding demonstrates that the quantitative design is the most adopted design among the articles in the journal.

Examining the changes in study design over time, we see that no major changes occurred in the numbers of qualitative or mixed-methods articles from 2006 onward.

SIG (Special Interest Group) –09: Qualitative Research, which began in 2015, has held many workshops and seminars. Many JSET members have attended these and shown interest in the topic of qualitative research. Thus, we expect that qualitative articles will, in the future, account for an increasing share of articles submitted to the journal.

3.2. Trends in Qualitative Research by Subject Area
Next, we discuss the distinctive features in the four categories of 1. primary, secondary, or preschool education, 2. higher education, 3. adult education, and 4. other.

3.2.1. Primary, Secondary, or Preschool Education
(Masaaki SUGIHARA)
In the studies on primary, secondary, or preschool education, the research samples consisted of small children or older schoolchildren. These articles tended to focus on acquiring narrative skills, developing 21st century skills, developing listening and speaking skills, developing critical thinking skills, transforming attitudes through collaborative learning, utilizing information in the development of practical skills, and assisting with career development. They also tended to analyze learner–educator communication, the features of instructional strategies, and methods of music education. Analysis of these research themes yielded the four categories shown in Table 3.

We then identified the following six trends among these qualitative articles:
1. We observed the tendency to use a technique in which the authors gathered qualitative data from a descriptive questionnaire or interview survey, assigned the data to different categories, and then measured the frequency of each category. This technique closely resembles a quantitative approach. As we mentioned in 2.2, our second criteria (qualitative data analysis) assumes that
data are analyzed qualitatively during the categorization process; however, we classified these studies as qualitative on the basis that they did not use an aggregation method during the categorization process, but instead used a qualitative categorization method.

(2) Among the mixed-methods studies, we observed a tendency to use qualitative methods to examine quantitatively determined factors and processes or to corroborate quantitatively determined findings. When selecting the sample, the authors used a quantitative approach to verify the validity of their sample and then introduced a qualitative analysis. Alternatively, they used a quantitative approach to select illustrative case studies that conformed to their hypothesis and then introduced a qualitative analysis.

(3) Some of the articles explained the reasoning for adopting a qualitative design while others did not. Examples of the explanations included the following: “Using qualitative data to generate theories for an area of research in which theoretical findings are currently scarce is very valuable. This technique is used because it will yield findings that can be applied in settings of educational practice” and “by checking specific case studies, one can clarify what impetuses exist for transforming the view of learning and career development.”

(4) Some of the articles outlined the procedures used in their qualitative analyses while others did not. Examples of explanations included the following: “(We adopted a) qualitative survey approach in which we attempted to explain the meaning of a social phenomenon while trying as far as possible to keep the phenomenon in its natural state undisturbed” and “(We performed a) hierarchical cluster analysis using Ward’s method with Jaccard distance.” Regarding the articles that did not explain their procedures, these studies tended to arbitrarily adopt their own method for presenting and interpreting codes, categories, and raw data. Moreover, among those authors who did explain their analytical procedures, some outlined their coding procedures in detail, and some performed coding and categorization on multiple labels/names and mentioned the concordance ratio of such.

(5) Some of the articles added, while others did not, notes about the need to bear in mind the subjectivity or social/cultural context of the findings when generalizing or theoretically modeling the qualitatively derived findings. These qualifiers tended to refer to the “subjectivity,” “specificity,” “comparability,” or “translatability” of the findings (Otani 2008). For example, some authors cautioned that their findings only constituted one case/sample and that, in the future, it would be necessary to analyze and compare other cases to ensure intersubjectivity and interpretability. Regarding those articles that did not add such cautionary notes, the authors of these articles simply posited their findings as generalizable unreservedly.

(6) Some of the articles tested hypotheses while others generated them. The former articles set a specific learning goal, introduced a learning material/system or curriculum/learning program, and evaluated how useful such an intervention was...
in reaching the learning goal. The latter type of articles did not set a specific learning goal. Instead, they examined the significance of a learning material/system, curriculum/learning program, or learner–instructor communication paradigm in an open-ended manner, exploring how such an intervention affects learning or the behaviors exhibited by learners.

The above represents the distinctive features of the qualitative literature on primary, secondary, or preschool education. While we do not intend to discuss the propriety of these features, it suffices to say that educational technologists who adopt a qualitative approach ought to be aware of what kind of paradigm they are relying on (see 1. Interest in Qualitative Research in Educational Technology) and continually seek the ideal approaches in qualitative research.

3.2.2. Higher Education (Daisuke KANEKO)

In the articles that concerned higher education, the research samples were usually undergraduate university students. Less frequently, postgraduate students were surveyed. Some of the samples consisted of students from a specific discipline—teacher training students in most cases—while others consisted of students from broader fields, such as nursing or engineering. Furthermore, in some cases, the students were from a specific academic year (e.g., freshmen or alumni and alumnae).

The analysis of the research themes yielded the six categories shown in Table 4.

We identified four trends among these qualitative articles.
(1) We found a tendency to use a technique in which the authors categorized data from descriptive answer–format questionnaires and then calculated the frequencies of each category, or categorizing data. We observed such a technique among the studies on primary and secondary education as well.
(2) We observed the tendency to use qualitative data to complement the analytical findings derived from quantitative data, which the authors had obtained from a questionnaire survey or other method. Specifically, many of the authors selected an illustrative example (one congruous with the findings derived from quantitative analysis) from among the descriptive questionnaire data or interview data and presented it as anecdotal evidence. Most of the authors did not clarify how they selected their examples. Some authors, in addition to presenting an anecdotal example, showed notes/records pertaining to teaching and learning settings. Notably, all the studies that exhibited features (1) and (2) had mixed-methods designs.
(3) Some of the authors who qualitatively analyzed qualitative data stated in the main text that they deployed an existing qualitative research method or qualitative data analysis method. In many cases, this method was the modified grounded-theory approach; other techniques included ethnography or grounded theory–based analysis.
(4) Some of the studies analyzed or interpreted qualitative data using their own unique method. Examples include studies that holistically analyzed qualitative data as case studies (e.g., students’ reflections or class transcripts). These studies were like ethnographies in that they used and interpreted all the data they obtained. In addition, some authors described their analytical procedure (such as stating that they used open coding or categorized the codes), and others cited, in the main text, the literature they referred to when designing their procedures. On the other hand, some studies interpreted data in their own arbitrary manner and summarized the findings without clarifying the details of their analytical procedures.

3.2.3. Adult Education (Sahomi KODAKA)

The articles pertaining to adult education can be divided into two broad categories: 1. studies where the sample consisted of employees in a specific occupation and 2. other studies. The participants in the former included educators, white-collar workers, nurses, workshop practitioners, cleaning workers with intellectual disabilities, and veteran sports instructors. The participants in the latter included novice museum curators. The former type of studies outnumbered the latter. Among the former type of studies, educators were the participants in approximately 60% of the cases.

The analysis of the research themes among the qualitative studies on adult education yielded the 10 categories shown in Table 5. We identified the following six trends among the qualitative literature:
(1) As with other areas, in the area of adult education, the studies are broadly divided into those that mixed quantitative and qualitative methods and those that analyzed qualitative data qualitatively. The former type of studies can be further divided into two categories: 1. those that primarily analyzed the data quantitatively, but
bolstered or augmented the findings of the quantitative analysis by citing qualitative data or citing data after categorizing it; and 2. studies that combined quantitative and qualitative data and quantitative and qualitative analyses to evaluate the efficacy of a system the authors developed.

(2) Regarding the program development–related studies, the studies reported in the earlier issues of the journal tended to adopt a mixed-methods design in which they collected qualitative data at a program testing setting and then used a quantitative analysis to help them evaluate this data. In later issues, we see a shift in trend. These latter studies conducted experiments in class and training settings, collected the data, and then evaluated the efficacy of the class or training. Among the recent studies, there were also those that did not adopt the approach of developing and evaluating a program. Instead, they conducted fieldwork in assistive settings using the program they developed to generate a hypothesis that predicted the issues existing in practical settings.

(3) Most of the studies that analyzed qualitative data qualitatively used interview data. In the adult education area, there were studies that constructed learning models for training professionals or systems for helping professionals to grow professionally; these studies used techniques like storytelling and life story, and thereby collected narrative data on professionals’ experience. For example, some of these articles discussed the process by which professionals advanced their skills (Mori 2009 et al.) In this way, they explored professionals’ tacit knowledge and their own subjective or personal meanings and identified the variables in the learning environment that affect how professionals advance their skills through a non–institutionally structured process. An effective technique for this purpose is to use data from interviews in which the informants reflect on their experiences. Hence, many of the studies used the interview method.

(4) As was observed in the studies on primary, secondary, and preschool education, as well as those on higher education, some of the articles did

<table>
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<th>Research Theme</th>
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<tbody>
<tr>
<td>Develop a learning material or system (such as educational software or a learning system) and evaluate its efficacy</td>
<td>Themes related to educator–training and classroom–research, e.g., develop a model for action–research (jissen–kenkyû), develop a training program for a local government, develop an online instructor–support system, etc.</td>
</tr>
<tr>
<td>Conduct a class using an existing learning material or system and evaluate its efficacy</td>
<td>Themes related to educator–training and classroom–research, e.g., compare novice and veteran instructors, examine how instructors mature through reciprocal actions.</td>
</tr>
<tr>
<td>Implement diverse learning strategies (including collaborative learning, group learning, and project–based learning) and a curriculum or class design based on the strategies</td>
<td>Themes related to new responses to issues and new teaching methods, e.g., sports instruction, programming instruction, and forming consensus with parents/guardians.</td>
</tr>
<tr>
<td>Elucidate the students’ learning environment and the modes of learning in the environment</td>
<td>Themes related to models for specialized learning, e.g., the continually learning teacher (models describing instructors’ experiential learning), maturation in workshop practitioner design.</td>
</tr>
<tr>
<td>Informal learning such as service–learning or learning commons</td>
<td>Themes related to education management, e.g., improving schools, developing a school’s organizational framework, inter–educator communication, etc.</td>
</tr>
<tr>
<td>Other themes such as classifying something based on fact–finding, studying education management, or conducting a workshop</td>
<td>Themes concerning the professional development of university–based educator–trainers (faculty development), e.g., developing course portfolios and models that describe classroom image construction.</td>
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Table 4: Research Themes among the Studies on Higher Education

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<tr>
<th>Research Theme</th>
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<tr>
<td>Themes related to educator–training and classroom–research, e.g., develop a model for action–research (jissen–kenkyû), develop a training program for a local government, develop an online instructor–support system, etc.</td>
<td>Themes concerning in–company training, e.g., on–the–job business training for new recruits and training/development for novice nurses.</td>
</tr>
<tr>
<td>Themes related to new responses to issues and new teaching methods, e.g., sports instruction, programming instruction, and forming consensus with parents/guardians.</td>
<td>Themes concerning out–of–company training for employees that help them establish their career.</td>
</tr>
<tr>
<td>Themes related to models for specialized learning, e.g., the continually learning teacher (models describing instructors’ experiential learning), maturation in workshop practitioner design.</td>
<td>Themes concerning educational media, e.g., develop a system that helps museum exhibits to be displayed and viewed, use of digital cameras among employees with intellectual disabilities.</td>
</tr>
<tr>
<td>Themes related to education management, e.g., improving schools, developing a school’s organizational framework, inter–educator communication, etc.</td>
<td>Themes concerning international cooperation and classroom–research in developing countries.</td>
</tr>
</tbody>
</table>

Table 5: Research Themes among Studies on Adult Education
not adequately outline the theoretical framework they used in their analyses, the specific techniques they deployed, or the procedures they used. To ensure that a study’s analytical findings can contribute to further research, it is essential to clearly explain how the data was obtained, how the findings were derived, and how the practice was related to the informants.

3.2.4. “Other” (Ryota Yamamoto)

As for the articles categorized as “other,” we identified no common themes. Some of the studies discussed research techniques that aimed to present fresh perspectives on qualitative data analysis. There were also studies that piloted new technologies and then conducted an exploratory analysis of the learning efficacy thereof. For example, some studies developed learning games, some developed systems that helped segregate duties in innovative ways, some piloted remote counselling systems that operated through the Internet or through robot technology, some used augmented reality, some investigated measures for supporting learners with disabilities outside of special support schools, and some investigated learning in a museum setting.

When we examined the set of nine articles, which excluded articles that discussed research methodology, we identified the following trends: trends that (1) examined learners’ perceptions toward the tool or system the study piloted, (2) focused on how the tool or system the study piloted mediated learners’ actions, and (3) examined how learners acted and how the learning environment mediated those actions.

Regarding (1), those studies piloted a newly developed tool or system and examined learners’ perceptions toward it. For example, Fukuyama and Nakahara (2012) developed and evaluated a card game designed to elicit psychological factors that facilitated cooperative behavior in dilemma situations. Another example is a study by Kishi, Murase, and Nojima (2007), which evaluated a remote counselling system that operated online.

The studies grouped under the (2) trend likewise deployed newly developed tools or systems. However, rather than examining learners’ perceptions, these studies focused on how learners’ behavior was modified because of the intervention. Okumoto and Kato (2010), for example, developed a preliminary learning tool that helped people interpret museum exhibits, and they examined how this tool affected the way in which people viewed actual exhibits. A commonality of (1) and (2) is that the study’s purpose was to develop and evaluate a tool or system. As such, many of the studies piloted a specific tool or system among learners in an experimental environment with the aim of evaluating the tool or system itself. These studies can be grouped among hypothesis-testing studies in that they place importance on confirming whether their simulated learning conditions were functioning adequately. There were eight studies that corresponded to (1) or (2). Around half of these adopted a mixed-methods design. In many cases, this involved interviewing participants for a short time after the experiment and then extracting from the interview data utterances that illustrated the learners’ perceptions and the intentions behind their actions.

As for (3), like (2), the studies focused on the learners’ actions. However, in doing so, they did not focus on how a specific tool or system mediated the learners’ actions, rather, they looked more broadly at the learning environment and discussed how it affected the learners’ actions. Ueno and Sawyer (2010) analyzed records of educational practices to determine how modern web skills learning was established. Unlike other studies, this study did not focus on a specific tool or system. Instead, it explored the environmental factors that influence learning. The study also explored all the learning environment factors present without controlling these conditions beforehand. In this respect, the study can be grouped with the hypothesis-generating studies. Thus, articles assigned to the “other” category tended to focus on areas not previously explored in educational technology. Furthermore, many of these studies evaluated a tool or system. Therefore, relatively few were hypothesis-generating studies.

4. CONCLUSION

We surveyed the qualitative and mixed-methods articles in the JSET journal and grouped them into four categories: “primary, secondary, and preschool education,” “higher education,” “adult education,” and “other.” We then examined each category to determine the trends among the articles therein regarding the kind of qualitative research they deployed. We summarize our findings below.

Looking first at the changes over time, as an overall trend, the number of educational technology articles that adopted a qualitative or
mixed-methods design did not increase from 2006 onward. However, the fact that 13% of educational technology articles now use a qualitative research method does represent a major shift given that none of the articles up to the early 1990s deployed any qualitative. Moreover, given the interest among JSET members in SIG-09, it is likely that many more future studies will use qualitative techniques.

Next, we arranged the articles that used qualitative data into four categories—"primary, secondary, and preschool education," "higher education," "adult education," and "other"—and discussed the trends within each category. Among the studies that corresponded to the first two of these categories, we found two commonalities. First, in both categories, we found studies that investigated competences or skills. Traditionally, educational technologists who evaluate education chiefly rely on quantitative data such as scholastic tests. However, qualitative data is not so suitable for measuring how well learners are attaining 21st century skills, learning deeply through subjective processes or dialogues, or attaining basic social or generic skills. Thus, qualitative research can inform not only methodology, but also the ways in which educational attainment is evaluated.

Second, when developing and evaluating a system, learning material, or similar educational technology, the studies tended to cite illustrative examples. The authors of these studies wanted to investigate factors that could not be adequately captured by predetermined variables. Therefore, they collected data using interviews, descriptive questionnaires, and participant observation, and analyzed this qualitative data to augment the findings of their quantitative analyses. This trend suggests that educational technologists are broadening their perspectives, focusing additionally on the social interplay in learning and development, the changes in such interplay, and the role of the learning environment.

Among the articles on higher education, we observed a tendency to focus on informal learning. Many of the authors examined learning in the context of service-learning or learning commons, as well as non-classroom learning such as workshops. Since there are no explicitly defined learning goals in informal learning, quantitative data is not suitable for assessing learning outcomes. Furthermore, insofar as one adopts the premise that students’ self-driven learning arises out of an interplay with their environment, one must examine the environment and learning, treating them as intrinsically connected entities, and one cannot easily do so using quantitative data.

Regarding the articles on adult education, as with the first two categories, many of the studies developed and evaluated a system for enhancing competences. However, these studies were different from the studies in the first two categories in two respects. First, they examined classroom learning processes that are not institutionalized. For example, those authors who examined how educators mature professionally tended to focus on the learning that occurs in the interplay between novice and veteran educators. Second, many of the studies focused on the sociocultural aspects of learning. In many cases, adult education entails encounters with other groups or other types of people, and there is a myriad of different experiences, existing knowledge, and interests to account for. Furthermore, in adult learning, the content that learners learn and the way they learn it depends on how the learners engage with the lesson content and the extent of their participation; therefore, educational technologists exploring adult education must describe in more detail the contexts in which the learning occurs.

As for the articles in the “other” category, these tended to be practical studies that investigated a cutting-edge tool or method. These studies were piloting new practices with scarcely any precedents to follow; as such, one of their key characteristics was that they sought to thoroughly examine a single practice.

4.1. The Value of Qualitative Research in Educational Technology

In light of the above findings, we can summarize the value of qualitative research in educational technology as follows: First, educational technologists have traditionally sized up learning and development by measuring the cognitive changes in the learner. However, by adopting qualitative approaches, they can capture such learning and development from a different angle—by observing changes in the dynamics present in the sociocultural context. Second, educational technologists have traditionally measured time in a uniform and homogenous manner. However, by adopting qualitative approaches, they have the option of focusing on a biographical perspective. Studies that focus on learners’ life histories are an example of this
Third, many educational technologists determine learning goals beforehand and then, based on these predetermined goals, quantitatively and objectively measure the learning outcomes. However, if they adopt qualitative approaches, they can extract subjective (first-person) narratives of the participants and then identify in their personal/subjective meanings the significance of the learning and the various ways in which learners learn. This point is amply illustrated by the fact that many of the qualitative articles we surveyed used the narratives of the participants—in the form of interview data for example—as their subject of analysis.

4.2. An Issue concerning JSET’s Qualitative Research

We have confirmed that many Japanese educational technologists have used qualitative data, but there is still an issue to address. Namely, many of the authors did not adequately explain their research methods. When you work with qualitative data, you must be aware of your position in relation to the knowledge. Where educational technologists use qualitative data as part of a logical positivist approach, their aim in doing so is to verify their hypothesis and then generalize the findings. To this end, they use short interviews and descriptive questionnaires. For example, Shima, Watanae, and Ito (2016) primarily analyzed their data quantitatively and used qualitative data to augment their quantitative findings. Other educational technologists take an interpretive approach whereby they decipher a phenomenon occurring in a learning environment. These educational technologists focus on the participants’ situational context and subjective meanings, and they analyze data obtained from long-term participant observation and 1–2-hour interviews (e.g., Kishi, Kubota, and Morioka 2010). Finally, there are also educational technologists who take a critical approach with the aim of reforming a learning environment (action research). These educational technologists work alongside practitioners to reform (improve) practices. Konno, Kishi, and Kubota (2011), for example, aimed to improve classroom lessons in a school. To achieve this, they worked with teacher–supervisors and used qualitative data obtained from interviews and observation.

Thus, the purpose, focus, and process of qualitative research vary depending on the approaches the authors adopt when working with qualitative data. Therefore, educational technologists who adopt qualitative approaches should clarify their epistemological stance as well as the procedures and analytical methods they deploy in their research.

4.3. Outlook for Qualitative Research in Educational Technology

In response to the above concerns, SIG-09 has undertaken the following activities: First, it has organized seminars and workshops focusing on methodology. These events have covered research methods and approaches such as grounded theory, conversation analysis, ethnography, action research, the trajectory equifinality approach (Yasuda et al. 2015), as well as analytical methods like steps for coding and theorization (Scat; Otani 2011). When educational technologists adopt such approaches, they need to be aware of the epistemological framework they are using. Accordingly, SIG-09 has also organized seminars on theoretical grounding in qualitative research (Minoura 2017).

Another example of an activity SIG-09 has undertaken is a reading circle concerning the value of qualitative research in educational technology. Members read up on theories like cultural psychology (Valsiner 2013) and situated learning (Lave and Wenger 1991). They then discuss the diverse aspects of learning and development in light of these theories in order to deepen their understanding. In addition, during a symposium at JSET’s 2015 conference, Sayeki (2015) helped introduce first-person research (Suwa and Fujii 2015; Suwa, Hori, and The Japanese Society for Artificial Intelligence 2015). SIG-09 also organized ongoing study meetings on first-person research, and these meetings have culminated in a report on the value that first-person research holds for JSET (Kishi et al. 2016).

Through the above activities, SIG-09 has helped raise members’ interest in the role of qualitative research in educational technology. However, qualitative studies still represent only a small share of the studies selected from JSET journal. Looking forward, to ensure that qualitative research will continue to make a valuable contribution to educational technology, it is important to formulate proper evaluation criteria for peer review. The existing criteria for the peer review of qualitative educational technology research is insufficient. At present, items to include, length, and other criteria for evaluating whether authors have outlined their
procedures and analytical findings satisfactorily are much vaguer compared to those used for logical positivist research. It is essential to critically analyze peer review methods for qualitative studies selected for JSET journal. It is also important to work alongside other societies such as the Japanese Association of Qualitative Psychology in establishing proper standards for the peer review of qualitative educational technology research. Another essential step for facilitating qualitative educational technology research is to organize a program for training qualitative educational technologists.

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